

Program in Chronological Order

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* Author Name – Corresponding Author • * Following Paper Title – Paper not Available

Wednesday, 29 August 2012

WeA01: 08:00-09:30 Sapphire A
1.1.1 Nonstationary Processing of Biomedical Signals (Oral Session)
Chair: Chon, Ki (*Worcester Pol. Inst.*)
Co-Chair: Jimison, Holly (*Oregon Health & Science Univ.*)

08:00-08:15 WeA01.1
Extraction of Stationary Components in Biosignal Discrimination 1-4
*Martínez-Vargas, Juan David** (*Universidad Nacional de Colombia*); *Cardenas-Peña, David* (*Universidad Nacional de Colombia*); *Castellanos-Dominguez, Germán* (*Universidad Nacional de Colombia*)

08:15-08:30 WeA01.2
Optimization of Heartbeat Detection Based on Clustering and Multimethod Approach 5-8
*Sprager, Sebastijan** (*University of Maribor, Faculty of Electrical Engineering and Computer Science*);
Zazula, Damjan (*University of Maribor*)

08:30-08:45 WeA01.3
Training Using Short-Time Features for OSA Discrimination 9-12
Sepúlveda Cano, Lina María (*Universidad Nacional de Colombia Sede Manizales*); *Alvarez-Meza, Andres Marino** (*Universidad Nacional de Colombia*); *Castellanos-Dominguez, Germán* (*Universidad Nacional de Colombia*)

08:45-09:00 WeA01.4
Instantaneous Estimation of High-Order Nonlinear Heartbeat Dynamics by Lyapunov Exponents 13-16
Citi, Luca (*MGH / Harvard Medical School*); *Valenza, Gaetano* (*University of Pisa*);
*Barbieri, Riccardo** (*MGH-Harvard Medical School-MIT*)

09:00-09:15 WeA01.5
Automated EEG Inter-Burst Interval Detection in Neonates with Mild to Moderate Postasphyxial Encephalopathy 17-20
*Matic, Vladimir** (*Katholieke Universiteit Leuven and IBBT-K.U. Leuven FutureHealth Department, Leuven*);
Cherian, Joseph Perumpillichira (*Clinical Neurophysiology, Department of Neurology, ErasmusMC, Rotterdam*);
Jansen, Katrien (*Department of Pediatrics, University Hospital Gasthuisberg, Leuven*); *Koolen, Ninah* (*Katholieke Universiteit Leuven and IBBT-K.U. Leuven Future Health Department, Leuven*); *Naulaers, Gunnar* (*University Hospitals Leuven*); *Swarte, Renate* (*The Department of Neonatology, Sophia Children's Hospital, Erasmus MC, Rotterdam*); *Govaert, Paul* (*The Department of Neonatology, Sophia Children's Hospital, Erasmus MC, Rotterdam*); *Visser, Gerhard* (*Clinical Neurophysiology, Department of Neurology, Erasmus MC, Rotterdam*); *Van Huffel, Sabine* (*Katholieke Universiteit Leuven*); *De Vos, Maarten* (*KU Leuven*)

09:15-09:30 WeA01.6
A State-Space Model for Finger Tapping with Applications to Cognitive Inference 21-24
*Austin, Daniel** (*Oregon Health & Science University*); *Petersen, Johanna* (*Oregon Health & Science University*);
Jimison, Holly (*Oregon Health & Science University*); *Pavel, Michael* (*Oregon Health and Science University*)

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| WeA02: 08:00-09:30 | Sapphire D |
| 1.3.1 Nonlinear Analysis of Biomedical Signals I (Oral Session) | |
| Chair: Marmarelis, Vasilis (<i>Univ. of Southern California</i>) | |
| Co-Chair: Mitsis, Georgios D. (<i>Univ. of Cyprus</i>) | |

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| Identifying Increased Risk of Post-Infarct People with Diabetes Using Multi-Lag Tone-Entropy Analysis | 25-28 |

Karmakar, Chandan K. (The University of Melbourne); Jelinek, Herbert Franz (Charles Sturt University); Khandoker, Ahsan Habib (The University of Melbourne); Tulppo, Mikko (Verve); Mäkikallio, Timo (University of Oulu); Kiviniemi, Antti (Verve); Huikuri, Heikki (University of Oulu); Palaniswami, Marimuthu (The University of Melbourne)*

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| 08:15-08:30 | WeA02.2 |
| Using Laguerre Expansion within Point-Process Models of Heartbeat Dynamics: A Comparative Study | 29-32 |

Valenza, Gaetano (University of Pisa); Citi, Luca (MGH / Harvard Medical School); Scilingo, Enzo Pasquale (University of Pisa); Barbieri, Riccardo (MGH-Harvard Medical School-MIT)*

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| Customization of Entropy Estimation Measures for Human Arterial Hypertension Records Segmentation | 33-36 |

Cirugeda-Roldan, Eva María (Politechnic University of Alcoy); Cuesta-Frau, David (Politechnic University of Valencia)*

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Shams, Ehsan (University of Manitoba); Karimi, Davood (University of Manitoba); Moussavi, Zahra (University of Manitoba)*

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| Biomedical Data Analysis by Supervised Manifold Learning | 41-44 |

Alvarez-Meza, Andres Marino (Universidad Nacional de Colombia); Daza-Santacoloma, Genaro (Universidad Nacional de Colombia); Castellanos-Dominguez, Germán (Universidad Nacional de Colombia)*

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| 09:15-09:30 | WeA02.6 |
| Effect of Spontaneous Arousals on Cardio-Respiratory Interaction in Healthy Children | 45-48 |

Kabir, Muammar Muhammad (The University of Adelaide); Kohler, Mark (University of South Australia); Abbott, Derek (The University of Adelaide); Baumert, Mathias (The University of Adelaide)*

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| WeA03: 08:00-09:30 | Sapphire E |
| 1.4.6 Signal Pattern Classification (Oral Session) | |
| Chair: Fotiadis, Dimitrios I. (<i>Univ. of Ioannina</i>) | |
| Co-Chair: Tong, Shanbao (<i>Shanghai Jiao Tong Univ.</i>) | |

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| 08:00-08:15 | WeA03.1 |
| Cortical Networks of Hemianopia Stroke Patients: A Graph Theoretical Analysis of EEG Signals at Resting State | 49-52 |

Wang, Lei (School of Biomedical Engineering, Shanghai Jiao Tong University); Guo, Xiaoli (Shanghai Jiao Tong University); Sun, Junfeng (Shanghai Jiao Tong University); Jin, Zheng (The 5th People's Hospital of Shanghai); Tong, Shanbao (Shanghai Jiao Tong University)*

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| 08:15-08:30 | WeA03.2 |
| Segmentation of Atherosclerotic Carotid Plaque in Ultrasound Video | 53-56 |

Loizou, Christos (Intercollege); Petroudi, Styliani (University of Cyprus); Pattichis, Constantinos (University of Cyprus); Pantziaris, Marios (The Cyprus Institute of Neurology and Genetics); Kasparis, Takis (Cyprus University of Technology); Nicolaidis, Andrew (Imperial College)*

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| 08:30-08:45 | WeA03.3 |
| Applications of Supervised Learning to Biological Signals: ECG Signal Quality and Systemic Vascular Resistance | 57-60 |

Redmond, Stephen James (University of New South Wales); Lee, Qim Yi (The University of New South Wales); Xie, Yang (The University of New South Wales); Lovell, Nigel H. (University of New South Wales)*

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| 08:45-09:00 | WeA03.4 |
| Categorization of COPD Patient's Health Level through the Use of the CHRONIOUS Wearable Platform | 61-64 |
| <i>Bellos, Christos (FORTH BRI Foundation for Research and Technology -Hellas,Biomedical Research); Papadopoulos, Athanasios (Foundation for Research and Technology); Rosso, Roberto (Tesan S.p.A.); Fotiadis, Dimitrios I.* (University of Ioannina)</i> | |
| 09:00-09:15 | WeA03.5 |
| Vision-Based Absence Seizure Detection | 65-68 |
| <i>Pediaditis, Matthew* (ICS-FORTH); Tsiknakis, Manolis (ICS-FORTH); Koumakis, Lefteris (Foundation for Research and Technology Hellas); Karachaliou, Marianna (University of Crete, Department of Social Medicine, Faculty of Medicine); Voutoufianakis, Spyridon (Venizelion General Hospital, Department of Pediatrics); Vorgia, Pelagia (University of Crete, Faculty of Medicine)</i> | |
| 09:15-09:30 | WeA03.6 |
| The Detection of Freezing of Gait in Parkinson's Disease Patients Using EEG Signals Based on Wavelet Decomposition | 69-72 |
| <i>Handojoseno, Aluysius Maria Ardi* (University of Technology, Sydney); Shine, James M. (Parkinson's Disease Research Clinic, Brain and Mind Research Institute, University of Sydney); Nguyen, Tuan Nghia (University of Technology, Sydney); Tran, Yvonne (University of Technology, Sydney); Lewis, Simon J.G. (Parkinson's Disease Research Clinic, Brain and Mind Research Institute, University of Sydney); Nguyen, Hung T. (University of Technology, Sydney)</i> | |
| WeA04: 08:00-09:30 | Sapphire 412 |
| 2.1.1 MRI I: Flow and Diffusion (Oral Session) | |
| Chair: Amini, Amir (<i>Univ. of Louisville</i>) | |
| Co-Chair: All, Angelo (<i>Johns Hopkins Univ.</i>) | |
| 08:00-08:15 | WeA04.1 |
| Under-Sampling Trajectory Design for Compressed Sensing MRI | 73-76 |
| <i>Liu, Duanduan* (The Chinese University of Hong Kong); Liang, Dong (University of Wisconsin, Milwaukee); Liu, Xin (Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences); Zhang, Yuan-Ting (The Chinese University of Hong Kong)</i> | |
| 08:15-08:30 | WeA04.2 |
| A Novel Phase-Corrected 3D Cine Ultra-Short TE (UTE) Phase-Contrast MRI Technique | 77-81 |
| <i>Kadbi, Mo* (University of Louisville); Wang, Hui (University of Louisville); Negahdar, MJ (University of Louisville); Warner, Lizette (Mayo Clinic); Kotys, Melanie (Philips Healthcare); Martin, Peter (Philips healthcare); Amini, Amir (University of Louisville)</i> | |
| 08:30-08:45 | WeA04.3 |
| DTI for Assessing Axonal Integrity after Contusive Spinal Cord Injury and Transplantation of Oligodendrocyte Progenitor Cells | 82-85 |
| <i>Bazley, Faith A.* (Johns Hopkins University); Pourmorteza, Amir (Johns Hopkins University School of Medicine); Gupta, Siddharth (Johns Hopkins University); Pashai, Nikta (Johns Hopkins University); Kerr, Candace (University of Maryland); All, Angelo (Johns Hopkins University,)</i> | |
| 08:45-09:00 | WeA04.4 |
| Simultaneous ODF Estimation and Tractography in HARDI | 86-89 |
| <i>Cetingul, Hasan Ertan* (Siemens Corporate Research and Technology); Nadar, Mariappan (Siemens Corporate Research and Technology); Thompson, Paul (University of California, Los Angeles); Sapiro, Guillermo (University of Minnesota); Lenglet, Christophe (University of Minnesota)</i> | |
| 09:00-09:15 | WeA04.5 |
| Diffusion Imaging with Balanced Steady State Free Precession | 90-93 |
| <i>Cheung, Matthew M. (The University of Hong Kong); Wu, Ed X.* (The University of Hong Kong)</i> | |
| 09:15-09:30 | WeA04.6 |
| Impact of DTI Smoothing on the Study of Brain Aging | 94-97 |
| <i>Viswanath, Varsha* (University of California, Davis); Fletcher, Evan (University of California, Davis); Singh, Baljeet (University of California, Davis); Smith, Noel (University of California, Davis); Paul, Debashis (University of California, Davis); Jie, Peng (University of California, Davis); Chen, Jun (University of California, Davis); Carmichael, Owen (University of California, Davis)</i> | |

2.6.2 Image Improvement I (Oral Session)
Chair: Alirezaie, Javad (*Ryerson Univ. Univ. of Waterloo*)
Co-Chair: Carmichael, Owen (*Univ. of California, Davis*)

08:00-08:15 WeA06.1

Variational Level Set Approach for Automatic Correction of Multiplicative and Additive Intensity Inhomogeneities in Brain MR Images 98-101
*Verma, Nishant** (*The University of Texas at Austin*); *Cowperthwaite, Matthew* (*NeuroTexas Institute, St. David's Healthcare*); *Markey, Mia* (*The University of Texas at Austin*)

08:15-08:30 WeA06.2

Illumination Correction in Dermatological Photographs Using Multi-Stage Illumination Modeling for Skin Lesion Analysis 102-105
*Glaister, Jeffrey** (*University of Waterloo*); *Wong, Alexander* (*University of Waterloo*); *Clausi, David Anthony* (*University of Waterloo*)

08:30-08:45 WeA06.3

MRI Non-Uniformity Correction through Interleaved Bias Estimation and B-Spline Deformation with a Template 106-109
*Fletcher, Evan** (*University of California, Davis*); *Carmichael, Owen* (*University of California, Davis*); *DeCarli, Charles* (*University of California, Davis*)

08:45-09:00 WeA06.4

3D Nonlinear Complex-Diffusion Filter on GPU 110-113
*Rodrigues, Pedro** (*Association for Innovation and Biomedical Research on Light and Image*); *Serranho, Pedro* (*IBILI, Faculty of Medicine, University of Coimbra*); *Bernardes, Rui* (*University of Coimbra*)

09:00-09:15 WeA06.5

Medical Image Denoising Using Low Pass Filtering in Sparse Domain 114-117
Abhari, Kaveh (*Ryerson University*); *marsoosi, mahdi* (*K.N. Toosi University of Technology*); *Alirezaie, Javad** (*Ryerson University, Univ of Waterloo*); *Babyn, Paul* (*University of Saskatchewan*)

09:15-09:30 WeA06.6

A Cell Counting Method for BEVS Based on Nonlinear Transformed Sliding Band Filter 118-121
*Sui, Dong** (*Biocomputing Research Center, School of Computer Science and Technology, Harbin Institute of Technology, Harbin, China*); *Wang, Kuanquan* (*Biocomputing Research Center, School of Computer Science and Technology, Harbin Institute of Technology, Harbin, China*); *yongfeng, yuan* (*Biocomputing Research Center, School of Computer Science and Technology, Harbin Institute of Technology, Harbin, China*)

3.1.6 Electrical Bioimpedance (Oral Session)
Chair: Martinsen, Ørjan G (*Univ. of Oslo*)
Co-Chair: Seoane, Fernando (*Univ. of Borås*)

08:00-08:15 WeA07.1

Electrical Impedance Tomography for Hemodynamic Monitoring 122-125
*Leonhardt, Steffen** (*RWTH Aachen University*); *Pikkemaat, Robert* (*RWTH Aachen University*); *Ola, Stenqvist* (*Sahlgrenska University Hospital, Göteborg*); *Lundin, Stefan* (*Sahlgrenska University Hospital, Göteborg*)

08:15-08:30 WeA07.2

Electrical Bioimpedance Cerebral Monitoring. Preliminary Results from Measurements on Stroke Patients 126-129
Atefi, Seyed Reza (*Royal Institute of Technology (KTH)*); *Seoane, Fernando** (*University of Borås*); *Lindecrantz, Kaj* (*Royal Institute of Technology*)

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| 08:30-08:45 | WeA07.3 |
| Minimally invasive in vivo human lung tissue bioimpedance measurements during the bronchoscopy procedure | 130-133 |
| <i>Sanchez, Benjamin* (Technical University of Catalonia, Barcelona, SPAIN); Vandersteen, Gerd (Vrije Universiteit Brussels, Brussels, Belgium); Martin, Irene (HSCSP); Castillo, Diego (HSCSP); Torrego, Alfons (HSCSP); Riu, Pere J (Technical University of Catalonia (UPC)); Schoukens, Johan (Vrije Universiteit Brussel); Bragos, Ramon (Technical University of Catalonia (UPC))</i> | |
| 08:45-09:00 | WeA07.4 |
| Binary Signals in Impedance Spectroscopy | 134-137 |
| <i>Min, Mart* (Tallinn University of Technology); Ojarand, Jaan (ELIKO); Märtens, Olev (Tallinn University of Technology); Paavle, Toivo (Tallinn University of Technology); Land, Raul (Tallinn University of Technology); Annus, Paul (ELIKO); Rist, Marek (ELIKO); Reidla, Marko (Tallinn University of Technology); Parve, Toomas (Tallinn University of Technology)</i> | |
| 09:00-09:15 | WeA07.5 |
| Dual Energy Pulses for Electrical Impedance Spectroscopy with the Stochastic Gabor Function | 138-141 |
| <i>Bonmassar, Giorgio* (A. A. Martinos Ctr. for Biomedical Imaging); Iacono, Maria Ida (MGH, Charlestown, MA, USA); Lev, Michael (the Dept of Radiology, Division of Neuroradiology Massachusetts General Hospital Harvard Medical School, Boston MA USA)</i> | |
| 09:15-09:30 | WeA07.6 |
| Stroke Volume Obtained from the Brachial Artery Using Transbrachial Electrical Bioimpedance Velocimetry | 142-145 |
| <i>Henry, Isaac* (Sotera Wireless); Bernstein, Donald (Sotera Wireless); Banet, Matt (Sotera Wireless)</i> | |

WeA08: 08:00-09:30 Sapphire 411
9.3.3 Physiological Monitoring Techniques and Devices (Oral Session)
Chair: Johnson, Michelle (*Medical Coll. of Wisconsin*)
Co-Chair: Dabbling, Jeff (*Sandia National Lab.*)

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| 08:00-08:15 | WeA08.1 |
| An MR Safe Algometer to Study Phantom and Residual Limb Pain | 146-149 |
| <i>Hui, Benedict (Medical College of Wisconsin); Daren, Hughes (Medical College of Wisconsin); Wu, Hong (Medical College of Wisconsin); Bhatti, Omar (Medical College of Wisconsin); Zhao, Shi (Medical College of Wisconsin); Johnson, Michelle* (Medical College of Wisconsin)</i> | |
| 08:15-08:30 | WeA08.2 |
| Relaxofon: A Neuromuscular Blockade Monitor for Patients under General Anesthesia | 150-153 |
| <i>Wehbe, Mohamad* (McGill University); Hemmerling, Thomas (McGill University); Mathieu, Pierre A. (Université de Montréal, Canada)</i> | |
| 08:30-08:45 | WeA08.3 |
| Quantitative Assessment of Levodopa-Induced Dyskinesia Using Automated Motion Sensing Technology | 154-157 |
| <i>Mera, Thomas* (Great Lakes NeuroTechnologies Inc.); Burack, Michelle (University of Rochester); Giuffrida, Joseph (Great Lakes NeuroTechnologies Inc.)</i> | |
| 08:45-09:00 | WeA08.4 |
| Monitoring Walking and Cycling of Middle-Aged to Older Community Dwellers Using Wireless Wearable Accelerometers | 158-161 |
| <i>Zhang, Yuting* (Boston University); Beenakker, Karel (Leiden University Medical Center); Butala, Pankil (Boston University); Lin, Cheng-Chieh (Boston University); Little, Thomas D.C. (Dept. Electrical and Computer Engineering, Boston University); Maier, Andrea (Leiden University Medical Center); Stijntjes, Marjon (Leiden University Medical Center); Vartanian, Richard (Boston University); Wagenaar, Robert C. (Boston University)</i> | |
| 09:00-09:15 | WeA08.5 |
| Static and Cyclic Performance Evaluation of Sensors for Human Interface Pressure Measurement | 162-165 |
| <i>Dabbling, Jeff* (Sandia National Laboratories); Filatov, Anton (Sandia National Laboratories); Wheeler, Jason (Sandia National Laboratories)</i> | |

09:15-09:30 WeA08.6
Evaluation of a Smart Alarm for Intensive Care using Clinical Data 166-169
*King, Andrew** (University of Pennsylvania); *Fortino, Kelsea* (Drexel University); *Stevens, Nicholas* (Stanford University); *Sachin, Shah* (University of Pennsylvania Health System); *Fortino-Mullen, Margaret* (University of Pennsylvania Health System); *Lee, Insup* (University of Pennsylvania)

WeA09: 08:00-09:30 Sapphire 400
9.4.1 Ablation and Surgical Therapies (Oral Session)
Chair: Bhunia, Swarup (Case Western Res. Univ.)
Co-Chair: Watanabe, Hiroki (Waseda Univ.)

08:00-08:15 WeA09.1
Implantable Ultrasonic Dual Functional Assembly for Detection and Treatment of Anomalous Growth 170-173
*Basak, Abhishek** (Case Western Reserve University); *Ranganathan, Vaishnavi* (Case Western Reserve University); *Narasimhan, Seetharam* (Case Western Reserve University);
Bhunia, Swarup (Case Western Reserve University)

08:15-08:30 WeA09.2
Safe Teleoperation Based on Flexible Intraoperative Planning for Robot-Assisted Laser Microsurgery 174-178
*Mattos, Leonardo** (IIT – Istituto Italiano di Tecnologia); *Caldwell, Darwin G.* (Italian Institute of Technology)

08:30-08:45 WeA09.3
Effect of Irreversible Electroporation on Three-Dimensional Cell Culture Model 179-182
*Kurata, Kosaku** (Kyushu University); *Matsushita, Masahiro* (Kyushu University); *Yoshii, Takashi* (Kyushu University); *Fukunaga, Takano* (Kyushu University); *Takamatsu, Hiroshi* (Kyushu University)

08:45-09:00 WeA09.4
Thoracoscopic Surgery Support System Using Passive RFID Marker 183-186
*Takahata, Hiromi** (Osaka University); *Okada, Minoru* (Graduate School of Information Science, Nara Institute of Science and Technology); *Sugiura, Tadao* (Nara Institute of Science and Technology); *Toshihiko, Sato* (Department of Thoracic Surgery, Kyoto University Hospital); *Osamu, Oshiro* (Osaka University);
Oshiro, Osamu (Osaka University)

09:00-09:15 WeA09.5
A Method for Deriving the Coagulation Boundary of Liver Tissue Using a Relational Model of Viscoelasticity and Temperature in Radiofrequency Ablation 187-190
*Lu, XiaoWei** (Waseda University); *Tsukune, Mariko* (Waseda University); *Watanabe, Hiroki* (Waseda University); *Isobe, Yosuke* (Waseda University); *Kobayashi, Yo* (Waseda University); *Yamazaki, Nozomu* (Waseda University); *Miyashita, Tomoyuki* (Waseda University); *Fujie, Masakatsu G.* (Waseda University)

09:15-09:30 WeA09.6
Radiofrequency Ablation Planning Beyond Simulation 191-194
*Haase, Sabrina** (Fraunhofer MEVIS, Bremen); *Pätz, Torben* (Jacobs University Bremen and Fraunhofer MEVIS); *Tiesler, Hanne* (Fraunhofer MEVIS and Jacobs University Bremen gGmbH); *Altrogge, Inga* (CeVis, University of Bremen); *Preusser, Tobias* (Fraunhofer MEVIS, Bremen)

WeA10: 08:00-09:30 Cobalt 500
4.5.1 Models of Excitable Cells and Tissues (Oral Session)
Chair: Liang, Jie (Univ. of Illinois at Chicago)
Co-Chair: Zhang, Henggui (Univ. of Manchester)

08:00-08:15 WeA10.1
Study of Cardiac Pacemaker Excitation using Generic Ionic Models and Realistic Cell Distribution 195-198
*Bradd, Adrian** (UNSW); *Al Abed, Amr* (University of New South Wales); *Guo, Tianruo* (University of New South Wales); *Lovell, Nigel H.* (University of New South Wales); *Dokos, Socrates* (University of New South Wales)

08:15-08:30 WeA10.2
Development of Biophysically Detailed Electrophysiological Models of Pacemaking and Non-Pacemaking Human Pulmonary Vein Cardiomyocytes 199-202
Jones, Gareth (University of Manchester); *Spencer, Bethany* (University of Manchester);
*Adeniran, Ismail** (The University of Manchester); *Zhang, Henggui* (University of Manchester)

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| 08:30-08:45 | WeA10.3 |
| Arrhythmogenic Substrate for Atrial Fibrillation: Insights from an Integrative Computational Model of Pulmonary Veins | 203-206 |
| <i>Aslanidi, Oleg* (King's College London); Colman, Michael (University of Manchester); Zhao, Jichao (University of Auckland); Smaill, Bruce (University of Auckland); Gilbert, Stephen Henry (University of Leeds); Hancox, Jules (University of Bristol); Boyett, Mark Richard (University of Manchester); Zhang, Henggui (University of Manchester)</i> | |
| 08:45-09:00 | WeA10.4 |
| Numerical Simulation of Single-Cell Electroporation with an Electrolyte Filled Capillary Experimental Set-Up | 207-210 |
| <i>Marques, Jefferson L B* (Federal University of Santa Catarina); Chiea, Rafael (Federal University of Santa Catarina); Suzuki, Daniela O H (Federal University of Santa Catarina)</i> | |
| 09:00-09:15 | WeA10.5 |
| Suppression of Anodal Break Excitation by Electrical Stimulation with Down-Staircase Waveform for Distance-Selective Nerve Recruitment | 211-214 |
| <i>Ueno, Ayako* (Tohoku University); Karashima, Akihiro (Tohoku University); Nakao, Mitsuyuki (Tohoku University); Katayama, Norihiro (Tohoku univ)</i> | |
| 09:15-09:30 | WeA10.6 |
| A Convolution Based Method for Calculating Dendritic Inputs in a Continuum Model of the Retina | 215-218 |
| <i>Al Abed, Amr* (University of New South Wales); Yin, Shijie (University of New South Wales); Lovell, Nigel H. (University of New South Wales); Suaning, Gregg (The University of New South Wales); Dokos, Socrates (University of New South Wales)</i> | |
| WeA12: 08:00-09:30 Aqua 306A | |
| 5.2.1 Hemodynamic Monitoring (Oral Session) | |
| Chair: Hahn, Jin-Oh (<i>Univ. of Alberta</i>) | |
| Co-Chair: Sugo, Yoshihiro (<i>NIHON KOHDEN</i>) | |
| 08:00-08:15 | WeA12.1 |
| Using Dual-Antenna Nanosecond Pulse Near-Field Sensing Technology for Non-Contact and Continuous Blood Pressure Measurement | 219-222 |
| <i>Lin, Hong-Dun* (Industrial Technology Research Institute); Lee, Yen-Hsien (Industrial Technology Research Institute); Chuang, Bor-Nian (Industrial Technology Research Institute)</i> | |
| 08:15-08:30 | WeA12.2 |
| Model-Based Estimation of Blood Pressure Response to Epinephrine | 223-226 |
| <i>Bighamian, Ramin* (University of Alberta, Department of Mechanical Engineering); Reisner, Andrew (Massachusetts General Hospital); Hahn, Jin-Oh (University of Alberta)</i> | |
| 08:30-08:45 | WeA12.3 |
| Automated System for Imageless Evaluation of Arterial Compliance | 227-231 |
| <i>Sahani, Ashish Kumar* (Indian Institute of Technology Madras); Joseph, Jayaraj (Indian Institute of Technology); Sivaprakasam, Mohanasankar (Indian Institute of Technology Madras)</i> | |
| 08:45-09:00 | WeA12.4 |
| Perturbationless Calibration of Pulse Transit Time to Blood Pressure | 232-235 |
| <i>Gao, Mingwu* (Michigan State University); Mukkamala, Ramakrishna (Michigan State University)</i> | |
| 09:00-09:15 | WeA12.5 |
| The Comparison of a Novel Continuous Cardiac Output Monitor Based on Pulse Wave Transit Time and Echo Doppler During Exercise | 236-239 |
| <i>Sugo, Yoshihiro* (NIHON KOHDEN); Sakai, Tomoyuki (NIHON KOHDEN); Terao, Mami (NIHON KOHDEN); Ukawa, Teiji (NIHON KOHDEN); Ochiai, Ryoichi (Toho University, Faculty of Medicine)</i> | |

09:15-09:30 WeA12.6
Validation of the qCO Cardiac Output Monitor During Valsalva Maneuver 240-243
Jospin, Mathieu (Technical University of Catalonia (UPC)); Aguilar, Juan Pablo (University of Barcelona); Gambus, Pedro L (Hospital CLINIC, Universidad de Barcelona,); Jensen, Erik Weber (Technical University of Catalonia); Vallverdu, Montserrat (Universitat Politècnica de Catalunya); Caminal, Pere (Technical University of Catalonia (UPC))*

WeA13: 08:00-09:30 Aqua 306B
10.5.5 Fall Detection (Oral Session)
Chair: Popescu, Mihail (*Univ. of Missouri*)
Co-Chair: Tamura, Toshiyo (*Osaka Electro-communication Univ.*)

08:00-08:15 WeA13.1
A New Method to Estimate the Real Upper Limit of the False Alarm Rate in a 3D Accelerometry-Based Fall Detector for the Elderly 244-247
Soaz, Cristina (SLCMSR e.V. – The Human Motion Institute and Technical University Munich); Lederer, Christian (SLCMSR e.V. – The Human Motion Institute); Daumer, Martin (SLCMSR e.V. – The Human Motion Institute and TRIUM Analysis Online GmbH)*

08:15-08:30 WeA13.2
Embedded Fall and Activity Monitoring for a Wearable Ambient Assisted Living Solution for Older Adults 248-251
Bourke, Alan (University of Limerick); Prescher, Sandra (Charité Universitätsmedizin Berlin); Koehler, Friedrich (Zentrum für kardiovaskuläre Telemedizin GmbH); Cionca, Victor (Department of Electronic and Computer Engineering, Faculty of Science and Engineering, University of Limerick, Ireland.); Tavares, Carlos (Institute for Systems and Computer Engineering of Porto.); Gomis Gascó, Sergi (Fundació Cetemmsa); Garcia, Virginia (Cetemmsa Technological Center in Mataró); Nelson, John (University of Limerick)*

08:30-08:45 WeA13.3
Automated Fall Detection on Privacy-Enhanced Video 252-255
Edgcomb, Alex (University of California, Riverside); Vahid, Frank (University of California, Riverside)*

08:45-09:00 WeA13.4
Doppler Radar Sensor Positioning in a Fall Detection System 256-259
Liu, Liang (University of Missouri); Popescu, Mihail (University of Missouri); Ho, K.C. (University of Missouri); Skubic, Marjorie (University of Missouri); Rantz, Marilyn (University of Missouri)*

09:00-09:15 WeA13.5
Radar Walking Speed Measurements of Seniors in Their Apartments: Technology for Fall Prevention 260-263
Cuddihy, Paul (GE Global Research); Yardibi, Tarik (General Electric Global Research); Lengenozoff, Zachary (University of Missouri); Liu, Liang (University of Missouri); Phillips, Calvin (University of Missouri); Abbott, Carmen (University of Missouri); Galambos, Colleen (University of Missouri); Keller, James M (University of Missouri); Popescu, Mihail (University of Missouri); Back, Jessica (University of Missouri); Skubic, Marjorie (University of Missouri); Rantz, Marilyn (University of Missouri)*

WeA14: 08:00-09:30 Aqua 308
10.3.1 Advances in Mobile Health (m-health) Technologies (Oral Session)
Chair: Istepanian, Robert (*Kingston Univ. London*)

08:00-08:15 WeA14.1
ARhT: A Portable Hand Therapy System 264-267
Ganz, Aura (University of Massachusetts, Amherst); Lowe, Joshua (University of Massachusetts Amherst); Bercht, Daniel (University of Massachusetts Amherst); Stearns, Kyle (University of Massachusetts Amherst); Boisvert, Timothy (University of Massachusetts Amherst)*

08:15-08:30 WeA14.2
Highly Survivable Bed Pressure Mat Remote Patient Monitoring System for Mhealth 268-271
Joshi, Vilas (Carleton University); Holtzman, Megan (Carleton University); Goubran, Rafik A. (Carleton University); Knoefel, Frank-Dietrich (SCO Health Service)*

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| 08:30-08:45 | WeA14.3 |
| Feasibility of Mhealth and Near Field Communication Technology Based Medication Adherence Monitoring | 272-275 |
| <i>Morak, Jürgen Markus* (AIT Austrian Institute of Technology); Schwarz, Mark (AIT – Austrian Institute of Technology); Hayn, Dieter (Austrian Research Centers GmbH – ARC); Schreier, Guenter (AIT Austrian Institute of Technology GmbH)</i> | |
| 08:45-09:00 | WeA14.4 |
| M-Health System for Life-Style Enhancement: WiFIT | 276-279 |
| <i>Zvikhachevskaya, Anna* (Lancaster University)</i> | |
| 09:00-09:15 | WeA14.5 |
| PAGAS: Portable and Accurate Gait Analysis System | 280-283 |
| <i>Wagner, Rojay (University of Massachusetts, Amherst); Ganz, Aura* (University of Massachusetts, Amherst)</i> | |
| 09:15-09:30 | WeA14.6 |
| Dynamic Subframe Allocation for Mobile Broadband M-Health Using IEEE 802.16j Mobile Multihop Relay Networks | 284-287 |
| <i>Alinejad, Ali* (Kingston University); Istepanian, Robert (Kingston University London); Philip, Nada (Kingston University)</i> | |
| 09:15-09:30 | WeA14.7 |
| Development of M-Health Monitoring Systems in India and Iraq | 288-291 |
| <i>Mulvaney, David (Loughborough University); Woodward, Bryan (Loughborough University); Datta, Sekharjit (Loughborough University); Harvey, Paul Dennis (Loughborough University); Vyas, Anoop Lal (Indian Institute of Technology Delhi); Farooq, Omar (Aligarh Muslim University); Philip, Nada (Kingston University); Istepanian, Robert* (Kingston University London)</i> | |
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| WeA15: 08:00-09:30 | Sapphire P |
| 6.4.1 Vision Processing for Implantable Prosthetic Vision (Oral Session) | |
| Chair: Barnes, Nick (NICTA Canberra Res. Lab.) | |
| Co-Chair: Silva, Gabriel (UCSD) | |
| 08:00-08:15 | WeA15.1 |
| ASIC Design and Data Communications for the Boston Retinal Prosthesis | 292-295 |
| <i>Shire, Douglas* (VA Healthcare System); Eilersick, William (Analog Circuit Works, Inc.); Kelly, Shawn (Carnegie Mellon University); Doyle, Patrick (Boston VA Research Institute); Priplata, Attila (VA / MIT); Drohan, William (Boston VA Healthcare System); Mendoza, Oscar (MIT); Gingerich, Marcus (Boston VA Healthcare System); McKee, Bruce (VA CIVR); Wyatt, John (Massachusetts Institute of Technology); Rizzo, Joseph F. (Boston VA Healthcare System)</i> | |
| 08:15-08:30 | WeA15.2 |
| A Coding Scheme for Optoelectronic/optogenetic Retinal Prosthesis | 296-299 |
| <i>Degenaar, Patrick* (Newcastle University); Al-Atabany, Walid Ibrahim Ali (Newcastle University)</i> | |
| 08:30-08:45 | WeA15.3 |
| Smart Image Processing System for Retinal Prosthesis | 300-303 |
| <i>Weiland, James* (University of Southern California); Parikh, Neha (University of Southern California); Pradeep, Vivek (University of Southern California); Medioni, Gerard (University of Southern California)</i> | |
| 08:45-09:00 | WeA15.4 |
| Transformative Reality: Improving Bionic Vision with Robotic Sensing | 304-307 |
| <i>Lui, Wen Lik Dennis (Monash Vision Group, Monash University); Browne, Damien (Monash Vision Group, Monash University); Kleeman, Lindsay (Monash University); Drummond, Tom (Monash University); Li, Wai Ho* (Monash University)</i> | |
| 09:00-09:15 | WeA15.5 |
| The Role of Vision Processing in Prosthetic Vision | 308-311 |
| <i>Barnes, Nick* (NICTA Canberra Research Laboratory); He, Xuming (National ICT Australia); McCarthy, Chris (NICTA); Horne, Lachlan (National ICT Australia); Kim, Junae (NICTA)</i> | |

09:15-09:30 WeA15.6
The Uniqueness of the Message in a Retinal Ganglion Cell Spike Train and Its Implication for Retinal Prostheses 312-313
Troy, John (Northwestern University); Yrazu, Fernando (Rice University); Passaglia, Chris (Boston University)*

WeA16: 08:00-09:30 Sapphire L
6.3.1 Motor Neuroprostheses I (Oral Session)
Chair: Carmena, Jose M. (*Univ. of California, Berkeley*)
Co-Chair: Kirsch, Robert (*Case Western Res. Univ.*)

08:00-08:15 WeA16.1
Contralaterally Controlled Functional Electrical Stimulation for Stroke Rehabilitation 314-317
Knutson, Jayme (Case Western Reserve University); Harley, Mary (MetroHealth Medical Center); Hisel, Terri (MetroHealth Medical Center); Makowski, Nathaniel (Case Western Reserve University); Fu, Michael J (Case Western Reserve University); Chae, John (Case Western Reserve University)*

08:15-08:30 WeA16.2
Variations in Neuromuscular Electrical Stimulation's Ability to Increase Reach and Hand Opening During Voluntary Effort after Stroke 318-321
Makowski, Nathaniel (Case Western Reserve University); Knutson, Jayme (Case Western Reserve University); Chae, John (Case Western Reserve University); Crago, Patrick (Case Western Reserve University)*

08:30-08:45 WeA16.3
Control of a Time-Delayed 5 Degrees of Freedom Arm Model for Use in Upper Extremity Functional Electrical Stimulation 322-324
Cooman, Peter (Case Western Reserve University); Kirsch, Robert (Case Western Reserve University)*

08:45-09:00 WeA16.4
A Paradigm for the Control of Upright Standing in Paraplegic Patients 325-328
Jovic, Jovana (LIRMM, Montpellier); Bonnet, Vincent (University of Rome "Foro Italico"); Azevedo-Coste, Christine (DEMAR INRIA/LIRMM); Fraisse, Philippe (University of Montpellier 2, France)*

09:00-09:15 WeA16.5
Optimal Sampling of Recruitment Curves for Functional Electrical Stimulation Control 329-332
Scheerer, Eric (Northwestern University); Liao, Yu-Wei (Northwestern University); Perreault, Eric (Northwestern University); Tresch, Matthew (Northwestern University); Lynch, Kevin (Northwestern University)*

09:15-09:30 WeA16.6
Grasp and Release with Surface Functional Electrical Stimulation Using a Model Predictive Control Approach 333-336
Westerveld, Ard (University of Twente); Kuck, Alexander (University of Twente); Schouten, Alfred (Delft University of Technology); Veltink, Peter (University of Twente); Van Der Kooij, Herman (universitij of twente)*

WeA19: 08:00-09:30 Aqua 304
8.8.1 Neural-Robotic Interfaces (Oral Session)
Chair: Goldfarb, Michael (*Vanderbilt Univ.*)
Co-Chair: Sanchez, Justin C. (*Univ. of Miami*)

08:00-08:15 WeA19.1
Intuitive Operability Evaluation of Surgical Robot Using Brain Activity Measurement to Determine Immersive Reality 337-343
MIURA, Satoshi (Waseda University); Kobayashi, Yo (Waseda University); Kawamura, Kazuya (Chiba University); Seki, Masatoshi (Waseda University); Nakashima, Yasutaka (Waseda University); Noguchi, Takehiko (Waseda University); Kasuya, Masahiro (Waseda University); YOKOO, Yuki (Waseda University); Fujie, Masakatsu G. (Waseda University)*

08:15-08:30 WeA19.2
Enhancing Stance Phase Propulsion during Level Walking by Combining FES with a Powered Exoskeleton for Persons with Paraplegia 344-347
Ha, Kevin H. (Vanderbilt University); Quintero, Hugo A. (Vanderbilt University); Farris, Ryan (Vanderbilt University); Goldfarb, Michael (Vanderbilt University)*

08:30-08:45 WeA19.3
Bio-Robots Automatic Navigation with Electrical Reward Stimulation 348-351
*Sun, Chao (Zhejiang University); Zhang, Xinlu (Zhejiang University); Zheng, Nenggan (Zhejiang University);
 Chen, Weidong* (zhejiang University); Zheng, Xiaoxiang (Zhejiang University)*

WeB01: 09:30-11:00 Indigo Ballroom
1.10.3 Principal Component and Independent Component Analysis (Poster Session)

09:30-11:00 WeB01.1
Brain Oscillations in Switching vs. Focusing Audio-Visual Attention 352-355
Rapela, Joaquin (University of California San Diego); Gramann, Klaus (Institute of Cognitive Science,
 University of Osnabrueck); Westerfield, Marissa (Research on Aging and Development Laboratory,
 University of Southern California); Townsend, Jeanne (University of California, San Diego);
 Makeig, Scott (University of California San Diego)*

09:30-11:00 WeB01.2
Combined Method for Fetal Electrocardiogram Extraction from Non-Invasive Abdominal Recordings 356-359
*Ye Lin, Yiyao (Universitat Politècnica de València); Prats-Boluda, Gema (Universitat Politècnica
 de València); Alberola-Rubio, Jose (Universitat Politècnica de València); Garcia-Casado, Javier*
 (Universitat Politècnica de València)*

09:30-11:00 WeB01.3
ICA Order Selection Based on Consistency: Application to Genotype Data 360-363
Chen, Jiayu (University of New Mexico); Calhoun, Vince (The Mind Research Network/University of New
 Mexico); Liu, Jingyu (Institute of Living)*

09:30-11:00 WeB01.4
Real Time Gait Pattern Classification from Chest Worn Accelerometry During a Loaded Road March 364-367
Clements, Cynthia (U.S. Army Research Institute of Environmental Medicine); Buller, Mark (U.S. Army
 Research Institute of Environmental Medicine); Welles, Alexander (U.S. Army Research Institute of
 Environmental Medicine); Tharion, William J. (U.S. Army Research Institute of Environmental Medicine)*

09:30-11:00 WeB01.5
ErpicASSO: A Tool for Reliability Estimates of Independent Components in EEG Event-Related Analysis 368-371
Artoni, Fiorenzo (Scuola Superiore Sant'Anna Italy); Gemignani, Angelo (University of Pisa); Sebastiani, Laura
 (University of Pisa, Pisa, Italy); Bedini, Remo (Institute of Clinical Physiology, CNR, Pisa, Italy); Landi, Alberto
 (Department of Energy Systems Engineering, University of Pisa, Pisa, Italy); menicucci, danilo (National
 Reaserch Council (CNR))*

WeB02: 09:30-11:00 Indigo Ballroom
2.1.4 MRI IV: Posters I (Poster Session)

09:30-11:00 WeB02.1
**Validation of 3D Ultra-Short TE (UTE) Phase-Contrast MRI for Imaging of
 Steady Flow: Initial Phantom Experiments** 372-376
Kadbi, Mo (University of Louisville); Negahdar, MJ (University of Louisville);
 Cha, Jung won (University of Louisville); Kotys, Melanie (Philips Healthcare);
 Martin, Peter (Philips healthcare); Amini, Amir (University of Louisville)*

09:30-11:00 WeB02.2
Relationship between Marrow Perfusion and Bone Mineral Density: A Pharmacokinetic Study of DCE-MRI 377-379
Ma, Heather Ting (Harbin Institute of Technology Shenzhen Graduate School); Griffith, James F (The Chinese
 University of Hong Kong); Zhao, Xinxin (Harbin Institute of Technology Shenzhen Graduate School); Lv, Haiyan
 (Harbin Institute of Technology Shenzhen Graduate School); Yeung, David (The Chinese University of Hong
 Kong); Leung, Ping-chung (the Chinese University of Hong Kong)*

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| 09:30-11:00 | WeB02.3 |
| Enhanced SWIFT Acquisition with Chaotic Compressed Sensing by Designing the Measurement Matrix with Hyperbolic-Secant Signals | 380-383 |
| <i>Minh-Chinh, Truong (Vietnam National University Hanoi); Tran-Duc, Tan (Vietnam National University Hanoi); Linh-Trung, Nguyen* (Vietnam National University Hanoi); Luong, Marie (University Paris 13); Do, Minh (University of Illinois at Urbana-Champaign)</i> | |
| 09:30-11:00 | WeB02.4 |
| Effect of Gadobutrol on VX2 Magnetic Resonance Diffusion-Weighted Imaging | 384-387 |
| <i>Chen, Po-Chou (I-Shou University); Jao, Jo-Chi* (Kaohsiung Medical University); Lin, Ding-Jie (I-Shou University); Hsiao, Chia-Chi (Veterans General Hospital, Kaohsiung); Pan, Huan-Ben (Veterans General Hospital, Kaohsiung)</i> | |
| 09:30-11:00 | WeB02.5 |
| A Software Prototype for the Assessment of Tumor Treatment Response Using Diffusion and Perfusion MR Imaging | 388-391 |
| <i>Sakkalis, Vangelis* (ICS-FORTH); Manikis, Georgios (Institute of Computer Science, Foundation for Research and Technology, Hellas); Papanikolaou, Nickolas (N. Papanikolaou & Associates, STEP-C, FORTH); Karatzanis, Ioannis (Institute of Computer Science (ICS), FORTH); Marias, Kostas (Foundation for Res. & Tech. Hellas)</i> | |
| 09:30-11:00 | WeB02.6 |
| Positive Contrast MRI of Prostate Brachytherapy Seeds by Susceptibility Mapping | 392-395 |
| <i>Dong, Ying (Texas A&M University); Whitehead, Gregory (Texas A&M University); Chang, Zheng (Duke University); Ji, Jim Xiuquan* (Texas A&M University)</i> | |
| 09:30-11:00 | WeB02.7 |
| Effective Connectivity Estimation for Evaluating Encoding Memory Network | 396-399 |
| <i>amousoltani, asieh* (Tehran University of Medical Sciences); Oghabian, Mohammad Ali (Research Center for Molecular and Cellular Imaging, Tehran University of Medical Sciences); Hossein-Zadeh, Gholam-Ali (Univ. of Tehran)</i> | |
| 09:30-11:00 | WeB02.8 |
| Large Deformation Estimation between Prone and Supine Breast Meshed Models | 400-403 |
| <i>Song, Xiaoyu* (Harbin Institute of Technology); Kuang, Zhaobin (Harbin Institute of Technology); Zheng, Kang (Harbin Institute of Technology); Lian, Mengke (Harbin Institute of Technology); Qi, Fang (Harbin Institute of Technology)</i> | |
| 09:30-11:00 | WeB02.9 |
| Smoothed Random-Like Trajectory for Compressed Sensing MRI | 404-407 |
| <i>Wang, Haifeng* (University of Wisconsin, Milwaukee); Zhou, Yihang (The State University of New York at Buffalo); Chang, Yuchou (University of Wisconsin – Milwaukee); Wang, Yong (Xidian University)</i> | |
| 09:30-11:00 | WeB02.10 |
| Study of Magnetization Evolution by Using Composite Spin-Lock Pulses for T1p Imaging | 408-411 |
| <i>LI, Yujia (The Chinese University of Hong Kong); ZHAO, Feng (The Chinese University of Hong Kong); Wang, Yi-Xiang (The Chinese University of Hong Kong); Ahuja, Anil (Chinese University of Hong Kong); Yuan, Jing* (Chinese University of Hong Kong)</i> | |
| 09:30-11:00 | WeB02.11 |
| Non-Parametric Bayesian Estimation of Apparent Diffusion Coefficient from Diffusion-Weighted Magnetic Resonance Imaging Data | 412-415 |
| <i>Cameron, Andrew (University of Waterloo); Glaister, Jeffrey* (University of Waterloo); Wong, Alexander (University of Waterloo); Haider, Masoom (University of Toronto)</i> | |
| 09:30-11:00 | WeB02.12 |
| Parallel Imaging Acceleration of Spiral Fourier Velocity Encoded MRI Using SPIRiT | 416-419 |
| <i>Lyra-Leite, Davi Marco* (University of Brasilia); Carvalho, Joao Luiz Azevedo de (University of Brasilia)</i> | |

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| 09:30-11:00 | <p>Quantitative Investigative Analysis of Tumour Separability in the Prostate Gland Using Ultra-High B-Value Computed Diffusion Imaging</p> <p><i>Glaister, Jeffrey* (University of Waterloo); Cameron, Andrew (University of Waterloo); Wong, Alexander (University of Waterloo); Haider, Masoom (University of Toronto)</i></p> | WeB03.1 420-423 |
| 09:30-11:00 | <p>Correlation between Uncinate Fasciculus and Memory Tasks in Healthy Individual Using Diffusion Tensor Tractography</p> <p><i>Sato, Tetsuo* (Nara Inst of Science & Tech)</i></p> | WeB03.2 424-427 |
| 09:30-11:00 | <p>Identification of Mild Alzheimer's Disease through Automated Classification of Structural MRI Features</p> <p><i>Diciotti, Stefano* (University of Florence); Ginestroni, Andrea (University of Florence); Bessi, Valentina (Azienda Ospedaliero-Universitaria Careggi); Giannelli, Marco (Unit of Medical Physics, Azienda Ospedaliero-Universitaria Pisana, 56126 Pisa, Italy); Tessa, Carlo (Versilia Hospital, Azienda USL 12 Viareggio); Bracco, Laura (Azienda Ospedaliero-Universitaria Careggi); Mascacchi, Mario (University of Florence); Toschi, Nicola (University of Rome "Tor Vergata", Faculty of Medicine)</i></p> | WeB03.3 428-431 |
| 09:30-11:00 | <p>Tract-Based Spatial Statistics (TBSS): Application to Detecting White Matter Tract Variation in Mild Hypoxic-Ischemic Neonates</p> <p><i>Gao, Jie (Xi'an Jiaotong University); Li, Xianjun (Xi'an Jiaotong University); Hou, Xin (Xi'an Jiaotong University); Ding, Abby Y. (The University of Hong Kong); Chan, Kevin C. (University of Pittsburgh); Sun, Qinli (Department of Radiology, the First Affiliated Hospital of Medical College of Xi'an Jiaotong University); Wu, Ed X. (The University of Hong Kong); Yang, Jian* (Xi'an Jiaotong University)</i></p> | WeB03.4 432-435 |
| 09:30-11:00 | <p>Subzone Based Multi-Frequency Magnetic Resonance Elastography Using a Rayleigh Damped Material Model</p> <p><i>Petrov, Andrii* (University of Canterbury); Chase, J. Geoffrey (University of Canterbury); Sellier, Mathieu (University of Canterbury); Latta, Peter (National Research Council of Canada); Gruwel, Marco (National Research Council of Canada); McGarry, Matthew (Thayer School of Engineering, Dartmouth College); Van Houten, Elijah (Université de Sherbrooke)</i></p> | WeB03.5 436-439 |
| 09:30-11:00 | <p>Potential of MREIT Conductivity Imaging to Detect Breast Cancer: Experimental and Numerical Simulation Studies</p> <p><i>Sajib, Saurav Z K (Kyung Hee University); Kim, Hyung Joong (Kyung Hee University); Kim, Young Tae (Kyung Hee University); Jeong, Woo Chul (Kyung Hee University); Oh, Tong In* (Kyunghee University); Woo, Eung Je (Kyung Hee University)</i></p> | WeB03.6 440-443 |
| 09:30-11:00 | <p>Automatic Brain Tumor Extraction from T1-Weighted Coronal MRI Using Fast Bounding Box and Dynamic Snake</p> <p><i>Xu, Tao (University of Alberta); Mandal, Mrinal* (University of Alberta)</i></p> | WeB03.7 444-447 |

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| 09:30-11:00 | <p>Carotid Far Wall Characterization Using LBP, Laws' Texture Energy and Wall Variability: A Novel Class of Atheromatic Systems</p> <p><i>Acharya, Rajendra (NgeeAnn Polytechnic); S, Vinitha Sree (Global Biomedical Technologies Inc., Roseville, CA, USA); M, Muthu Rama Krishnan (Department of Electronics and Computer Engineering, Ngee Ann Polytechnic, Singapore 599489); saba, luca (Policlinico Universitario); Molinari, Filippo (Politecnico di Torino); Shafique, Shoaib (CorVasc MDs); Nicolaidis, Andrew (Imperial College); Suri, Jasjit* (Biomedical Technologies)</i></p> | WeB04.1 448-451 |
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| 09:30-11:00 | WeB04.2 |
| Automated Benign & Malignant Thyroid Lesion Classification in 3D Contrast-Enhanced Ultrasound: A Class of ThyroScan Systems | 452-455 |
| <i>Acharya, Rajendra (NgeeAnn Polytechnic); Faust, Oliver (Ngee Ann Polytechnic); S, Vinitha Sree (Global Biomedical Technologies Inc., Roseville, CA, USA); Molinari, Filippo (Politecnico di Torino); Garberoglio, Roberto (Fondazione Scientifica Mauriziana – ONLUS); Witkowska, Agnieszka (Department of Internal Medicine, Diabetology and Nephrology, Medical University of Silesia, Zabrze, Poland); Suri, Jasjit* (Biomedical Technologies)</i> | |
| 09:30-11:00 | WeB04.3 |
| Ultrasound Imaging of Dental Implants | 456-459 |
| <i>Culjat, Martin* (Farus, LLC); Choi, Mijin (New York University); Singh, Rahul (Farus, LLC); White, Shane (UCLA)</i> | |
| 09:30-11:00 | WeB04.4 |
| Echogenicity in Transrectal Ultrasound Is Determined by Sound Speed of Prostate Tissue Components | 460-463 |
| <i>Tanoue, Hideki (Tohoku University); Hagiwara, Yoshihiro (Tohoku University Graduate School of Medicine); Kobayashi, Kazuto (Honda Electronics Co., Ltd.); Saijo, Yoshifumi* (Tohoku University)</i> | |
| 09:30-11:00 | WeB04.5 |
| A Prototype System of Microwave Induced Thermo-Acoustic Tomography for Breast Tumor | 464-467 |
| <i>Zhu, Xiaozhang (University of Electronic Science and Technology of China); Zhao, Zhiqin (School of Electronic Engineering, University of Electronic Science and Technology of China); Nie, Zaiping (School of Electronic Engineering, University of Electronic Science and Technology of China); Liu, Qing Huo (Duke University); Yang, Kai* (University of Electronic Science and Technology of China)</i> | |
| 09:30-11:00 | WeB04.6 |
| An Accurate Calibration Method of Ultrasound Images by Center Positions of a Metal Ball | 468-471 |
| <i>Onogi, Shinya* (Tokyo University of Agriculture and Technology); Sugano, Yuki (Tokyo University of Agriculture and Technology); Yoshida, Toshio (Tokyo University of Agriculture and Technology); Masuda, Kohji (Tokyo Univ. A&T)</i> | |
| 09:30-11:00 | WeB04.7 |
| Phase Estimation for a Phased Array Therapeutic Interstitial Ultrasound Probe | 472-475 |
| <i>Dillenseger, Jean-Louis* (Université de Rennes 1)</i> | |
| 09:30-11:00 | WeB04.8 |
| Needle Identification in High-Dose-Rate Prostate Brachytherapy Using Ultrasound Imaging Modality | 476-479 |
| <i>Buzurovic, Ivan* (Thomas Jefferson University); Mistic, Vladimir (University of Pittsburgh Medical Center); Yu, Yan (Thomas Jefferson University Hospital)</i> | |
| 09:30-11:00 | WeB04.9 |
| A Correlated Microwave-Acoustic Imaging Method for Early-Stage Cancer Detection | 480-483 |
| <i>Gao, Fei* (Nanyang Technological University); Zheng, Yuanjin (ICS Lab, Institute of Microelectronics)</i> | |
| 09:30-11:00 | WeB04.10 |
| Distal Wall Delineation Using Automated Dual Snake Paradigm: A Multi-Center and Multi-Ethnic Carotid Ultrasound Evaluation | 484-487 |
| <i>Molinari, Filippo (Politecnico di Torino); Meiburger, Kristen Mariko (Politecnico di Torino); saba, luca (Policlinico Universitario); Zeng, Guang (Mayo Clinic); Acharya, Rajendra (NgeeAnn Polytechnic); Piga, Mario (University of Cagliari); Shafique, Shoaib (CorVasc MDs); Nicolaidis, Andrew (Imperial College); Suri, Jasjit* (Biomedical Technologies)</i> | |
| 09:30-11:00 | WeB04.11 |
| An Automated 3D Annotation Method for Breast Ultrasound Imaging | 488-491 |
| <i>Jiang, Weiwei* (The HongKong Polytechnic University); Zheng, Yongping (The Hong Kong Polytechnic University)</i> | |

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| 09:30-11:00 | WeB04.12 |
| Anthropomorphic Ultrasound Elastography Phantoms – Characterization of Silicone Materials to Build Breast Elastography Phantoms | 492-494 |
| <i>Carbone, Marina* (EndoCAS – University of Pisa); Condino, Sara (University of Pisa); Mattei, Lorenza (Department of Mechanical, Nuclear and Production Engineering, University of Pisa); Di Puccio, Francesca (Department of Mechanical, Nuclear and Production Engineering, University of Pisa); Ferrari, Vincenzo (Università di Pisa); Mosca, Franco (University of Pisa)</i> | |

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| WeB05: 09:30-11:00 | Indigo Ballroom |
| 2.2.4 Ultrasonic Imaging Posters II (Poster Session) | |

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| 09:30-11:00 | WeB05.1 |
| Acoustic Interrogation and Optical Visualization of Ultrasound Contrast Agents within Microcapsules | 495-498 |
| <i>Santhiranyagam, Pratheepa (San Jose State University); Thirumalai, Shruthi (San Jose State University); Memom, Farah (San Jose State University); Shan, Yiming (San Jose State University); Lee, Sang-joon (San Jose State University); Mobed-Miremadi, Maryam (San Jose State University); Sridhar-Keralapura, Mallika* (San Jose State University)</i> | |

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| WeB06: 09:30-11:00 | Indigo Ballroom |
| 3.1.2 New Sensors and Systems (Poster Session) | |

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| 09:30-11:00 | WeB06.1 |
| Dynamic Staining of Bacillus Endospores with Thioflavin T | 499-502 |
| <i>Upadhyayula, Srigoikul* (University of California, Riverside); Lam, Samuel (University of California, Riverside); Ha, Alice (University of California, Riverside); Malik-Chaudhry, Harbani (University of California, Riverside); Vullev, Valentine (University of California, Riverside)</i> | |

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| 09:30-11:00 | WeB06.2 |
| Wearable Autonomous Microsystem with Electrochemical Gas Sensor Array for Real-Time Health and Safety Monitoring | 503-506 |
| <i>Li, Haitao* (Michigan State University); Mu, Xiaoyi (Michigan State University); Wang, Zhe (Oakland University); Liu, Xiaowen (Michigan State University); Guo, Min (Oakland University); Jin, Rong (Michigan State University); Zeng, Xiangqun (Oakland University); Mason, Andrew (Michigan State University)</i> | |

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| 09:30-11:00 | WeB06.3 |
| Calculation of Joint Reactions and Joint Moments Using by Wearable Gait Analysis System | 507-510 |
| <i>Adachi, Wataru* (Doshisha University); Tsujiuchi, Nobutaka (Doshisha University); Koizumi, Takayuki (Doshisha University); Shiojima, Kouzou (Tec Gihan Co., LTD); Tsuchiya, Youtaro (Tec Gihan Co., LTD); Inoue, Yoshio (Kochi University of Technology)</i> | |

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| 09:30-11:00 | WeB06.4 |
| Piezoelectric Load Measurement Model in Knee Implants | 511-514 |
| <i>Romero, Edwar* (Turabo University); Rincon, Amilcar (Inter American University of Puerto Rico)</i> | |

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| 09:30-11:00 | WeB06.5 |
| A Programmable FPGA-Based 8-Channel Arbitrary Waveform Generator for Medical Ultrasound Research Activities | 515-518 |
| <i>Assef, Amauri Amorin* (Federal University of Technology – Parana); Maia, Joaquim Miguel (Federal University of Technology-Parana); Schneider, Fabio Kurt (Federal University of Technology Parana); Costa, Eduardo Tavares (State University of Campinas); Button, Vera Lúcia da Silveira Nantes (State University of Campinas)</i> | |

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| 09:30-11:00 | WeB06.6 |
| Design, Fabrication, and Characterization of an Electrochemically-Based Dose Tracking System for Closed-Loop Drug Delivery | 519-522 |
| <i>Sheybani, Roya* (University of Southern California); Cabrera-Munoz, Nestor E. (University of Southern California); Sanchez, Tania (Universidad Nacional Autónoma de México); Meng, Ellis (University of Southern California)</i> | |

09:30-11:00 WeB06.7
An Infrared Radiation Based Thermal Biosensor for Enzymatic Biochemical Reactions 523-526
Zhang, Lei (Vestfold University College); Dong, Tao (1. Vestfold University College 2. Nanjing University of Science and Technology (Chair Prof.) 3.Xiamen University (Guest Prof.)); Zhao, Xinyan (Vestfold University College); Yang, ZhaoChu (Vestfold Universtiy College); Pires, Nuno M.M. (Vestfold University College)*

WeB07: 09:30-11:00 Indigo Ballroom
3.1.5 Optical and Mechanical Sensors (Poster Session)

09:30-11:00 WeB07.1
Surface Deformation Tracking of a Silicone Gel Skin Phantom in Response to Normal Indentation 527-530
Azhar, Mihailo (Auckland Bioengineering Institute); Parker, Matthew David (The University of Auckland); Alvares, Darren (The University of New South Wales); Taberner, Andrew (The University of Auckland); Nielsen, Poul (The University of Auckland)*

09:30-11:00 WeB07.2
FFLS: An accurate linear device for measuring synergistic finger contractions 531-534
Kõiva, Risto (Bielefeld University, CITEC); Hilsenbeck, Barbara (DLR (German Aerospace Center)); Castellini, Claudio (DLR)*

09:30-11:00 WeB07.3
Arterial Strain Measurement by Implantable Capacitive Sensor without Vessel Constriction 535-538
Ruhhammer, Johannes (University of Freiburg); Ruh, Dominic (University of Freiburg); Foerster, Katharina (Department of Cardiovascular Surgery, Albert-Ludwigs-University Freiburg); Heilmann, Claudia (Department of Cardiovascular Surgery, Albert-Ludwigs-University Freiburg); Beyersdorf, Friedhelm (Department of Cardiovascular Surgery, Albert-Ludwigs-University Freiburg); Barker, Alex (Northwestern University); Jung, Bernd (Medical Physics University Hospital Freiburg); Goldschmidtboeing, Frank (IMTEK – Department of Microsystems Engineering, Laboratory for Design of Microsystems (Prof. Woias)); Woias, Peter (University)*

09:30-11:00 WeB07.5
A S-Parameters-Based Detection Method for a Multilayer SPR Biosensor 539-542
Islam, Md. Saiful (Deakin University); Kouzani, Abbas Z. (Deakin University)*

09:30-11:00 WeB07.6
Fluorescence-Based Lab-On-Chip Spot Design for Improved Signal Detection 543-546
Bassani, Thiago (UTFPR); Dias, Philipe (UTFPR); Branco, Gilberto (UTFPR); Silva, Wilson J. da (UTFPR); Vieira Neto, Hugo (UTFPR); Schneider, Fabio Kurt (Federal University of Technology Parana)*

09:30-11:00 WeB07.7
Post-Operative Blood Loss Monitoring Device: A New Tool for Nursing Activities 547-549
Logier, Regis (CHRU de Lille); Jeanne, Mathieu (CHRU de Lille); Jounwaz, Reza (University Hospital of Lille, INSERM); De Jonckheere, Julien (CHRU de Lille)*

WeB08: 09:30-11:00 Indigo Ballroom
3.2.2 Bioelectric Sensors and Sensor Systems (Poster Session)

09:30-11:00 WeB08.1
Multi-Signal Bathroom Scale to Assess Long-Term Trends in Cardiovascular Parameters 550-553
Gomez-Clapers, Joan (Universitat Politècnica de Catalunya); Casanella, Ramon (Universitat Politècnica de Catalunya); Pallas-Areny, Ramon (Universitat Politècnica de Catalunya)*

09:30-11:00 WeB08.2
A Real-Time Detector System for Precise Timing of Audiovisual Stimuli 554-557
Henelius, Andreas (Finnish Institute of Occupational Health); Jagadeesan, Sharman (Finnish Institute of Occupational Health); Huotilainen, Minna (Finnish Institute of Occupational Health)*

09:30-11:00 WeB08.3
Characterization of Interdigitated Electrode Structures for Water Contaminant Detection Using a Hybrid Voltage Divider and a Vector Network Analyzer 558-561
Rodriguez-Delgado, Jose Manuel (Tecnológico de Monterrey, Campus Monterrey); Mendoza-Buenrostro, Christian (Tecnológico de Monterrey, Campus Monterrey); Dieck-Assad, Graciano (Tecnológico de Monterrey, Campus Monterrey); Martinez-Chapa, Sergio O. (Tecnologico de Monterrey)*

09:30-11:00 WeB08.4
Adaptive Frequency Distribution for Electrical Bioimpedance Spectroscopy Measurements 562-565
Seoane, Fernando (University of Borås); Ferreira, Javier (Royal Institute of Technology (KTH)); Buendia, Ruben (Royal Institute of Technology, Stockholm KTH); Lindecrantz, Kaj (Royal Institute of Technology)*

09:30-11:00 WeB08.5
Usefulness of Electromagnetic Induction Type of Force Transducer and Actuator for Myofibril Mechanics 566-569
Kimura, Kazushige (Master course of student (Shibaura Institute of Technology)); Abe, Takahiro (Master course student (Shibaura Institute of Technology)); Nguyen Phan, Kien (Shibaura Institute of Technology); Kobayashi, Takakazu (Shibaura Institute of Technology)*

WeB09: 09:30-11:00 Indigo Ballroom
3.3.1 Advances in Sensing Technologies (Poster Session)

09:30-11:00 WeB09.1
Multiplexed Detection of Protein Markers with Silicon Nanowire FET and Sol-Gel Matrix 570-573
Lee, Min-Ho (Korea Electronics Technology Institute); Jung, Suk Won (Korea Electronics Technology Institute)*

09:30-11:00 WeB09.2
A Data Efficient Method for Characterization of Chameleon Tongue Motion Using Doppler Radar 574-577
Singh, Aditya (University of Hawaii at Manoa); Hafner, Noah (University of Hawaii); Lubecke, Victor (University of Hawaii Manoa); Butler, Marguerite (University of Hawaii at Manoa)*

09:30-11:00 WeB09.3
Aptamer-NASBA LOC As a Prospective Tool for Systemic Therapy of Cancer: Quantitative Detection on Signaling Molecular Profiling 578-581
Zhao, Xinyan (Vestfold University College); Dong, Tao (1.Vestfold University College 2.Nanjing University of Science and Technology (Chair Prof.) 3.Xiamen University (Guest Prof.)); Yang, ZhaoChu (Vestfold University College); Karlsen, Haakon (Vestfold University College)*

09:30-11:00 WeB09.4
A Full Digital Magnetic Induction Measurement Device for Non-Contact Vital Parameter Monitoring (MONTOS) 582-585
Cordes, Axel (RWTH Aachen); Arts, Martijn (RWTH Aachen University); Leonhardt, Steffen (RWTH Aachen University)*

09:30-11:00 WeB09.5
Auditory Evoked Responses from Ear-EEG Recordings 586-589
Kidmose, Preben (Aarhus School of Engineering, Aarhus University, Denmark); Looney, David (Imperial College London); Mandic, Danilo (Imperial College)*

WeB10: 09:30-11:00 Indigo Ballroom
3.8.2 Sensing Technology (Poster Session)

09:30-11:00 WeB10.1
Isolation of Rare Cancer Cells from Blood Cells Using Dielectrophoresis 590-593
Salmanzadeh, Alireza (Virginia Tech); Sano, Michael B. (Virginia Tech); shafiee, Hadi (Harvard-MIT Division of Health Sciences and Technology); Stremler, Mark (Virginia Tech); Davalos, Rafael (Virginia Tech)*

09:30-11:00 WeB10.2
Towards Ultrahigh Throughput Microinjection: MEMS-Based Massively-Parallelized Mechanoporation 594-597
Zhang, Yanyan (University of California-Riverside); Ballas, Christopher (Indiana University School of Medicine); Rao, Masaru P. (University of California, Riverside)*

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| 09:30-11:00 | WeB10.3 |
| A Real-time Tracking System for in Vivo Endofunctional Capsule Using Magnetic Sensors | 598-601 |
| <i>Mehmood, Nasir* (University of South Australia); Aziz, Syed Mahfuzul (University of South Australia)</i> | |
| 09:30-11:00 | WeB10.4 |
| Magnetic Induction Measurements with a Six Channel Coil Array for Vital Parameter Monitoring | 602-604 |
| <i>Cordes, Axel* (RWTH Aachen); Heimann, Konrad (University Children's Hospital, Department of Neonatology, RWTH Aachen University); Leonhardt, Steffen (RWTH Aachen University)</i> | |

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| WeB11: 09:30-11:00 | Indigo Ballroom |
| 1.10.2 Blind Source Separation (Poster Session) | |

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| 09:30-11:00 | WeB11.1 |
| Assessment of ICA Algorithms for the Analysis of Crackles Sounds | 605-608 |
| <i>Castaneda-Villa, Norma (Universidad Autónoma Metropolitana-Izt); Charleston-Villalobos, Sonia* (Universidad Autónoma Metropolitana); Gonzalez-Camarena, Ramon (Universidad Autónoma Metropolitana); Aljama-Corrales, Tomas (Universidad Autónoma Metropolitana)</i> | |

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| 09:30-11:00 | WeB11.2 |
| High-Density Surface EMG Decomposition Based on a Convolutional Blind Source Separation Approach | 609-612 |
| <i>Zhu, Xiangjun (Zhejiang University of Technology); Zhang, Yingchun* (University of Minnesota)</i> | |

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| 09:30-11:00 | WeB11.3 |
| Predicting Catheter Ablation Outcome in Persistent Atrial Fibrillation Using Atrial Dominant Frequency and Related Spectral Features | 613-616 |
| <i>Garibaldi, Michele* (Université de Nice-Sophia Antipolis); Zarzoso, Vicente (Université Nice Sophia Antipolis – CNRS); Latcu, Decebal Gabriel (Centre Hospitalier Princesse Grace); Saoudi, Nadir (Princesse Grace Medical Centre Monaco)</i> | |

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| 09:30-11:00 | WeB11.4 |
| Multidimensional Characterization of Fibrillatory Wave Amplitude on Surface ECG to Describe Catheter Ablation Impact on Persistent Atrial Fibrillation | 617-620 |
| <i>Meo, Marianna* (Laboratoire I3S Université Nice); Zarzoso, Vicente (Université Nice Sophia Antipolis – CNRS); Meste, Olivier (UNSA-CNRS); Latcu, Decebal Gabriel (Centre Hospitalier Princesse Grace); Saoudi, Nadir (Princesse Grace Medical Centre Monaco)</i> | |

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| 09:30-11:00 | WeB11.5 |
| Space Time Frequency (STF) Code Tensor for the Characterization of the Epileptic Preictal Stage | 621-624 |
| <i>Direito, Bruno* (FCTUC, University of Coimbra); Teixeira, César (University of Coimbra); Ribeiro, Bernardete (University of Coimbra); Castelo-Branco, Miguel (University of Coimbra); Dourado, António (FCTUC, University of Coimbra)</i> | |

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| 09:30-11:00 | WeB11.6 |
| The Effect of Automatic Blink Correction on Auditory Evoked Potentials | 625-628 |
| <i>Korpela, Jussi* (Finnish Institute of Occupational Health); Vigario, Ricardo (Aalto University School of Science and Technology); Huotilainen, Minna (Finnish Institute of Occupational Health)</i> | |

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| WeB12: 09:30-11:00 | Indigo Ballroom |
| 5.5.2 Cardiovascular Modeling (Poster Session) | |

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| 09:30-11:00 | WeB12.1 |
| Simulation Environment of X-Ray Rotational Angiography Using 3D+t Coronary Tree Model | 629-632 |
| <i>Yang, Guanyu* (Southeast University); Hu, Yining (Southeast University); Huang, Xi (Southeast University); Shu, Huazhong (Southeast University); Toumoulin, Christine (Université de Rennes I)</i> | |

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| 09:30-11:00 | WeB12.2 |
| Model-Based Error Analysis of the Oscillometric Fixed-Ratio Blood Pressure Measurement Method | 633-636 |
| <i>Liu, Jiankun* (Michigan State University); Hahn, Jin-Oh (University of Alberta); Mukkamala, Ramakrishna (Michigan State University)</i> | |

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| 09:30-11:00 | | WeB12.3 |
| Effect of Asymmetry on Hemodynamics in Fluid-Structure Interaction Model of Congenital Bicuspid Aortic Valves | | 637-640 |
| <i>Marom, Gil* (Tel Aviv University); Kim, Hee Sun (Ewha Womans University); Rosenfeld, Moshe (Tel Aviv University); Raanani, Ehud (Chaim Sheba Medical Center); Haj-Ali, Rami (Tel-Aviv University)</i> | | |
| 09:30-11:00 | | WeB12.4 |
| CFD Simulation of Hemodynamics in Sequential and Individual Coronary Bypass Grafts Based on Multislice CT Scan Datasets | | 641-644 |
| <i>Hajati, Omid* (Shiraz University); Zarrabi, Khalil (Shiraz University Of Medical Sciences); Karimi, Reza (Shiraz University); Hajati, Azadeh (Shiraz University Of Medical Sciences)</i> | | |
| 09:30-11:00 | | WeB12.5 |
| Computational Modeling of the Transient Hemodynamic Response in Cerebral Cortex | | 645-648 |
| <i>Kim, Jung Hwan (The University of Texas, Austin); Khan, Reswanul K. (The University of Texas, Austin); Ress, David* (The University of Texas, Austin)</i> | | |
| 09:30-11:00 | | WeB12.6 |
| Characterization of Physiological Flow in Arterial Bifurcation Lesions | | 649-652 |
| <i>Molavi Zarandi, Marjan* (McGill University); Mongrain, Rosaire (McGill University); Bertrand, Olivier F. (Laval University)</i> | | |
| 09:30-11:00 | | WeB12.7 |
| Numerical Simulations of Flow through the Aorta Using both Ideal and Realistic Geometrical Models | | 653-656 |
| <i>Wan Ab Naim, Wan Naimah (University of Malaya); Ganesan, Poo Balan (University of Malaya); Al Abed, Amr* (University of New South Wales); Lim, Einly (University of Malaya)</i> | | |
| 09:30-11:00 | | WeB12.8 |
| Simulation of Reduction of Proximal Aortic Stiffness by an Elastic Wrap and Effects on Pulse Pressure | | 657-660 |
| <i>Giudici, Francesca* (Macquarie University); Qian, Yi (Macquarie University); O'Rourke, Michael (St. Vincent's Clinic, Sydney); Avolio, Alberto P (Macquarie University)</i> | | |
| 09:30-11:00 | | WeB12.9 |
| Hemodynamic Simulation for Surgical Treatment of Congenital Heart Disease | | 661-664 |
| <i>Qian, Yi* (Macquarie University); Liu, Jinlong (Shanghai Jiao-Tong University School of Medicine-Affiliated Shanghai Children's Medical Center); Liu, Jinfen (Shanghai Jiao-Tong University School of Medicine)</i> | | |
| WeB13: 09:30-11:00 | | Indigo Ballroom |
| 5.8.2 Cardiac Electrophysiology II (Poster Session) | | |
| 09:30-11:00 | | WeB13.1 |
| Hysteresis in DI Independent Mechanisms in Threshold for Transition between 1: 1 and 2: 2 Rhythms in Pigs | | 665-668 |
| <i>Jing, Linyuan (University of Kentucky); Patwardhan, Abhijit* (University of Kentucky)</i> | | |
| 09:30-11:00 | | WeB13.2 |
| Assessment of the ST Segment Deviation Area As a Potential Physiological Marker of the Acute Myocardial Infarction | | 669-672 |
| <i>Resende, Laíse* (Federal University of Uberlândia); Resende, Elmiro (Federal University of Uberlândia); Andrade, Adriano (Federal University of Ubelândia)</i> | | |
| 09:30-11:00 | | WeB13.3 |
| Effect of Rapid Delayed Rectifier Current on Hysteresis in Restitution of Action Potential Duration in Swine | | 673-676 |
| <i>Agarwal, Anuj (University of Kentucky); Jing, Linyuan (University of Kentucky); Patwardhan, Abhijit* (University of Kentucky)</i> | | |

09:30-11:00 WeB13.4
Transformation of the Mason-Likar 12-Lead Electrocardiogram to the Frank Vectorcardiogram 677-680
Guldenring, Daniel (University of Ulster); Finlay, Dewar (University of Ulster); Strauss, David (U.S. Food and Drug Administration); Galeotti, Lorian (Office of Science and Engineering Laboratories, Center for Devices and Radiological Health, U.S. Food and Drug Administration); Nugent, Chris (University of Ulster); Donnelly, Mark (University of Ulster); Bond, Raymond, Robert (University of Ulster)*

09:30-11:00 WeB13.5
Drug Release Mechanisms of Steroid Eluting Rings in Cardiac Pacemaker Lead Electrodes 681-684
Herrlich, Simon (HSG-IMIT); Spieth, Sven (HSG-IMIT); Gerstmann, Hans (Osypka AG); Virnich, Astrid (Osypka AG); Goettsche, Thorsten (Osypka AG); Zipfel, Franz (Osypka AG); Kitschmann, Achim (Osypka AG); Osypka, Peter (Osypka AG); Zengerle, Roland (Hahn-Schickard-Institut für Mikro- und Informationstechnik – HSG-IMIT)*

09:30-11:00 WeB13.6
Cardiac Fiber Rotation Distorts Surface Measurements of Anisotropic Propagation 685-688
Ghazanfari, Amin (University of Calgary); Vigmond, Edward (Université Bordeaux 1); Nygren, Anders (University of Calgary)*

09:30-11:00 WeB13.7
Defibrillation Success Rates for Electrically-Induced Fibrillation: Hair of the Dog 689-693
Kroll, Mark (University of Minnesota); Fish, Raymond (University of Illinois); Calkins, Hugh (Johns Hopkins University); Halperin, Henry (Johns Hopkins University); Lakkireddy, Dhanunjaya (University of Kansas Hospitals); Panescu, Dorin (Intuitive Surgical)*

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| WeB14: 09:30-11:00 | Indigo Ballroom |
| 5.10.2 Pulmonary Engineering (Poster Session) | |

09:30-11:00 WeB14.1
An Ultra-Sensitive Wearable Accelerometer for Continuous Heart and Lung Sound Monitoring 694-697
Hu, Yating (Wayne State University); Xu, Yong (Wayne State University)*

09:30-11:00 WeB14.2
Analysis of Roots in ARMA Model for the Classification of Patients on Weaning Trials 698-701
Giraldo, Beatriz (Universitat Politècnica de Catalunya); Gaspar, Benjamin W. (Universitat Politècnica de Catalunya); Caminal, Pere (Technical University of Catalonia (UPC)); Benito, Salvador (Hospital de la Santa Creu i Sant Pau)*

09:30-11:00 WeB14.3
A System for the Model Based Emergency Detection and Communication for the Telerehabilitation Training of Cardiopulmonary Patients 702-706
Helmer, Axel (OFFIS – Institute for Information Technology); Kretschmer, Friedrich (University of Oldenburg); Deparade, Riana (Institute of Sports Medicine, Medical School Hannover); Song, Bianying (University of Braunschweig – Institute of Technology); Meis, Markus (Hörzentrum Oldenburg); Hein, Andreas (OFFIS – Institute for Information Technology, Oldenburg, Germany); Marschollek, Michael (Univ of Braunschweig-Inst of Tech); Tegtbur, Uwe (Institute of Sports Medicine, Medical School Hannover)*

09:30-11:00 WeB14.4
Periodic Breathing During Ascent to Extreme Altitude Quantified by Spectral Analysis of the Respiratory Volume Signal 707-710
Garde, Ainara (Universitat Politècnica de Catalunya); Giraldo, Beatriz (Universitat Politècnica de Catalunya); Jané, Raimon (Institut de Bioenginyeria de Catalunya (IBEC)); Latshang, Tsogyal (University Hospital of Zurich); Turk, Alexander J. (University Hospital of Zurich); Hess, Thomas (University Hospital of Zurich); Bosch, Martina M. (University Hospital of Zurich); Barthelmes, Daniel (University Hospital of Zurich); Pichler Hefti, Jacqueline (University Hospital of Bern); Maggiorini, Marco (University Hospital of Zurich); Hefti, Urs (University Hospital of Zurich); Merz, Tobias (University Hospital of Zurich); Schoch, Otto D (University Hospital of Zurich); Bloch, Konrad E. (University Hospital of Zurich)*

09:30-11:00 WeB14.5
Estimation of Oxygen Consumption During Cycling and Rowing 711-714
Baig, Dur-e-Zehra (University of New South Wales); Savkin, Andrey (University of New South Wales); Celler, Branko George (University of New South Wales)*

09:30-11:00 WeB14.6
Model Based Optimization of the Cardiopulmonary Resuscitation (CPR) Procedure 715-718
*Jalali, Ali (Villanova University); Berg, Robert A. (Children's Hospital of Philadelphia);
Nadkarni, Vinay (Children's Hospital of Philadelphia); Nataraj, C.* (Villanova University)*

09:30-11:00 WeB14.7
Respiratory Effort Energy Estimation Using Doppler Radar 719-722
Shahhaidar, Ehsaneh (University of Hawaii at Manoa); Yavari, Ehsan (University of Hawaii Manoa);
Young, Jared (University of Hawaii at Manoa); Boric-Lubecke, Olga (University of Hawaii Manoa);
Stickley, Cris (University of Hawaii at Manoa)*

WeB15: 09:30-11:00 Indigo Ballroom
6.1.4 Neural Interfaces and Regeneration Posters I (Poster Session)

09:30-11:00 WeB15.1
Effects of Magnesium on Growth and Proliferation of Human Embryonic Stem Cells 723-726
*Nguyen, Thanh Yen (University of California, Riverside); Garcia, Salvador (California State University,
San Bernardino); Liew, Chee Gee (University of California, Riverside); Liu, Huinan* (University of
California, Riverside)*

09:30-11:00 WeB15.2
Electrodeposition of Platinum-Iridium Alloy Nanowires for Hermetic Packaging of Microelectronics 727-730
Petrossians, Artin (University of Southern California); whalen, jack (University of Southern California);
Weiland, James (University of Southern California); Mansfeld, Florian (University of Southern California)*

09:30-11:00 WeB15.3
Magnetically Induced Deep Brain Stimulation of Neuronal Firing for Pain Relief 731-734
*Fan, Jie (National University of Singapore); Wu, Tiecheng (National University of Singapore);
Lee, Kim Seng (National University of Singapore); Li, Xiaoping* (National University of Singapore)*

09:30-11:00 WeB15.4
A Pilot Study on Effects of 4x1 High-Definition Tdcs on Motor Cortex Excitability 735-738
*Caparelli-Daquer, Egas (Universidade do Estado do Rio de Janeiro); Zimmermann, Trelawny J. (Behavioral
Neurology Unit, National Institute of Neurological Disorders and Stroke, National Institutes of Health);
Mooshagian, Eric (National Institute of Neurological Disorders and Stroke, National Institutes of Health);
Parra, Lucas C.* (City College of New York); Rice, Justin (City College of New York); Datta, Abhishek
(The City College of the CUNY); Bikson, Marom (The City College of New York); Wassermann, Eric
(National Institutes of Health)*

09:30-11:00 WeB15.5
Real-time Fusion of Gaze and EMG for a Reaching Neuroprosthesis 739-742
Corbett, Elaine (Northwestern University); Kording, Konrad (Northwestern University);
Perreault, Eric (Northwestern University)*

09:30-11:00 WeB15.6
Polymeric Packaging for Fully Implantable Wireless Neural Microsensors 743-746
Aceros, Juan (Brown University); Yin, Ming (Brown University); Borton, David (Brown University); Patterson,
William (Brown University); Bull, Christopher (Brown University); Nurmikko, Arto (Brown University)*

09:30-11:00 WeB15.7
New Approaches to Bridge Nerve Gaps: Development of a Novel Drug-Delivering Nerve Conduit 747-750
Lin, Keng-Min (University of Utah); Sant, Himanshu Jayant (University of Utah);
Gale, Bruce Kent (University of Utah); Agarwal, Jayant (University of Utah)*

09:30-11:00 WeB15.8
Implant Positioning System Using Mutual Inductance 751-754
Zou, You (University of California, Davis); O'Driscoll, Stephen (University of California, Davis)*

09:30-11:00 WeB15.9
Comprehensive Characterization of Tungsten Microwires in Chronic Neurocortical Implants 755-758
Prasad, Abhishek (University of Miami); Xue, Qing-Shan (University of Florida); Sankar, Viswanath (University of Florida); Nishida, Toshikazu (University of Florida); Shaw, Gerry (University of Florida); Streit, Wolfgang (University of Florida); Sanchez, Justin C. (University of Miami)*

09:30-11:00 WeB15.10
Towards a Noise Prediction Model for in Vivo Neural Recording 759-762
Mora Lopez, Carolina (K.U.Leuven); Welkenhuysen, Marleen (IMEC); Musa, Silke (IMEC); Eberle, Wolfgang (imec); Bartic, Carmen (IMEC); Puers, Robert (Catholic University of Leuven); gielen, Georges (ESAT, KULeuven)*

09:30-11:00 WeB15.11
Wireless Hippocampal Neural Recording Via a Multiple Input RF Receiver to Construct Place-Specific Firing Fields 763-766
Lee, Seung Bae (Georgia Institute of Technology); Manns, Joseph (Emory University); Ghovanloo, Maysam (Georgia Institute of Technology)*

09:30-11:00 WeB15.12
Analog Low-Power Hardware Implementation of a Laguerre-Volterra Model of Intracellular Subthreshold Neuronal Activity 767-770
Ghaderi, Viviane (University of Southern California); Roach, Shane (University of Southern California); Song, Dong (University of Southern California); Marmarelis, Vasilis (University of Southern California); Choma, John, Jr. (University of Southern California); Berger, Theodore (University of Southern California)*

WeB16: 09:30-11:00 Indigo Ballroom
6.1.5 Neural Interfaces and Regeneration Posters II (Poster Session)

09:30-11:00 WeB16.1
A Superposable Silicon Synapse with Programmable Reversal Potential 771-774
Benjamin, Ben (Stanford University); Arthur, John (IBM Almaden Research Center); Gao, Peiran (Stanford University); Merolla, Paul (IBM Almaden Research Center); Boahen, Kwabena (Stanford University)*

09:30-11:00 WeB16.2
Event-Driven Synchronous Neural Integration in Analog VLSI 775-778
Yu, Theodore (UCSD); Park, Jongkil (UCSD); Joshi, Siddharth (University of California San Diego); Maier, Christoph (UCSD); Cauwenberghs, Gert (University of California San Diego)*

09:30-11:00 WeB16.3
125Mbps Ultra-Wideband System Evaluation for Cortical Implant Devices 779-782
Luo, Yi (Utah State University); Winstead, Chris (Utah State University); Chiang, Patrick (Oregon State University)*

09:30-11:00 WeB16.4
A Wireless 64-Channel ECoG Recording Electronic for Implantable Monitoring and BCI Applications: WIMAGINE 783-786
Charvet, Guillaume (CEA/LETI, MINATEC campus); foerster, Michael (CEA/LETI, MINATEC Campus); chatalic, guillaume (CEA-LETI, Minatec Campus); Michea, Audrey (CEA-LETI, Minatec Campus); porcherot, jean (CEA/LETI, MINATEC Campus); Bonnet, Stéphane (CEA Léti MINATEC); Filipe, Sabine (CEA/LETI, MINATEC Campus); Audebert, Patrick (CEA/LETI, MINATEC Campus); Robinet, Stéphanie (CEA/LETI, MINATEC Campus); Josselin, Vincent (CEA-LETI, Minatec Campus); Reverdy, Jacques (CEA-LETI, Minatec Campus); D'Errico, Raffaele (CEA-LETI, Minatec Campus); Sauter-Starace, Fabien (CEA); MESTAIS, Corinne (CEA-LETI MINATEC); Benabid, Alim-Louis (CEA / Clinattec)*

09:30-11:00 WeB16.5
Effects of Tissue Dielectric Properties on the Electric Field Induced in Tdcs: A Sensitivity Analysis 787-790
Salvador, Ricardo (University of Lisbon); Ramirez, Fátima Guadalupe (Instituto Politécnico de Setúbal – Escola Superiorde Tecnologia); Výcheslavovna, Mariya (Technology School of the Polytechnic Institute of Setúbal); Miranda, Pedro (Faculty of Science, University of Lisbon)*

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| 09:30-11:00 | WeB16.6 |
| The Use of a Novel Carbon Nanotube Coated Microelectrode Array for Chronic Intracortical Recording and Microstimulation | 791-794 |
| <i>Parker, Rebecca* (University of Utah); Negi, Sandeep (University); Davis, Tyler (University of Utah); Keefer, Edward (Plexon Inc); Wiggins, Harvey (Plexon Inc); House, Paul (University of Utah); Greger, Bradley (University of Utah)</i> | |
| 09:30-11:00 | WeB16.7 |
| A 1.5-to-5 V Converter for a Battery-Powered Activity-Dependent Intracortical Microstimulation SoC | 795-798 |
| <i>Azin, Meysam (Case Western Reserve University); Mohseni, Pedram* (Case Western Reserve University)</i> | |
| 09:30-11:00 | WeB16.8 |
| A Parametric Study of Intracortical Microstimulation in Behaving Rats for the Development of Artificial Sensory Channels | 799-802 |
| <i>Semprini, Marianna (Italian Institute of Technology); Bennicelli, Lorenzo (Italian Institute of Technology); Vato, Alessandro* (Fondazione Istituto Italiano di Tecnologia)</i> | |
| 09:30-11:00 | WeB16.9 |
| Low-Cost, Flexible Polymer Arrays for Long-Term Neuronal Culture | 803-806 |
| <i>Hogan, N. Catherine* (Massachusetts Institute of Technology); Talei-Franzese, Giovanni (MIT); Abudayyeh, Omar (MIT); Taberner, Andrew (The University of Auckland); Hunter, Ian (Massachusetts Institute of Technology)</i> | |
| 09:30-11:00 | WeB16.10 |
| Measuring the Electric Field of Bioelectrodes in Saline During Stimulation | 807-810 |
| <i>Ansari, Umar (University of New South Wales); Lovell, Nigel H. (University of New South Wales); Suaning, Gregg* (The University of New South Wales)</i> | |
| 09:30-11:00 | WeB16.11 |
| Transcranial Magnetic Stimulation Induces Current Pulses in Transcranial Direct Current Stimulation Electrodes | 811-814 |
| <i>Peterchev, Angel V* (Duke University); Sameer, Dhamne (Children's Hospital, Harvard Medical School); Kothare, Raveena (Children's Hospital, Harvard Medical School); Rotenberg, Alexander (Harvard Medical School)</i> | |
| 09:30-11:00 | WeB16.12 |
| An Economical and Convenient Experiment Setup for Electrode Investigation | 815-818 |
| <i>Pour Aryan, Naser* (University of Ulm); Rieger, Viola (University of Ulm); Brendler, Christian (University of Ulm); Rothermel, Albrecht (University of Ulm)</i> | |

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| WeB17: 09:30-11:00 | Indigo Ballroom |
| 6.1.6 Neural Interfaces and Regeneration Posters III (Poster Session) | |

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| 09:30-11:00 | WeB17.1 |
| In Vitro Study of Iridium Electrodes for Neural Stimulation | 819-822 |
| <i>Pour Aryan, Naser* (University of Ulm); Brendler, Christian (University of Ulm); Rieger, Viola (University of Ulm); Schleeauf, Sebastian (Retina Implant AG); Heusel, Gerhard (Natural and Medical Sciences Institute at University of Tuebingen (NMI)); Rothermel, Albrecht (University of Ulm)</i> | |
| 09:30-11:00 | WeB17.2 |
| Animal Experiments with the Microelectronics Neural Bridge IC | 823-826 |
| <i>Li, Wenyuan* (Southeast University); PEI, Fei (Institute of RF- & OE-ICs, Southeast University, Nanjing, P.R. China); Wang, Zhigong (Southeast University); Lü, Xiaoying (Southeast University)</i> | |
| 09:30-11:00 | WeB17.3 |
| Advantages of Voice Reproduction and the Development of a Biomimetic Self-Regulating Double Clack-Valve for a Prosthesis of the Larynx – a Feasibility Study | 827-830 |
| <i>Nazaradeh, Fridun (Proth-O-Type GmbH); Dupré, Marc (proth-o-type); Doerge, Thomas (Fraunhofer Institute for Biomedical Engineering); Eckermann, Claus (Proth-O-Type GmbH); Kelterer, Wiebke (none); Nazaradeh, Denis (Proth-O-Type GmbH); Steltenkamp, Siegfried* (Centre of Advanced European Studies and Research (caesar))</i> | |

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| 09:30-11:00 | WeB17.4 |
| The relationship between transcranial Current Stimulation electrode montages and the effect of the skull orbital openings | 831-834 |
| <i>Mekonnen, Abeye* (Institute of Biophysics and Biomedical Engineering, University of Lisbon); Salvador, Ricardo (University of Lisbon); Ruffini, Giulio (Starlab Barcelona SL); Miranda, Pedro (Faculty of Science, University of Lisbon)</i> | |
| 09:30-11:00 | WeB17.5 |
| Effect of Anesthesia on Spontaneous Activity and Evoked Potentials of the Cerebellar Cortex | 835-838 |
| <i>Ordek, Gokhan* (New Jersey Institute of Technology); Groth, Jonathan (New Jersey Institute of Technology, Newark); Sahin, Mesut (New Jersey Institute of Technology)</i> | |
| 09:30-11:00 | WeB17.6 |
| Oscillator-Based Postictal Stimuli Prolong the Intervals between in Vitro Mg-Free Seizure Episodes in Hippocampal Slice Preparation | 839-842 |
| <i>Chen, Wu (Louisiana Tech University); Chiu, Alan Wing Lun* (Louisiana Tech University)</i> | |
| 09:30-11:00 | WeB17.7 |
| Motor Function Rebuilding of Limbs Based on Communication Principle and Electronic System | 843-846 |
| <i>Wang, Zhigong* (Southeast University); Lü, Xiaoying (Southeast University); Xia, Yang (Rehabilitation Medicine in Zhongda Hospital, Nanjing, 210009); Li, Wenyuan (Southeast University); Huang, Zonghao (Southeast University); Zhou, Yuxuan (School of Biological Science and Medical Engineering, Southeast University); SHEN, Xiaoyan (Southeast University); ZHAO, Xintai (Southeast University); Yang, Jingdong (School of Biological Science and Medical Engineering, Southeast University); Wang, Suyang (School of Biological Science and Medical Engineering, Southeast University); Ma, Ming (Rehabilitation Medicine in Zhongda Hospital, Nanjing 210009, China); Wang, Bilei (Rehabilitation Medicine in Zhongda Hospital, Nanjing, 210009)</i> | |
| 09:30-11:00 | WeB17.8 |
| A Figure-Of-Merit for Design of High Performance Inductive Power Transmission Links for Implantable Microelectronic Devices | 847-850 |
| <i>Kiani, Mehdi (Georgia Institute of Technology); Ghovanloo, Maysam* (Georgia Institute of Technology)</i> | |
| 09:30-11:00 | WeB17.9 |
| Compact Stacked Planar Inverted-F Antenna for Passive Deep Brain Stimulation Implants | 851-854 |
| <i>Hosain, Md. Kamal* (Deakin University); Kouzani, Abbas Z. (Deakin University); Tye, Susannah (Deakin University); Mortazavi, Daryoush (Deakin University); Kaynak, Akif (Deakin University)</i> | |
| 09:30-11:00 | WeB17.10 |
| Recent Advances in Power Efficient Output Stage for High Density Implantable Stimulators | 855-858 |
| <i>Sooksood, Kriangkrai* (King Mongkut's Institute of Technology Ladkrabang); Noorsal, Emilia (Universiti Teknologi Mara); Ortmanns, Maurits (University of Ulm)</i> | |
| 09:30-11:00 | WeB17.11 |
| Transcranial Direct Current Stimulation in Pediatric Brain: A Computational Modeling Study | 859-862 |
| <i>Minhas, Preet* (The City College of The City University of New York); Bikson, Marom (The City College of New York); Woods, Adam J. (University of Pennsylvania); Rosen, Alyssa (Children's Hospital of Philadelphia and University of Pennsylvania); Kessler, Sudha (Children's Hospital of Philadelphia and University of Pennsylvania)</i> | |
| 09:30-11:00 | WeB17.12 |
| Programmable High-Output-Impedance, Large-Voltage Compliance, Microstimulator for Low-Voltage Biomedical Applications | 863-866 |
| <i>Farahmand, Sina* (K.N. Toosi University of Technology); Maghami, Mohammad Hossein (Electrical & Computer Eng. Dept., K.N. Toosi University of Technology, Tehran, Iran); Sodagar, Amir M. (University of Michigan)</i> | |

6.1.7 Neural Interfaces and Regeneration Posters IV (Poster Session)

- 09:30-11:00 WeB18.1
The Computational Study of Subdural Cortical Stimulation: A Quantitative Analysis of Voltage and Current Stimulation 867-870
Kim, Donghyeon (Gwangju Institute of Science and Technology); Seo, Hyeon (Gwangju Institute of Science and Technology); KIM, Hyoung-Ihl (Gwangju Institute of Science and Technology); Jun, Sung Chan (Gwangju Institute of Science and Technology)*
- 09:30-11:00 WeB18.2
Removable Silicon Insertion Stiffeners for Neural Probes Using Polyethylene Glycol As a Biodissolvable Adhesive 871-874
Felix, Sarah (Lawrence Livermore National Laboratory); Shah, Kedar (Lawrence Livermore National Laboratory); George, Diana (Lawrence Livermore National Laboratory); Tolosa, Vanessa (Lawrence Livermore National Laboratory); Tooker, Angela (Lawrence Livermore National Lab); Sheth, Heeral (Lawrence Livermore National Laboratory); Delima, Terri (Lawrence Livermore National Laboratory); Pannu, Satinderpall (Lawrence Livermore National Laboratory)*
- 09:30-11:00 WeB18.3
An Electroencephalographic Recording Platform for Real-Time Seizure Detection 875-878
McLaughlin, Bryan (Draper Laboratory); Mariano, Laura (Charles Stark Draper Laboratory); Prakash, Srinivasamurthy (Charles Stark Draper Laboratory); Kindle, Alex (Worcester Polytechnic Institute); Czarnecki, Andrew (Northeastern University); Modarres, Mohammad (Charles Stark Draper Laboratory); Shoeb, Ali (Massachusetts Institute of Technology); Rotenberg, Alexander (Harvard Medical School); Loddenkemper, Tobias (Children's Hospital Boston); Schachter, Steven (Beth Israel Deaconess Medical Center, Harvard Medical School)*
- 09:30-11:00 WeB18.4
Myoelectric Computer Interfaces to Reduce Co-Contraction after Stroke 879-882
Wright, Zachary (Northwestern University); Rymer, William Zev (Northwest & Rehab Inst of Chicago); Slutzky, Marc (Northwestern University)*
- 09:30-11:00 WeB18.5
Direct Inductive Stimulation for Energy-Efficient Wireless Neural Interfaces 883-886
Ha, Sohmyung (UCSD); Khraiche, Massoud (University of California, San Diego); Silva, Gabriel (UCSD); Cauwenberghs, Gert (University of California San Diego)*
- 09:30-11:00 WeB18.6
Focused Ultrasound Power Transfer to Nerve Stimulators 887-890
Gulick, Daniel (Arizona State University); Towe, Bruce (Arizona Sate University)*
- 09:30-11:00 WeB18.7
Electrode Assembly Design for Transcranial Direct Current Stimulation: A FEM Modeling Study 891-895
Bikson, Marom (The City College of New York); Kronberg, Greg (City College of New York)*
- 09:30-11:00 WeB18.8
Development of an Implantable Neuro-Prosthetic System for Neural Stimulation and Recording 896-899
Mosayebi, Mohsen (University of Isfahan); Mahnam, Amin (University of Isfahan); Rabiee, Seyed Mahmoud (Babol Noshirvani University of Technology)*
- 09:30-11:00 WeB18.9
An Implantable Neural Stimulator for Intraspinal MicroStimulation 900-903
Troyk, Philip (Illinois Institute of Technology); Mushahwar, Vivian (University of Alberta); Stein, Richard B. (University of Alberta); Suh, Sungjae (Illinois Institute of Technology); Everaert, Dirk George (University of Alberta); Hu, Zhe (Illinois Institute of Technology); DeMichele, Glenn (Sigenics Inc.); Kerns, Douglas (Sigenics Inc.); Kayvani, Kevin (Sigenics)*

8.5.3 Surgical Robotics (Poster Session)

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| 09:30-11:00 | WeB19.1 |
| A Fast Torsionally Compliant Kinematic Model of Concentric-Tube Robots | 904-907 |
| <i>Xu, Ran* (Western University); Patel, Rajni (London Health Sciences Centre)</i> | |
| 09:30-11:00 | WeB19.2 |
| Investigation of Bioinspired Gecko Fibers to Improve Adhesion of HeartLander Surgical Robot | 908-911 |
| <i>Tortora, Giuseppe (Scuola Superiore Sant'Anna); Glass, Paul (nanoGriptech LLC); Wood, Nathan (Carnegie Mellon University); Aksak, Burak (Texas Tech University); Menciassi, Arianna (Scuola Superiore Sant'Anna); Sitti, Metin (Carnegie Mellon University); Riviere, Cameron N* (Carnegie Mellon University)</i> | |
| 09:30-11:00 | WeB19.3 |
| Using Analytical Redundancy to Increase Safety of a Synergistic Manually Guided Instrument for Craniotomy | 912-915 |
| <i>Korff, Alexander* (RWTH Aachen University); Kellermann, Christoph (RWTH Aachen University, Chair of Medical Engineering); Müller, Meiko (RWTH Aachen University); Kunze, Sandra (University of Heidelberg, Neurosurgery Dept. of the Medical Faculty Mannheim); Schmieder, Kirsten (Ruprecht-Karls-University of Heidelberg, Neurosurgery Department of the Medical Faculty Mannheim); Radermacher, Klaus (RWTH Aachen University, Chair of Medical Engineering)</i> | |
| 09:30-11:00 | WeB19.4 |
| Needle Insertion with Duty-Cycled Rotation into Multiple Media | 916-919 |
| <i>Lehocky, Craig A.* (Carnegie Mellon University); Riviere, Cameron N (Carnegie Mellon University)</i> | |
| 09:30-11:00 | WeB19.5 |
| Smooth Path Planning for a Biologically-Inspired Neurosurgical Probe | 920-923 |
| <i>Bano, Sophia* (Queen Mary, University of London); Ko, Seong Young (Chonnam National University); Rodriguez y Baena, Fernando (Imperial College London)</i> | |
| 09:30-11:00 | WeB19.6 |
| Real Time Simulation of Grasping Procedure of Large Internal Organs During Laparoscopic Surgery | 924-927 |
| <i>Dehghani Ashkezari, Hossein (Sharif University of Technology); Farahmand, Farzam* (Sharif University of Technology); Behzadipour, Saeed (Sharif University of Technology); Firoozbakhsh, Keikhosrow (Sharif University of Technology)</i> | |
| 09:30-11:00 | WeB19.7 |
| Tracking and Position Control of an MRI-Powered Needle-Insertion Robot | 928-931 |
| <i>Bergeles, Christos* (Boston Children's Hospital, Harvard Medical School); Qin, Lei (Dana-Farber Cancer Research); Vartholomeos, Panagiotis (Children's Hospital Boston, Harvard Medical School); Dupont, Pierre (Children's Hospital / Harvard Medical School)</i> | |

8.7.1 New Technologies and Methodologies in Medical Robotics (Poster Session)

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| 09:30-11:00 | WeB20.1 |
| A New Evaluation and Training System for Micro-Telemanipulation at the Middle Ear | 932-935 |
| <i>Maier, Thomas* (Technische Universität München); Strauss, Gero (University of Leipzig); Scholz, Markus (Institute for Medical Informatics, Statistics and Epidemiology, University of Leipzig); Berger, Thomas (Clinic and Polyclinic of ENT – Medicine / Plastic Surgery, University Hospital Leipzig); Kielhorn, Anne (Clinic and Polyclinic of ENT – Medicine / Plastic Surgery, University Hospital Leipzig); Entsfellner, Konrad (TU München); Willim, Christian (TU München, Institute of Micro Technology and MedicalDevice Technology (MiMed)); Büscher, Wolfgang (TU München, Institute of Micro Technology and MedicalDevice Technology (MiMed)); Dietz, Andreas (University of Leipzig); Lueth, Tim (Technical University of Munich)</i> | |
| 09:30-11:00 | WeB20.2 |
| Difference of Perceiving Object Softness During Palpation through Single-Node and Multi-Node Contacts | 936-939 |
| <i>Widmer, Antoine (University of Calgary); Hu, Yaoping* (The University of Calgary)</i> | |

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| 09:30-11:00 | WeB20.3 |
| Design of a Two Degree-Of-Freedom, MRI-Compatible Actuator | 940-943 |
| <i>Elbannan, Khaled (University of Western Ontario); Salisbury, Shaun* (University of Western Ontario)</i> | |
| 09:30-11:00 | WeB20.4 |
| A Stiffness Probe Based on Force and Vision Sensing for Soft Tissue Diagnosis | 944-947 |
| <i>Li, Jichun* (King's College London); Liu, Hongbin (Kings College London); Seneviratne, Lakmal (King's College London); Althoefer, Kaspar (King's College London)</i> | |
| 09:30-11:00 | WeB20.5 |
| Optical Coherence Tomography Scanning with a Handheld Vitreoretinal Micromanipulator | 948-951 |
| <i>Yang, Sungwook (Carnegie Mellon University); Balicki, Marcin (Johns Hopkins University); MacLachlan, Robert A. (Carnegie Mellon University); Liu, Xuan (Johns Hopkins University); Kang, Jin U. (Johns Hopkins University); Taylor, Russell H. (The Johns Hopkins University); Riviere, Cameron N* (Carnegie Mellon University)</i> | |
| 09:30-11:00 | WeB20.6 |
| Needle Deflection Estimation Using Fusion of Electromagnetic Trackers | 952-955 |
| <i>Sadjadi, Hossein* (Queen's University); Hashtrudi-Zaad, Keyvan (Queen's University); Fichtinger, Gabor (Johns Hopkins University)</i> | |
| 09:30-11:00 | WeB20.7 |
| Automated Drill-Stop by SVM Classified Audible Signals | 956-959 |
| <i>Pohl, B. Matthias* (University of Luebeck); Jungmann, Jan Ole (Institute for Signal Processing, University of Luebeck, 23562 Luebeck); Christ, Olaf (University of Luebeck); Hofmann, Ulrich G. (University of Freiburg)</i> | |
| 09:30-11:00 | WeB20.8 |
| Compensation for Relative Velocity between Needle and Soft Tissue for Friction Modeling in Needle Insertion | 960-963 |
| <i>Asadian, Ali* (Western University (University of Western Ontario)); Patel, Rajni (London Health Sciences Centre); Kermani, Mehrdad R. (University of Western Ontario)</i> | |

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| WeB21: 09:30-11:00 | Indigo Ballroom |
| 8.8.2 Brain-Machine Interfaces with Robotics (Poster Session) | |

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| 09:30-11:00 | WeB21.1 |
| State-Space Control of Prosthetic Hand Shape | 964-967 |
| <i>Velliste, Meel* (University of Pittsburgh); McMorland, Angus J C (University of Pittsburgh); Diril, Emrah (University of Pittsburgh); Schwartz, Andrew B. (University of Pittsburgh)</i> | |
| 09:30-11:00 | WeB21.2 |
| Assessment of a Multigrasp Myoelectric Control Approach for Use by Transhumeral Amputees | 968-971 |
| <i>Alshammary, Nasser* (Vanderbilt University); Dalley, Skyler (Vanderbilt University); Goldfarb, Michael (Vanderbilt University)</i> | |
| 09:30-11:00 | WeB21.3 |
| Line Following Terrestrial Insect Biobots | 972-975 |
| <i>Latif, Tahmid (North Carolina State University); Bozkurt, Alper* (North Carolina State University)</i> | |
| 09:30-11:00 | WeB21.4 |
| Motion States Extraction with Optical Flow for Rat-Robot Automatic Navigation | 976-979 |
| <i>Zhang, Xinlu (ZheJiang University); Sun, Chao (Zhejiang University); Zheng, Nenggan* (Zhejiang University); Chen, Weidong (zhejiang University); Zheng, Xiaoxiang (Zhejiang University)</i> | |

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| WeB22: 09:30-11:00 | Indigo Ballroom |
| 9.1.2 Clinical Engineering (Poster Session) | |

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| 09:30-11:00 | WeB22.1 |
| A Modular, Low-Cost Robot for Zebrafish Handling | 980-983 |
| <i>Pfriem, Alexander* (Karlsruhe Institute of Technology); Alshut, Rüdiger (Karlsruhe Institute of Technology); Pylatiuk, Christian (Karlsruhe Institute of Technology); Ziegner, Bertram (Karlsruhe Institute of Technology); Schulz, Stefan (Karlsruhe Institute of Technology); Bretthauer, G (Institute for Applied Computer Science)</i> | |

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| 09:30-11:00 | | WeB22.2 |
| Development of a Lorentz-Force Actuated Intravitreal Jet Injector | | 984-987 |
| <i>White, James* (Massachusetts Institute of Technology); Chang, Jean H. (MIT); Hogan, N. Catherine (Massachusetts Institute of Technology); Hunter, Ian (Massachusetts Institute of Technology)</i> | | |
| 09:30-11:00 | | WeB22.3 |
| Novel Device to Conduct Flash-Heat Treatment in Efforts to Reduce Mother-To-Child HIV Transmission in Low-Resource Areas | | 988-991 |
| <i>Suresh, Aneesh* (Northwestern University); Harn, Casey (Northwestern University); Pollock, Erica (Northwestern University); Kroon, Max (Mowbray Maternity Hospital); Poluta, Mladen (University of Cape Town); Kelso, David (Northwestern University); Glucksberg, Matthew (Northwestern University)</i> | | |
| 09:30-11:00 | | WeB22.4 |
| Characteristics of the Pulse Wave in Patients with Chronic Gastritis and the Healthy in Korean Medicine | | 992-995 |
| <i>Shin, Ki-Young* (Korea Electorechnology Research Institute); Lee, Tae Bum (Korea ElectroTechnology Research Institute); Jin, Seung Oh (Korea ElectroTechnology Research Institute); Choi, Sang Ho (Sungkyunkwan University); Yoo, Sung ki (Korea ElectroTechnology Research Institute); Huh, Young (KEIT); Kim, Jaeuk U (Korean Institute of Oriental Medicine); Kim, Jong Yeol (Korea Institute of Oriental Medicine)</i> | | |
| 09:30-11:00 | | WeB22.5 |
| Design and Usability of a Medical Computing System for Diagnosis of Mild Traumatic Brain Injury | | 996-999 |
| <i>Subbian, Vignesh* (University of Cincinnati); Beyette, Fred R (University of Cincinnati); Wilsey, Philip (University of Cincinnati)</i> | | |
| 09:30-11:00 | | WeB22.6 |
| Multi-Microphone Adaptive Array Augmented with Visual Cueing | | 1000-1003 |
| <i>Gibson, Paul (Advanced Medical Electronics); Hedin, Daniel* (Advanced Medical Electronics); Davies-Venn, Evelyn (University of Minnesota); Nelson, Peggy (University of Minnesota); Kramer, Kevin (Advanced Medical Electronics Corp.)</i> | | |
| 09:30-11:00 | | WeB22.7 |
| Flow Cytometry As a Diagnostic Method for Colorectal Cancer | | 1004-1007 |
| <i>Takeda, Sunao* (Tokyo University of Technology); Hinata, Nae (Tokyo University of Technology); Suzuki, Akane (Nihon Kohden corporation); Shioyama, Takahiro (Nihon Kohden Corporation); Kanda, Hiroaki (Cancer Institute Hospital); Ishikawa, Yuichi (Cancer Institute Hospital); Yamaguchi, Toshiharu (Cancer Institute Hospital); Kato, You (Tokyo University of Technology)</i> | | |
| 09:30-11:00 | | WeB22.8 |
| A CAD System for Atherosclerotic Plaque Assessment | | 1008-1011 |
| <i>Afonso, David Miguel (IST-ID (509 830 072)); Seabra, Jose Carlos (Instituto Superior Tecnico NIF 501 507 930); Sanches, J. Miguel* (IST(NIF:501507930)); Suri, Jasjit (Biomedical Technologies)</i> | | |
| WeC01: 13:30-15:00 | | Sapphire A |
| 1.1.2 Time-Frequency and Time-Scale Analysis of Biosignals I (Oral Session) | | |
| Chair: Stamoulis, Catherine (Harvard Medical School) | | |
| Co-Chair: Yoshida, Hisashi (Kinki Univ.) | | |
| 13:30-13:45 | | WeC01.1 |
| Spatiotemporal Compression for Efficient Storage and Transmission of High-Resolution Electrocardiography Data | | 1012-1015 |
| <i>Kim, Taehoon (Polytechnic Institute of New York University); Artan, Nabi Sertac (Polytechnic Institute of New York University); Viventi, Jonathan (Polytechnic Institute of New York University); Chao, Jonathan* (Polytechnic Institute of New York University)</i> | | |
| 13:45-14:00 | | WeC01.2 |
| Signal Subspace Integration for Improved Seizure Localization | | 1016-1019 |
| <i>Stamoulis, Catherine* (Harvard Medical School); Fernandez-Sanchez, Ivan (Children's Hospital Boston); Chang, Bernard (Harvard Medical School/Beth Israel Deaconess Medical Center); Loddenkemper, Tobi (Harvard Medical School/Children's Hospital Boston)</i> | | |

14:00-14:15 WeC01.3
Combining Time Series and Frequency Domain Analysis for a Automatic Seizure Detection 1020-1023
Fürbaß, Franz (AIT Austrian Institute of Technology GmbH); Hartmann, Manfred (AIT Austrian Institute of Technology GmbH); Perko, Hannes (Austrian Institute of Technology); Skupch, Ana (AIT Austrian Institute of Technology GmbH); Dollfuß, Peter (Austrian Institute of Technology (AIT)); Gritsch, Gerhard (AIT Austrian Institute of Technology GmbH); Baumgartner, Christoph (Neurological Department Rosenhügel at General Hospital Hietzing, Vienna, Austria); Kluge, Tilmann (Austrian Institute of Technology)*

14:15-14:30 WeC01.4
Quantification of Spontaneous and Evoked HFO's in SEEG Recordings and Prospective for Pre-Surgical Diagnostics. Case Study 1024-1027
Kalitzin, Stiliyan (Foundation Epilepsy Institute in The Netherlands (SEIN)); Zijlmans, Maeike (Montreal Neurological Institute); Petkov, George (Foundation Epilepsy Institute in The Netherlands (SEIN)); Velis, Demetrios N. (Epilepsy Institutes in The Netherlands Foundation – SEIN); Claus, Steven (Epilepsy Institute of The Netherlands); Visser, Gerhard (Clinical Neurophysiology, Department of Neurology, Erasmus MC, Rotterdam); Koppert, Marc (Foundation Epilepsy Institute in The Netherlands (SEIN)); Lopes da Silva, Fernando (Swammerdam Institute of Life Sciences, Univ. of Amsterdam)*

14:30-14:45 WeC01.5
Electroencephalographic Events Prior to Epileptic Major Motor Seizures 1028-1031
Petkov, George (Foundation Epilepsy Institute in The Netherlands (SEIN)); Kalitzin, Stiliyan (Foundation Epilepsy Institute in The Netherlands (SEIN)); Velis, Demetrios N. (Epilepsy Institutes in The Netherlands Foundation – SEIN); Vledder, Ben (SEIN); Koppert, Marc (Foundation Epilepsy Institute in The Netherlands (SEIN)); Lopes da Silva, Fernando (Swammerdam Institute of Life Sciences, Univ. of Amsterdam)*

14:45-15:00 WeC01.6
Phase-Based Brain Consciousness Analysis 1032-1035
Li, Ling (University of Kent); Looney, David (Imperial College London); Park, Cheolsoo (Imperial College London); Tanaka, Toshihisa (Tokyo University of Agriculture and Technology); Cao, Jianting (Saitama Institute of Technology); Mandic, Danilo (Imperial College)*

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| WeC02: 13:30-15:00 | Sapphire D |
| 1.3.2 Nonlinear Analysis of Biomedical Signals II (Oral Session) | |
| Chair: Mitsis, Georgios D. (<i>Univ. of Cyprus</i>) | |
| Co-Chair: Marmarelis, Vasilis (<i>Univ. of Southern California</i>) | |

13:30-13:45 WeC02.1
Performance Bounds for Dynamic Causal Modeling of Brain Connectivity 1036-1039
Wu, Shun Chi (University of California, Irvine); Swindlehurst, A. Lee (University of California, Irvine)*

13:45-14:00 WeC02.2
Estimating Electrical Conductivity Tensors of Biological Tissues Using Microelectrode Arrays 1040-1044
Gilboa, Elad (Washington University in St Louis); La Rosa, Patricio (Washington University in St Louis); Nehorai, Arye (Washington University in St Louis)*

14:00-14:15 WeC02.3
Quantitative Performance Analysis of Four Methods of Evaluating Signal Nonlinearity: Application to Uterine EMG Signals 1045-1048
Diab, Ahmad (Universite de technologie de Compiègne – UTC); Hassan, Mahmoud (UTC-France); Marque, Catherine (University of Technology of compiegne); Karlsson, Brynjar (Reykjavik University)*

14:15-14:30 WeC02.4
Nonlinear Analysis of the Change Points between a and B Phases During the Cyclic Alternating Pattern under Normal Sleep 1049-1052
Chouvarda, Ioanna (Aristotle University); Mendez, Martin Oswaldo (Universidad Autonoma de San Luis Potosi); Alba, Alfonso (Universidad Autonoma de San Luis Potosi); Bianchi, Anna Maria (Politecnico di Milano); Grassi, Andrea (Sleep Disorders Centre, Department of Neurology, University of Parma, Parma, Italy); Arce-Santana, Edgar Roman (Facultad de Ciencias); Rosso, Valentina (Sleep Disorders Centre, Department of Neurology, University of Parma, Parma, Italy); Terzano, Mario Giovanni (Sleep Disorders Centre, Department of Neurology, University of Parma, Parma, Italy); Parrino, Liborio (Sleep Disorders Centre, Department of Neurology, University of Parma, Parma, Italy)*

14:30-14:45 WeC02.5
Multi-Sparse Signal Recovery for Compressive Sensing 1053-1056
Liu, Yipeng (KU Leuven); Gligorijevic, Ivan (Katholieke Universiteit Leuven); Matic, Vladimir (Department of Electrical Engineering (ESAT-SCD), Katholieke Universiteit Leuven, Belgium); De Vos, Maarten (KU Leuven); Van Huffel, Sabine (Katholieke Universiteit Leuven)*

14:45-15:00 WeC02.6
Nonlinear Dynamics Measures Applied to EEG Recordings of Patients with Attention Deficit/Hyperactivity Disorder: Quantifying the Effects of a Neurofeedback Treatment 1057-1060
Cerquera Soacha, Edwin Alexander (Antonio Nariño University); Arns, Martijn (Research Institute Brainclinics); Buitrago Bolivar, Elias (Universidad Antonio Nariño); Gutiérrez Salamanca, Rafael María (Antonio Nariño University, Research Group Complex Systems); Freund, Jan A. (University of Oldenburg)*

WeC03: 13:30-15:00 Sapphire E
1.4.1 Biomedical Signal Classification I (Oral Session)
Chair: Bourke, Alan (*Univ. of Limerick*)
Co-Chair: Marnane, Liam (*Univ. Coll. Cork*)

13:30-13:45 WeC03.1
Low Complexity Algorithm for Seizure Prediction Using Adaboost 1061-1064
Ayinala, Manohar (University of Minnesota); Parhi, Keshab (University of Minnesota)*

13:45-14:00 WeC03.2
A Universal Hybrid Decision Tree Classifier Design for Human Activity Classification 1065-1068
Chien, Chieh (University of California, Los Angeles); Pottie, Greg (UCLA EE Department)*

14:00-14:15 WeC03.3
Improving Seizure Detection Performance Reporting: Analysing the Duration Needed for a Detection ... 1069-1072
Logesparan, Lojini (Imperial College London); Casson, Alexander James (Imperial College London); Rodriguez-Villegas, Esther (Imperial College London)*

14:15-14:30 WeC03.4
A Novel Dictionary for Neonatal EEG Seizure Detection Using Atomic Decomposition 1073-1076
Belur Nagaraj, Sunil (University College Cork); Stevenson, Nathan (University of Queensland); Marnane, Liam (University College Cork); Boylan, Geraldine (University College Cork); Lightbody, Gordon (University College Cork)*

14:30-14:45 WeC03.5
Activity Recognition Using Dynamic Multiple Sensor Fusion in Body Sensor Networks 1077-1080
Gao, Lei (University of Limerick, Ireland.); Bourke, Alan (University of Limerick); Nelson, John (University of Limerick)*

14:45-15:00 WeC03.6
A New Method to Estimate Abundances of Multiple Components Using Multi-Spectral Fluorescence Lifetime Imaging Microscopy 1081-1084
Gutierrez-Navarro, Omar (Universidad Autonoma de San Luis Potosi); Arce-Santana, Edgar Roman (Facultad de Ciencias); Campos-Delgado, Daniel U. (Universidad Autonoma de San Luis Potosi); Mendez, Martin Oswaldo (Universidad Autonoma de San Luis Potosi); Jo, Javier Antonio (Texas A&M University)*

WeC04: 13:30-15:00 Sapphire 412
2.1.2 MRI II: Parallel Imaging and Coils (Oral Session)
Chair: Nayak, Krishna (*Univ. of Southern California*)
Co-Chair: Kozlov, Mikhail (*Max Planck Inst. for Human Cognitive and Brain Sciences*)

13:30-13:45 WeC04.1
Evaluation of an Image-Based Tracking Workflow Using a Passive Marker and Resonant Micro-Coil Fiducials for Automatic Image Plane Alignment in Interventional MRI 1085-1088
Neumann, Markus (University of Strasbourg); Breton, Elodie (University of Strasbourg); Cuvillon, Loic (University of Strasbourg); de Mathelin, Michel (University of Strasbourg); Pan, Li (Siemens Corporation, Corporate Research & Technology); Lorenz, Christine (Center for Applied Medical Imaging, Siemens Corporate Research)*

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| 13:45-14:00 | WeC04.2 |
| Engineering of 7T Transmit Multi-Row Arrays | 1089-1092 |
| <i>Kozlov, Mikhail* (Max Planck Institute for Human Cognitive and Brain Sciences); Turner, Robert (Max Planck Institute for Human Cognitive and Brain Sciences)</i> | |
| 14:00-14:15 | WeC04.3 |
| Gradient-Excitation Encoding Combined with Frequency and Phase Encodings for Three-Dimensional Ultra-Low-Field MRI | 1093-1097 |
| <i>Dabek, Juhani* (Aalto University School of Science); Zevenhoven, Koos (Aalto University School of Science); Nieminen, Jaakko (Aalto University School of Science); Vesanen, Panu (Aalto University School of Science); Sepponen, Raimo (Aalto University School of Electrical Engineering); Ilmoniemi, Risto (Aalto University School of Science)</i> | |
| 14:15-14:30 | WeC04.4 |
| High Acceleration with Rotating Radiofrequency Coil Array (RRFCA) in Parallel Magnetic Resonance Imaging (MRI) | 1098-1101 |
| <i>Li, Mingyan* (University of Queensland); Jin, Jin (The University of Queensland); Trakic, Adnan (The University of Queensland); Liu, Feng (The University of Queensland); Weber, Ewald (The University of Queensland); Li, Yu (The University of Queensland); Crozier, Stuart (The University of Queensland)</i> | |
| 14:30-14:45 | WeC04.5 |
| A Novel Fast Algorithm for Parallel Excitation Pulse Design in MRI | 1102-1105 |
| <i>Feng, Shuo (Texas A&M University); Ji, Jim Xiuquan* (Texas A&M University)</i> | |
| 14:45-15:00 | WeC04.6 |
| Accelerated Phosphorus Magnetic Resonance Spectroscopic Imaging Using Compressed Sensing | 1106-1109 |
| <i>Askin, Nurten C. (Yeditepe University Biomedical Engineering Department); Atis, Berna (Yeditepe University Biomedical Engineering Department); Ozturk-Isik, Esin* (Yeditepe University)</i> | |

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| WeC05: 13:30-15:00 | Sapphire I |
| 2.2.5 Quantitative Ultrasound Imaging for Diagnostics and Therapy Monitoring (Oral Session) | |
| Chair: Oelze, Michael (<i>Univ. of Illinois at Urbana-Champaign</i>) | |
| Co-Chair: Yen, Jesse (<i>Univ. of Southern California</i>) | |

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| 13:30-13:45 | WeC05.1 |
| Quantitative Volumetric Breast Imaging with 3D Inverse Scatter Computed Tomography | 1110-1113 |
| <i>Andre, Michael* (University of California, San Diego and Veterans Affairs, Department of Radiology,); Wiskin, James (University of Utah, Techniscan Medical Systems, Inc.); Borup, David (Techniscan Medical Systems, Inc.); Johnson, Steven (Techniscan Medical Systems, Inc.); Ojeda-Fournier, Haydee (University of California, San Diego, Department of Radiology); Olson, Linda (University of California, San Diego, Department of Radiology)</i> | |
| 13:45-14:00 | WeC05.2 |
| Three-Dimensional Quantitative Ultrasound to Guide Pathologists towards Metastatic Foci in Lymph Nodes | 1114-1117 |
| <i>Mamou, Jonathan* (Riverside Research); Saegusa-Beecroft, Emi (University of Hawaii and Kuakini Medical Center); Coron, Alain (UPMC Univ Paris 06 and CNRS); Oelze, Michael (University of Illinois at Urbana-Champaign); Yamaguchi, Tadashi (Chiba University); Machi, Junji (University of Hawaii); Hata, Masaki (University of Hawaii and Kuakini Medical Center); Yanagihara, Eugene (University of Hawaii and Kuakini Medical Center); Laugier, Pascal (University Pierre et Marie Curie-Paris VI); Feleppa, Ernest (Riverside Research)</i> | |
| 14:00-14:15 | WeC05.3 |
| Quantitative Ultrasound from Single Cells to Biophantoms to Tumors | 1118-1120 |
| <i>O'Brien, Jr., William D.* (University of Illinois); Han, Aiguo (University of Illinois); Auger, Thomas (l'Ecole Centrale de Lille)</i> | |
| 14:15-14:30 | WeC05.4 |
| Cortical Bone Quality Assessment Using Quantitative Ultrasound on Long Bones | 1121-1124 |
| <i>Foiret, Josquin (University Pierre and Marie Curie); Minonzio, Jean-Gabriel (University Pierre and Marie Curie); Talmant, Maryline (University Pierre and Marie Curie); Laugier, Pascal* (University Pierre et Marie Curie-Paris VI)</i> | |

14:30-14:45 WeC05.5
Quantitative Ultrasound Visualization of Cell Death: Emerging Clinical Applications for Detection of Cancer Treatment Response 1125-1128
Sadeghi-Naini, Ali (University of Toronto | Sunnybrook Health Sciences Centre); Falou, Omar (Sunnybrook Health Sciences Centre / University of Toronto); Czarnota, Gregory (University of Toronto, Sunnybrook Health Sciences Centre)*

WeC06: 13:30-15:00 Sapphire M
2.7.1 Image Registration I (Oral Session)
Chair: Dillenseger, Jean-Louis (*Univ. de Rennes 1*)
Co-Chair: Alirezaie, Javad (*Ryerson Univ. Univ. of Waterloo*)

13:30-13:45 WeC06.1
Two Solutions for Registration of Ultrasound to MRI for Image-Guided Prostate Interventions 1129-1132
Moradi, Mehdi (Harvard); Janoos, Firdaus (Brigham and Women's Hospital, Harvard Medical School); Fedorov, Andriy (Brigham and Women's Hospital, Harvard Medical School); Risholm, Petter (Brigham and Women's Hospital, Harvard Medical School); Wolfsberger, Luciant D. (Brigham and Women's Hospital, Harvard Medical School); Nguyen, Paul L. (Brigham and Women's Hospital, Harvard Medical School); Tempany, Clare Mary (Brigham and Women's Hospital, Harvard Medical School); Wells, William (Harvard Medical School)*

13:45-14:00 WeC06.2
Non-Rigid Multimodal Image Registration Based on Local Variability Measures and Optical Flow 1133-1136
Reducindo, Isnardo (Universidad Autonoma de San Luis Potosi); Arce-Santana, Edgar Roman (Facultad de Ciencias); Campos-Delgado, Daniel U. (Universidad Autonoma de San Luis Potosi); Viguera-Gomez, Flavio (Universidad Autonoma de San Luis Potosi)*

14:00-14:15 WeC06.3
Precision Analysis of a Multi-Slice Ultrasound Sensor for Non-Invasive 3D Kinematic Analysis of Knee Joints 1137-1140
Masum, Md Abdullah (UNSW); Lambert, Andrew John (UNSW); Pickering, Mark (The University of New South Wales); Scarvell, Jennie (The Canberra Hospital); Smith, Paul (The Canberra Hospital)*

14:15-14:30 WeC06.4
Medical Image Registration Using Sparse Coding and Belief Propagation 1141-1144
roozgard, Aminmohammad (University of Oklahoma); barzigar, Nafise (University of Oklahoma); Cheng, Samuel (University of Oklahoma); Verma, Pramode (University of Oklahoma)*

14:30-14:45 WeC06.5
Research on 2D Representation Method of Wireless Micro-Ball Endoscopic Images 1145-1148
Wang, Dan (Tsinghua University, Beijing, China); Xie, Xiang (Tsinghua University); Li, Guolin (Tsinghua University); Gu, Yingke (Tsinghua University); Yin, Zheng (Tsinghua University); Wang, Zhihua (Tsinghua University)*

14:45-15:00 WeC06.6
Detecting Distance between Injected Microspheres and Target Tumor Via 3D Reconstruction of Tissue Sections 1149-1152
Carson, James (Pacific Northwest National Laboratory); Kuprat, Andrew (Pacific Northwest National Laboratory); Colby, Sean (Pacific Northwest National Laboratory); Davis, Cassi (Pacific Northwest National Laboratory); Basciano, Christopher (Applied Research Associates, Inc.); Greene, Kevin (University of North Carolina); Feo, John (Pacific Northwest National Laboratory); Kennedy, Andrew (Cancer Centers of North Carolina)*

WeC07: 13:30-15:00 Sapphire 410
3.1.3 Magnetic Sensors and Systems (Oral Session)
Chair: Davalos, Rafael (*Virginia Tech.*)
Co-Chair: Choi, Jin-Woo (*Louisiana State Univ.*)

13:30-13:45 WeC07.1
A Comprehensive Method for Magnetic Sensor Calibration: A Precise System for 3-D Tracking of the Tongue Movements 1153-1156
Farajidavar, Aydin (New York Institute of Technology); Block, Jacob (Georgia Institute of Technology); Ghovanloo, Maysam (Georgia Institute of Technology)*

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| 13:45-14:00 | WeC07.2 |
| Development and Preliminary Evaluation of an Intraoral Tongue Drive System | 1157-1160 |
| <i>Park, Hangué* (Georgia Tech); Kim, Jeonghee (Georgia Institute of Technology); Ghovanloo, Maysam (Georgia Institute of Technology)</i> | |
| 14:00-14:15 | WeC07.3 |
| A Neonatal Thorax Phantom for Contact-Less Magnetic Induction Vitalparameter Monitoring | 1161-1164 |
| <i>Cordes, Axel* (RWTH Aachen); Nils, Conzelmann (Chair for Medical Information Technology); Leonhardt, Steffen (RWTH Aachen University)</i> | |
| 14:15-14:30 | WeC07.4 |
| Evolutionary Coil Design for Maximally Uniform Magnetic Fields | 1165-1168 |
| <i>Gaitan-Ortiz, Ruben* (Alandra Medical); González-Suárez, Juan Manuel (Alandra Medical S.A.P.I de C.V.); Sanchez, Carlos Alberto (Alandra Medical); Núñez Priego, Alejandro (Alandra Medical)</i> | |
| 14:30-14:45 | WeC07.5 |
| A Novel Magnetic Plethysmograph for Non-Invasive Evaluation of Arterial Compliance | 1169-1172 |
| <i>Chandrasekhar, Anand* (Indian Institute of Technology Madras); Joseph, Jayaraj (Indian Institute of Technology); Sivaprakasam, Mohanasankar (Indian Institute of Technology Madras)</i> | |
| 14:45-15:00 | WeC07.6 |
| Study on Technology of High-Frequency Pulsed Magnetic Field Strength Measurement | 1173-1176 |
| <i>Chen, Yimei (Institute of Biomedical Engineering, Chinese Academy of Medical Sciences, Peking Union Medical College); Liu, Zhipeng (Chinese Academy of Medical Sciences, Peking Union Medical College); Yin, Tao* (Chinese Academy of Medical Sciences, Peking Union Medical College)</i> | |

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| WeC08: 13:30-15:00 | Sapphire 411 |
| 9.3.4 Physiological Sensing (Oral Session) | |
| Chair: Splinter, Robert (<i>Valencell, Inc</i>) | |
| Co-Chair: LeBoeuf, Steven (<i>Valencell, Inc.</i>) | |

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| 13:30-13:45 | WeC08.1 |
| Atrial Fibrillation Detection Using a Smart Phone | 1177-1180 |
| <i>Lee, Jinseok (Worcester Polytechnic Institute); Reyes, Bersaín Alexander (Worcester Polytechnic Institute); McManus, David (University of Massachusetts Medical Center); Chon, Ki* (Worcester Polytechnic Institute)</i> | |
| 13:45-14:00 | WeC08.2 |
| High-Efficiency Diffuse Raman Spectroscopy through a Fiber Bundle | 1181-1183 |
| <i>Matthews, Thomas* (Duke University); Wax, Adam (Duke University)</i> | |
| 14:00-14:15 | WeC08.3 |
| On Optical Imaging of Tissue: Aspects of Photo-Acoustic Femtosecond Spectroscopy | * |
| <i>Parigger, Christian* (The University of Tennessee Space Institute); Johnson, Jacqueline A. (The University of Tennessee Space Institute)</i> | |
| 14:15-14:30 | WeC08.4 |
| Custom Visible to Infrared, Multi-Wavelength Light Emitters for Pulse Oximeter Applications | 1184-1187 |
| <i>LeBoeuf, Steven* (Valencell, Inc.); Zhang, Hongguo (NC State University)</i> | |

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| WeC09: 13:30-15:00 | Sapphire 400 |
| 9.1.1 Clinical Engineering and Rehabilitation (Oral Session) | |
| Chair: Pavel, Michael (<i>Oregon Health and Science Univ.</i>) | |
| Co-Chair: Agrawal, Sunil (<i>Univ. of Delaware</i>) | |

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| 13:30-13:45 | WeC09.1 |
| Accuracy and Robustness of Kinect Pose Estimation in the Context of Coaching of Elderly Population ... | 1188-1193 |
| <i>Obdrzalek, Stepan (University of California, Berkeley); Kurillo, Gregorij (University of California, Berkeley); Ofli, Ferda* (University of California, Berkeley); Bajcsy, Ruzena (UC Berkeley, CITRIS); Seto, Edmund (University of California, Berkeley); Jimison, Holly (Oregon Health & Science University); Pavel, Michael (Oregon Health and Science University)</i> | |

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| 13:45-14:00 | | WeC09.2 |
| Dyskinesia and Motor State Detection in Parkinson's Disease Patients with a Single Movement Sensor | 1194-1197 | |
| <i>Samà, Albert* (Technical Research Centre for Dependency Care and Autonomous Living (CETpD), Technical University of Catalonia (UPC)); Pérez-López, Carlos (Technical Research Centre for Dependency Care and Autonomous Living (CETpD), Technical University of Catalonia (UPC)); Romagosa, Jaume (Technical Research Centre for Dependency Care and Autonomous Living (CETpD), Technical University of Catalonia (UPC)); Rodríguez-Martín, Daniel (Technical Research Centre for Dependency Care and Autonomous Living (CETpD), Technical University of Catalonia (UPC)); catala, andreu (Technical Research Centre for Dependency Care and Autonomous Living – CETpD Technical University of Catalonia – UPC Edifici Ne); Cabestany, Joan (Technical Research Centre for Dependency Care and Autonomous Living (CETpD), Technical University of Catalonia (UPC)); Pérez-Martínez, David A. (University Hospital Infanta Cristina); Rodríguez-Molinero, Alejandro (Centro Médico Artis)</i> | | |
| 14:00-14:15 | | WeC09.3 |
| Quantifying Freezing of Gait in Parkinson's Disease During the Instrumented Timed up and Go Test | 1198-1201 | |
| <i>Mancini, Martina* (OHSU); Priest, Kelsey (Oregon Health and Science University); Nutt, John (Oregon Health & Science University); Horak, Fay (Oregon Health & Science University)</i> | | |
| 14:15-14:30 | | WeC09.4 |
| An Untethered Shoe with Vibratory Feedback for Improving Gait of Parkinson's Patients: The PDShoe . | 1202-1205 | |
| <i>Winfrey, Kyle* (University of Delaware); Pretzer-Aboff, Ingrid (University of Delaware); Hilgart, Dave (University of Delaware); Aggrawal, Rajeev (All India Institute of Medical Sciences); Behari, Madhuri (All India Institute of Medical Sciences); Agrawal, Sunil (University of Delaware)</i> | | |
| 14:30-14:45 | | WeC09.5 |
| On-Demand Controlled Release of Anti-Inflammatory and Analgesic Drugs from Conducting Polymer Films to Aid in Wound Healing | 1206-1209 | |
| <i>Justin, Gusphyl* (Crosslink); Zhu, Siqiang Richard (Crosslink); Nicholson III, Theodore (Crosslink); Maskrod, Jeffrey (Crosslink); Mbugua, Joseph (Crosslink); Chase, Mark (Crosslink); Jung, June-Ho (Crosslink); Mercado, Ramil Marcelo (Crosslink)</i> | | |
| 14:45-15:00 | | WeC09.6 |
| Semg-Based Detection of Poor Posture: A Feasibility Study | 1210-1213 | |
| <i>Zabaleta, Haritz* (TECNALIA); Rodriguez-de-Pablo, Cristina (TECNALIA); Miljkovic, Nadica (Tecnalia Serbia, and School of Electrical Engineering, University of Belgrade); Keller, Thierry (Tecnalia Research & Innovation); A. García, Gonzalo (TECNALIA)</i> | | |
| WeC10: 13:30-15:00 | | Cobalt 500 |
| 4.5.2 Models of Physiological Systems (Oral Session) | | |
| Chair: Sarma, Sridevi V. (Johns Hopkins Univ.) | | |
| 13:30-13:45 | | WeC10.1 |
| Reinforcement Mechanisms in Putamen during High Frequency STN DBS: A Point Process Study | 1214-1217 | |
| <i>Santaniello, Sabato* (Johns Hopkins University); Gale, John (Cleveland Clinic); Montgomery, Erwin (University of Alabama at Birmingham); Sarma, Sridevi V. (Johns Hopkins University)</i> | | |
| 13:45-14:00 | | WeC10.2 |
| Quantifying Uncertainty in Transcranial Magnetic Stimulation – A High Resolution Simulation Study in ICBM Space | 1218-1221 | |
| <i>Toschi, Nicola* (University of Rome "Tor Vergata", Faculty of Medicine); Keck, Martin E (Center of Neuroscience Research Zurich (ZNZ) and Privatklinik Schlössli, Oetwil am See/Zurich, Switzerland); Welt, Tobias (Psychiatrische Universitätsklinik Zürich, Zurich, Switzerland); Guerrisi, Maria (University of Rome "Tor Vergata")</i> | | |
| 14:00-14:15 | | WeC10.3 |
| A Coupling Method for a Cardiovascular Simulation Model Which Includes the Kalman Filter | 1222-1225 | |
| <i>Hasegawa, Yuki* (Kyoto University); Shimayoshi, Takao (ASTEM Research Institute of Kyoto); Amano, Akira (Ritsumeikan University); Matsuda, Tetsuya (Kyoto University)</i> | | |
| 14:15-14:30 | | WeC10.4 |
| Prediction of Intradialytic Morbid Events in Hemodialysis Patients by Monitoring the Second Derivative of Relative Blood Volume | 1226-1229 | |
| <i>Zhu, Fansan* (Renal Research Institute)</i> | | |

14:30-14:45 WeC10.5
Modeling the Influences of Nanoparticles on Neural Field Oscillations in Thalamocortical Networks 1230-1233
*Busse, Michael** (Saarland University Hospital, Neurocenter); *Kraegeloh, Annette* (Leibniz-Institute for New Materials, Saarbruecken, Germany); *Arzt, Eduard* (Leibniz-Institute for New Materials, Saarbruecken, Germany); *Strauss, Daniel J.* (Saarland University, Medical Faculty)

14:45-15:00 WeC10.6
The Neuroid: A Novel and Simplified Neuron-Model 1234-1237
*Arguello, Erick** (Laboratorio C Universidad Simon Bolivar); *Silva, Ricardo* (Universidad Simon Bolivar); *Castillo, Cecilia* (Instituto de Estudios Avanzados); *Huerta, Mónica* (Simon Bolivar University)

WeC11: 13:30-15:00 Cobolt 520
4.6.1 Analysis of High-Throughput Systems Biology Data (Oral Session)
Chair: Wang, May D. (Georgia Tech. and Emory Univ.)
Co-Chair: Akay, Metin (Univ. of Houston)

13:30-13:45 WeC11.1
Shape-Influenced Clustering of Dynamic Patterns of Gene Profiles 1238-1241
Skreti, Georgia (Technical University of Crete); *Bei, Ekaterini* (Technical University of Crete); *Zervakis, Michalis** (Technical University of Crete, Greece)

13:45-14:00 WeC11.2
Multi-Scale Modeling of Gene Regulatory Networks Via Integration of Temporal and Topological Biological Data 1242-1245
Dimitrakopoulos, George (University of Patras); *Sgarbas, Kyriakos* (University of Patras); *Dimitrakopoulou, Konstantina* (University of Patras); *Dragomir, Andrei* (University of Houston); *Bezerianos, Anastasios** (University of Patras); *Maraziotis, Ioannis* (Medical School, University of Patras)

14:00-14:15 WeC11.3
Detection of Common Copy Number Variation with Application to Population Clustering from Next Generation Sequencing Data 1246-1249
*Wang, Yu-Ping** (Tulane University)

14:15-14:30 WeC11.4
Personalized Blood Glucose Models for Exercise, Meal and Insulin Interventions in Type 1 Diabetic Children 1250-1253
*Balakrishnan, Naviyn Prabhu** (National University of Singapore); *Rangaiah, Gade Pandu* (National University of Singapore); *SAMAVEDHAM, Lakshminarayanan* (National University of Singapore)

14:30-14:45 WeC11.5
Multiview Approach to Spectral Clustering 1254-1257
*Ziyatdinov, Andrey** (Universitat Politècnica de Catalunya); *Massanet-Vila, Raimon* (Universitat Politècnica de Catalunya); *Kanaan-Izquierdo, Samir* (Universitat Politècnica de Catalunya); *Perera, Alexandre* (Universitat Politècnica de Catalunya)

14:45-15:00 WeC11.6
Supercomputing Enabling Exhaustive Statistical Analysis of Genome Wide Association Study Data: Preliminary Results 1258-1261
*Reumann, Matthias** (IBM Australia); *Makalic, Enes* (The University of Melbourne); *Goudey, Benjamin* (The University of Melbourne); *Inouye, Michael* (Walter and Eliza Hall Institute of Medical Research); *Bickerstaffe, Adrian Charles* (University of Melbourne); *Bui, Minh* (The University of Melbourne); *Park, Daniel* (The University of Melbourne); *Kapuscinski, Miroslav* (The University of Melbourne); *Schmidt, Daniel F.* (The Centre for MEGA Epidemiology, University of Melbourne); *Zhou, Zeyu* (IBM); *Qian, Guoqi* (The University of Melbourne); *Zobel, Justin* (The University of Melbourne); *Wagner, John* (IBM); *Hopper, John* (The University of Melbourne)

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| WeC13: 13:30-15:00 | Aqua 306B |
| 10.6.1 Health Information Systems I (Oral Session) | |
| Chair: Yao, Jianhua (<i>National Inst. of Health</i>) | |
| Co-Chair: Bonato, Paolo (<i>Harvard Medical School</i>) | |

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| 13:30-13:45 | WeC13.1 |
| Knowledge Editor and Execution Engine Development for Optimal Ventricular Assist Device Weaning . | 1262-1265 |
| <i>Karvounis, Evaggelos (University of Ioannina); Tsiouras, Markos G. (University of Ioannina); Tzallas, Alexandros (University of Ioannina); Goletsis, Yorgos (University of Ioannina); Fotiadis, Dimitrios I.* (University of Ioannina); Adamopoulos, Stamatis (Onassis Cardiac Surgery Center, Athens); Trivella, Maria G. (Istituto di Fisiologia Clinica-CNR, Pisa)</i> | |
| 13:45-14:00 | WeC13.2 |
| A Cross-Platform and Distributive Database System for Cumulative Tumor Measurement | 1266-1269 |
| <i>Huang, Jiaxin (National Institutes of Health Clinical Center); Bluemke, David (National Institutes of Health Clinical Center); Zhang, Xiao (National Institutes of Health Clinical Center); Summers, Ronald (National Institutes of Health); Folio, Les (National Institutes of Health Clinical Center); Yao, Jianhua* (National Institutes of Health)</i> | |
| 14:00-14:15 | WeC13.3 |
| Device Interoperability and Authentication for Telemedical Appliance Based on the ISO/IEEE 11073 Personal Health Device (PHD) Standards | 1270-1273 |
| <i>Caranguian, Luther Paul* (University of the Philippines Diliman); Sison, Luis (Electrical and Electronics Engineering Institute, University of the Philippines Diliman); Pancho-Festin, Susan (Department of Computer Science, University of the Philippines Diliman)</i> | |
| 14:15-14:30 | WeC13.4 |
| Healthcare Standards Based Sensory Data Exchange for Home Healthcare Monitoring System | 1274-1277 |
| <i>Khan, Wajahat Ali* (Kyung Hee University)</i> | |
| 14:30-14:45 | WeC13.5 |
| Towards a Classification Model to Identify Hospice Candidates in Terminally Ill Patients | 1278-1281 |
| <i>Gil-Herrera, Eleazar (University of South Florida); Yalcin, Ali (University of South Florida); Tsalatsanis, Athanasios* (University of South Florida); Barnes, Laura (University of South Florida); Djulbegovic, Benjamin (University of South Florida)</i> | |
| 14:45-15:00 | WeC13.6 |
| An Analysis of Free Web-Based PHRs Functionalities and I18n | 1282-1285 |
| <i>Fernandez Aleman, Jose Luis* (University of Murcia); Seva Llor, Carlos Luis (University of Murcia); Ouhbi, Sofia (University of Murcia); Toval, Ambrosio (University of Murcia); Carrión Señor, Inmaculada (University of Murcia)</i> | |

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| WeC14: 13:30-15:00 | Aqua 308 |
| 10.5.1 Sustainable Healthcare Delivery: Telehealth Systems from Neonatal to Applications for Elderly Citizens (Oral Session) | |
| Chair: Lehocki, Fedor (<i>Slovak Univ. of Tech. Fac. of Electrical Eng.</i>) | |
| Co-Chair: Saldivar, Enrique (<i>West Wireless Health Inst.</i>) | |

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| 13:30-13:45 | WeC14.1 |
| A Feasibility Study of an Upper Limb Rehabilitation System Using Kinect and Computer Games | 1286-1289 |
| <i>Pastor, Isaac* (University of Utah); Hayes, Heather (University of Utah); Bamberg, Stacy J Morris (University of Utah)</i> | |
| 13:45-14:00 | WeC14.2 |
| Tele-Healthcare for Diabetes Management: A Low Cost Automatic Approach | 1290-1293 |
| <i>Malik, Bilal* (Sheffield University); Benaissa, Mohammed (Sheffield University); Kanakis, Anastasios (Sheffield University); Neil, Wright (Sheffield University)</i> | |

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| 14:00-14:15 | | WeC14.3 |
| Context Aware Sensing for Health Monitoring | | 1294-1297 |
| <i>Piqueras Landete, Francisco (Eindhoven University of Technology); Chen, Wei* (Eindhoven University of Technology); Bouwstra, Sibrecht (Eindhoven University of Technology); Feijs, Loe (Eindhoven University of Technology); Bambang Oetomo, Sidarto (Máxima Medical Center)</i> | | |
| 14:15-14:30 | | WeC14.4 |
| Asphyxia Screening Kit | | 1298-1301 |
| <i>Zabidi, Azlee (Universiti Teknologi Mara); Lee, Khuan Y.* (Universiti Teknologi MARA); Mansor, Wahidah (Universiti Teknologi MARA)</i> | | |
| 14:30-14:45 | | WeC14.5 |
| Non-Contact Monitoring Techniques – Principles and Applications | | 1302-1305 |
| <i>Teichmann, Daniel (RWTH Aachen University); Brueser, Christoph (RWTH Aachen University); Eilebrecht, Benjamin (RWTH Aachen); Abbas, Abbas Kader (RWTH Aachen University); Blanik, Nikolai (RWTH Aachen University); Leonhardt, Steffen* (RWTH Aachen University)</i> | | |
| 14:45-15:00 | | WeC14.6 |
| Integrating Complex Business Processes for Knowledge-Driven Clinical Decision Support Systems | | 1306-1309 |
| <i>Kamaleswaran, Rishikesan* (University of Ontario Institute of Technology); McGregor, Carolyn (Univ of Ontario Inst of Technology)</i> | | |
| WeC15: 13:30-15:00 | | Sapphire P |
| 6.10.1 Neural Decoding: New Paradigms and Open Challenges (Oral Session) | | |
| Chair: Chen, Zhe (<i>Harvard Medical School/MIT</i>) | | |
| Co-Chair: Mollazadeh, Mohsen (<i>Johns Hopkins Univ.</i>) | | |
| 13:30-13:45 | | WeC15.1 |
| Transductive Neural Decoding for Unsorted Neuronal Spikes of Rat Hippocampus | | 1310-1313 |
| <i>Chen, Zhe* (Harvard Medical School/MIT); Kloosterman, Fabian (Neuro-Electronics Research Flanders); Layton, Stuart (Massachusetts Institute of Technology); Wilson, Matthew (MIT)</i> | | |
| 13:45-14:00 | | WeC15.2 |
| Parameter Estimation for Maximizing Controllability of Linear Brain-Machine Interfaces | | 1314-1317 |
| <i>Gowda, Suraj* (University of California, Berkeley); Orsborn, Amy (University of California Berkeley); Carmena, Jose M. (University of California, Berkeley)</i> | | |
| 14:00-14:15 | | WeC15.3 |
| A Brain Machine Interface Control Algorithm Designed from a Feedback Control Perspective | | 1318-1322 |
| <i>Gilja, Vikash* (Stanford University); Nuyujukian, Paul (Stanford University); Chestek, Cynthia (Stanford University); Cunningham, John Patrick (Stanford University); Yu, Byron M. (Carnegie Mellon University); Fan, Joline M. (Stanford University); Ryu, Stephen (Stanford University); Shenoy, Krishna V. (Stanford University)</i> | | |
| 14:15-14:30 | | WeC15.4 |
| Estimation of a Mean Template from Spike-Train Data | | 1323-1326 |
| <i>Wu, Wei* (Florida State University); Srivastava, Anuj (Florida State University)</i> | | |
| 14:30-14:45 | | WeC15.5 |
| Internal Models Engaged by Brain-Computer Interface Control | | 1327-1330 |
| <i>Golub, Matthew D.* (Carnegie Mellon University); Yu, Byron M. (Carnegie Mellon University); Chase, Steven M. (Carnegie Mellon University)</i> | | |
| 14:45-15:00 | | WeC15.6 |
| Decoding Stimuli from Multi-Source Neural Responses | | 1331-1334 |
| <i>Li, Lin* (University of Florida); Choi, John Stephen (SUNY Downstate Medical Center); Francis, Joseph Thachil (SUNY Downstate Medical Center); Sanchez, Justin C. (University of Miami); Principe, Jose (University of Florida)</i> | | |

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| WeC16: 13:30-15:00 | Sapphire L |
| 6.3.2 Motor Neuroprostheses II (Oral Session) | |
| Chair: Xu, Yong Ping (<i>National Univ. of Singapore</i>) | |
| Co-Chair: Guillory, Kenneth Shane (<i>Ripple LLC</i>) | |

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| 13:30-13:45 | WeC16.1 |
| A Bionic Neural Link for Peripheral Nerve Repair | 1335-1338 |
| <i>Xu, Yong Ping* (National University of Singapore); Yen, Shih-Cheng (National University of Singapore); Ng, Kian Ann (National University of Singapore); Liu, Xu (National University of Singapore); Tan, Ter Chyan (National University Hospital Singapore)</i> | |
| 13:45-14:00 | WeC16.2 |
| Evaluation of volitional control of hand with vertical force assist device for high tetraplegia | 1339-1341 |
| <i>Solanki, Swarna* (Case Western Reserve University); Kirsch, Robert (Case Western Reserve University)</i> | |
| 14:00-14:15 | WeC16.3 |
| A Comparison between Force and Position Control Strategies in Myoelectric Prostheses | 1342-1345 |
| <i>Ameri, Ali* (University of New Brunswick); Englehart, Kevin (University of New Brunswick); Parker, Philip (University of New Brunswick)</i> | |
| 14:15-14:30 | WeC16.4 |
| Real Time Simultaneous and Proportional Control of Multiple Degrees of Freedom from Surface EMG: Preliminary Results on Subjects with Limb Deficiency | 1346-1349 |
| <i>Rehbaum, Hubertus* (University Medical Center Göttingen, Georg-August University Göttingen); Jiang, Ning (Otto Bock HealthCare GmbH); Paredes Calderon, Liliana Patricia (Otto Bock Healthcare GmbH); Amsuess, Sebastian (Otto Bock Healthcare Products GmbH); Graimann, Bernhard (Otto Bock Healthcare GmbH); Farina, Dario (Bernstein Center for Computational Neuroscience, University Medical Center Göttingen)</i> | |
| 14:30-14:45 | WeC16.5 |
| Implantable Multichannel Wireless Electromyography for Prosthesis Control | 1350-1353 |
| <i>McDonnall, Daniel* (Ripple LLC); Hiatt, Scott (Ripple LLC); Smith, Christopher Farand (Ripple, LLC.); Guillory, Kenneth Shane (Ripple LLC)</i> | |

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| WeC17: 13:30-15:00 | Sapphire H |
| 6.9.1 Brain Physiology and Modeling I (Oral Session) | |
| Chair: Song, Dong (<i>Univ. of Southern California</i>) | |
| Co-Chair: Mino, Hiroyuki (<i>Kanto Gakuin Univ.</i>) | |

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| 13:30-13:45 | WeC17.1 |
| A Computational Model of Mild Traumatic Brain Injury | 1354-1357 |
| <i>Menon, Jayant* (University of California, San Diego); Gupta, Vikram (University of California, San Diego); Aravamudhan, Renga (University of California, San Diego)</i> | |
| 13:45-14:00 | WeC17.2 |
| Implementation of Topographically Constrained Connectivity for a Large-Scale Biologically Realistic Model of the Hippocampus | 1358-1361 |
| <i>Yu, Gene* (University of Southern California); Robinson, Brian (University of Southern California); Hendrickson, Phillip (University of Southern California); Song, Dong (University of Southern California); Berger, Theodore (University of Southern California)</i> | |
| 14:00-14:15 | WeC17.3 |
| Synaptic Dynamics: Linear Model and Adaptation Algorithm | 1362-1365 |
| <i>Yousefi, Ali* (University of Southern California); Dibazar, Alireza (University of Southern California); Berger, Theodore (University of Southern California)</i> | |
| 14:15-14:30 | WeC17.4 |
| Implementation of Activity-Dependent Synaptic Plasticity Rules for a Large-Scale Biologically Realistic Model of the Hippocampus | 1366-1369 |
| <i>Robinson, Brian* (University of Southern California); Yu, Gene (University of Southern California); Hendrickson, Phillip (University of Southern California); Song, Dong (University of Southern California); Berger, Theodore (University of Southern California)</i> | |

14:30-14:45 WeC17.5
An Influence of Spontaneous Spike Rates on Information Transmission in a Spherical Bushy Neuron Model with Stochastic Ion Channels 1370-1373
*ARATA, HIROKI** (Kanto Gakuin University); *Mino, Hiroyuki* (Kanto Gakuin University)

14:45-15:00 WeC17.6
Influence of Ionotropic Receptor Location on Their Dynamics at Glutamatergic Synapses 1374-1377
*Allam, Sushmita** (University of Southern California); *Bouteiller, Jean-Marie Charles* (University of Southern California); *Hu, Eric* (University of Southern California); *Greget, Renaud* (Rhenovia Pharma); *Ambert, Nicolas* (Rhenovia Pharma); *Bischoff, Serge* (Rhenovia Pharma); *Baudry, Michel* (Dean, Graduate College of Biomedical Sciences, Western University of Health Sciences, Pomona, CA); *Berger, Theodore* (University of Southern California)

WeC18: 13:30-15:00 Aqua 309
7.7.1 Electrical Biointerfaces (Oral Session)
Chair: Ghafar-Zadeh, Ebrahim (*Ec. Pol.*)
Co-Chair: Sawan, Mohamad (*Ec. Pol.*)

13:30-13:45 WeC18.1
Antimicrobial Properties of Biodegradable Magnesium for Next Generation Ureteral Stent Applications ... 1378-1381
*Lock, Jaclyn** (University of California, Riverside); *Liu, Huinan* (University of California, Riverside); *Draganov, Milan* (University of California, Riverside); *Whall, Andrew* (University of California, Riverside); *Dhillon, Shan* (University of California, Riverside); *Upadhyayula, Srigokul* (University of California, Riverside); *Vullev, Valentine* (University of California, Riverside)

13:45-14:00 WeC18.2
Altering Embryonic Cardiac Dynamics with Optical Pacing 1382-1385
Peterson, Lindsay (Case Western Reserve University); *McPheeters, Matt* (Case Western Reserve University); *Barwick, Lee* (Case Western Reserve University); *Gu, Shi* (Case Western Reserve University); *Rollins, Andrew M.* (Case Western Reserve University); *Jenkins, Michael W.** (Case Western Reserve University)

14:00-14:15 WeC18.3
Cardiac Optogenetics 1386-1389
*Abilez, Oscar** (Stanford University)

14:15-14:30 WeC18.4
Electrode Robustness in Artificial Cerebrospinal Fluid for Dielectrophoresis-Based LoC 1390-1393
*Miled, Amine** (Ecole Polytechnique); *Sawan, Mohamad* (Ecole Polytechnique)

14:30-14:45 WeC18.5
Development of High Resolution, Multiplexed Electrode Arrays: Opportunities and Challenges 1394-1396
*Viventi, Jonathan** (Polytechnic Institute of New York University); *Blanco, Justin* (University of Pennsylvania)

14:45-15:00 WeC18.6
Parallel In-Vitro and In-Vivo Techniques for Optimizing Cellular Microenvironments by Implementing Biochemical, Biomechanical and Electromagnetic Stimulations 1397-1400
*Shamloo, Amir** (Sharif University of Technology)

WeC19: 13:30-15:00 Aqua 304
8.5.2 Motion Cancellation in Surgical Robotics (Oral Session)
Chair: Riviere, Cameron N (*Carnegie Mellon Univ.*)
Co-Chair: Song, Cheol (*Johns Hopkins Univ.*)

13:30-13:45 WeC19.1
Force Sensing Micro-Forceps for Robot Assisted Retinal Surgery 1401-1404
Kuru, Ismail (Technical University of Munich); *Gonenc, Berk** (Johns Hopkins University); *Balicki, Marcin* (Johns Hopkins University); *Handa, James T* (Johns Hopkins University); *Gehlbach, Peter* (Johns Hopkins Medical Institute); *Taylor, Russell H.* (The Johns Hopkins University); *Iordachita, Iulian* (Johns Hopkins University)

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| 13:45-14:00 | WeC19.2 |
| Swept Source Optical Coherence Tomography based Smart Handheld Vitreoretinal Microsurgical Tool for Tremor Suppression | 1405-1408 |
| <i>Song, Cheol* (Johns Hopkins University); Gehlbach, Peter (Johns Hopkins Medical Institute); Kang, Jin U. (Johns Hopkins University)</i> | |
| 14:00-14:15 | WeC19.3 |
| Comparative Evaluation of Monocular Augmented-Reality Display for Surgical Microscopes | 1409-1412 |
| <i>Rodriguez Palma, Santiago (University of Valladolid); Becker, Brian C. (Carnegie Mellon University); Riviere, Cameron N* (Carnegie Mellon University)</i> | |
| 14:15-14:30 | WeC19.4 |
| Towards Localizing on the Surface of the Beating Heart | 1413-1416 |
| <i>Wood, Nathan (Carnegie Mellon University); Liu, Tian Yu (Carnegie Mellon University); Waugh, Kevin (Carnegie Mellon University); Zenati, Marco (Harvard Medical School); Riviere, Cameron N* (Carnegie Mellon University)</i> | |
| 14:30-14:45 | WeC19.5 |
| The kinematic architecture of the Active Headframe: a new head support for awake brain surgery | 1417-1421 |
| <i>Malosio, Matteo* (CNR); Negri, Simone Pio (ITIA-CNR); Pedrocchi, Nicola (Institute of Industrial Technology and Automation); Vicentini, Federico (CNR – National Research Council); Cardinale, Francesco (Niguarda Hospital); Molinari Tosatti, Lorenzo (CNR-ITIA)</i> | |
| 14:45-15:00 | WeC19.6 |
| Handheld Micromanipulator for Robot-Assisted Stapes Footplate Surgery | 1422-1425 |
| <i>Montes Grande, Gonzalo (University of Valladolid); Knisely, Anna J. (University of Pittsburgh Medical Center); Becker, Brian C. (Carnegie Mellon University); Yang, Sungwook (Carnegie Mellon University); Hirsch, Barry E. (University of Pittsburgh Medical Center); Riviere, Cameron N* (Carnegie Mellon University)</i> | |

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| WeD01: 15:00-16:30 | Indigo Ballroom |
| 2.3.3 Retinal Image Analysis Posters I (Poster Session) | |

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| 15:00-16:30 | WeD01.1 |
| An Ensembling Approach for Optic Cup Detection Based on Spatial Heuristic Reliability in Retinal Fundus Images | 1426-1429 |
| <i>Wong, Damon* (Institute for Infocomm Research); Liu, Jiang (Institute for Infocomm Research, A STAR); Lee, Beng Hai (Institute for Infocomm Research); Zhang, Zhuo (A*STAR); Gao, Xinting (Institute for Infocomm Research); Cheung, Carol (Singapore Eye Research Institute); Baskaran, Mani (Singapore Eye Research Institute); Wong, Tien Yin (National University of Singapore)</i> | |
| 15:00-16:30 | WeD01.2 |
| Efficient Optic Cup Localization Using Regional Propagation Based on Retinal Structure Priors | 1430-1433 |
| <i>Xu, Yanwu* (Institute for Infocomm Research); Liu, Jiang (Institute for Infocomm Research, A STAR); Cheng, Jun (Institute for Infocomm Research, AStar); Yin, Fengshou (Institute for Infocomm Research); Tan, Ngan Meng (A*STAR, Institute for Infocomm Research); Wong, Damon (Institute for Infocomm Research); Baskaran, Mani (Singapore Eye Research Institute); Cheng, Ching-Yu (Singapore Eye Research Institute); Wong, Tien Yin (National University of Singapore)</i> | |
| 15:00-16:30 | WeD01.3 |
| Measurement of Retinal Arteriolar Diameters from Auto Scale Phase Congruency with Fuzzy Weighting and L1 Regularization | 1434-1437 |
| <i>Nasehi Tehrani, Joubin* (The University of Sydney); yan, Hong (Department of Electronic Engineering, City University of Hong Kong); zhu, meidong (Sydney Eye Hospital Campus, University of Sydney); Jin, Craig (The University of Sydney); McEwan, Alistair (The University of Sydney)</i> | |
| 15:00-16:30 | WeD01.4 |
| Computer-Aided Diagnosis of Proliferative Diabetic Retinopathy | 1438-1441 |
| <i>Oloumi, Faraz* (University of Calgary); Rangayyan, Raj (University of Calgary); Ells, Anna L. (Division of Ophthalmology, Department of Surgery, Alberta Children's Hospital)</i> | |

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| 15:00-16:30 | | WeD01.5 |
| Detecting Flash Artifacts in Fundus Imagery | | 1442-1445 |
| <i>Paquit, Vincent* (Oak Ridge National Laboratory); Karnowski, Thomas (Oak Ridge National Laboratory); Aykac, Deniz (Oak Ridge National Laboratory); Li, Yaqin (University of Tennessee Health Science Center); Tobin, Kenneth (Oak Ridge National Laboratory); Chaum, Edward (Univ of Tennessee Hamilton Eye Inst)</i> | | |
| 15:00-16:30 | | WeD01.6 |
| Centroid Extraction from Hartmann-Shack Images Using Swarm Clustering Approach | | 1446-1449 |
| <i>Yuwono, Mitchell* (University of Technology Sydney); Sepulveda, Jonathan (University of Southern California); Handojoseno, Aluysius Maria Ardi (University of Technology, Sydney)</i> | | |
| 15:00-16:30 | | WeD01.7 |
| Superpixel Classification for Initialization in Model Based Optic Disc Segmentation | | 1450-1453 |
| <i>Cheng, Jun* (Institute for Infocomm Research, AStar); Liu, Jiang (Institute for Infocomm Research, A STAR); Xu, Yanwu (Institute for Infocomm Research); Yin, Fengshou (Institute for Infocomm Research); Wong, Damon (Institute for Infocomm Research); Lee, Beng Hai (Institute for Infocomm Research); Cheung, Carol (Singapore Eye Research Institute); Aung, Tin (Singapore Eye Research Institute); Wong, Tien Yin (National University of Singapore)</i> | | |
| 15:00-16:30 | | WeD01.8 |
| Sector-Based Optic Cup Segmentation with Intensity and Blood Vessel Priors | | 1454-1457 |
| <i>Yin, Fengshou* (Institute for Infocomm Research); Liu, Jiang (Institute for Infocomm Research, A STAR); Wong, Damon (Institute for Infocomm Research); Tan, Ngan Meng (A*STAR, Institute for Infocomm Research); Cheng, Jun (Institute for Infocomm Research, AStar); Cheng, Ching-Yu (Singapore Eye Research Institute); Tham, Yih Chung (Singapore Eye Research Institute); Wong, Tien Yin (National University of Singapore)</i> | | |
| 15:00-16:30 | | WeD01.9 |
| Segmentation of Vessels in Retinal Images Based on Directional Height Statistics | | 1458-1461 |
| <i>Lazar, Istvan* (University of Debrecen); Hajdu, Andras (University of Debrecen)</i> | | |
| 15:00-16:30 | | WeD01.10 |
| Classification of Diabetic Retinopathy Images Using Multi-Class Multiple-Instance Learning Based on Color Correlogram Features | | 1462-1465 |
| <i>Venkatesan, Ragav (Arizona State University); Chandakkar, Parag (Arizona State University); Li, Baoxin* (Arizona State University); Li, Helen K. (University of Texas Health Science Center Houston)</i> | | |
| WeD02: 15:00-16:30 | | Indigo Ballroom |
| 2.3.7 Optical Imaging Posters I (Oral Session) | | |
| 15:00-16:30 | | WeD02.1 |
| Differences in blood flow between auditory and visual stimuli in the Psychomotor Vigilance Task and GO/NOGO Task | | 1466-1469 |
| <i>Hiroyasu, Tomoyuki (Doshisha University); Fukushima, Arika* (Doshisha University); Yokouchi, Hisatake (Doshisha University)</i> | | |
| 15:00-16:30 | | WeD02.2 |
| Classification Subject Effects Using Changes in Cerebral Blood Flow on the Stroop Test | | 1470-1473 |
| <i>Hiroyasu, Tomoyuki (Doshisha University); Fukuhara, Michihiro* (Doshisha University); Yokouchi, Hisatake (Doshisha University); Miki, Mitsunori (Doshisha University)</i> | | |
| 15:00-16:30 | | WeD02.3 |
| Deformation of Yellow Spot Area by Compulsory Increase of Eye Pressure | | 1474-1477 |
| <i>Kimura, Yosuke* (Osaka University); Izumi, Iwao (Osaka University); Kaneko, Makoto (Osaka University); Ikuno, Yasushi (Osaka University); Miki, Atsuya (Osaka University); Jo, Yukari (Osaka University); kiuchi, yoshiaki (Hiroshima University)</i> | | |
| 15:00-16:30 | | WeD02.4 |
| Measuring the Size of Neoplasia in Colonoscopy Using Depth-From-Defocus | | 1478-1481 |
| <i>Chadebecq, François* (Blaise Pascal University); Tilmant, Christophe (Universite Blaise Pascal); Bartoli, Adrien (Auvergne University)</i> | | |

15:00-16:30 WeD02.5
Segmentation of Diffuse Reflectance Hyperspectral Datasets with Noise for Detection of Melanoma 1482-1485
*Hennessy, Ricky** (The University of Texas at Austin, Biomedical Engineering); *Bish, Sheldon* (The University of Texas at Austin, Biomedical Engineering); *Tunnell, James* (The University of Texas at Austin, Biomedical Engineering); *Markey, Mia* (The University of Texas at Austin)

15:00-16:30 WeD02.6
Computational Basis for Risk Stratification of Peripheral Neuropathy from Thermal Imaging 1486-1489
*Barriga, Simon** (VisionQuest Biomedical LLC); *Chekh, Viktor* (Computer Science Department, University of New Mexico); *Carranza, Cesar* (Electrical and Computer Engineering Department, University of New Mexico); *Burge, Mark* (Clinical and Translational Science Center, University of New Mexico); *Edwards, Ana* (VisionQuest Biomedical); *McGrew, Elizabeth* (VisionQuest Biomedical); *Zamora, Gilberto* (VisionQuest Biomedical); *Soliz, Peter* (VisionQuest Biomedical LLC)

15:00-16:30 WeD02.7
Computational Methods for Objective Assessment of Conjunctival Vascularity 1490-1493
*Derakhshani, Reza** (University of Missouri Kansas City); *Saripalle, Sashi* (University of Missouri – Kansas City); *Plamen, Doynov* (University of Missouri – Kansas City)

15:00-16:30 WeD02.8
A Fresh Look at the Validity of the Diffusion Approximation for Modeling Fluorescence Spectroscopy in Biological Tissue 1494-1497
*Handapangoda, Chintha Chamalie** (Deakin University); *Premaratne, Malin* (Monash University); *Nahavandi, Saeid* (Deakin University)

WeD03: 15:00-16:30 Indigo Ballroom
2.4.2 Hardware and Software for X-Ray and CT (Oral Session)

15:00-16:30 WeD03.1
Interactive Segmentation of Airways from Chest X-Ray Images Using Active Shape Models 1498-1501
Tezoo, Teshwaree (University of Cape Town); *Douglas, Tania S** (University of Cape Town)

15:00-16:30 WeD03.2
Estimated Radiation Dose Reduction Using Non-Linear Diffusion Method in Computed Radiography 1502-1505
Sánchez, M. Guadalupe (Instituto Tecnológico de Ciudad Guzmán); *Juste, Belen* (Polytechnic University of Valencia); *Vidal, Vicente* (Universidad Politécnica de Valencia); *Verdú, Gumersindo** (Polytechnic University of Valencia); *Mayo, Patricia* (Universidad Politecnica de Valencia); *Rodenas, Francisco* (Universidad Politecnica de Valencia)

15:00-16:30 WeD03.3
Realization of Spatial Compliant Virtual Fixture Using Eigenscrews 1506-1509
*Wang, Lei** (Shenzhen Institutes of Advanced Technology)

15:00-16:30 WeD03.4
Computer Assisted Detection of Liver Neoplasm (CADLN) 1510-1513
Bhosale, Shrinivas (University of Bridgeport); *Aphale, Ashish* (University of Bridgeport); *Macwan, Isaac* (University of Bridgeport); *Faezipour, Miad* (University of Bridgeport); *Bhosale, Priya* (MD Anderson Cancer center University of Texas); *Patra, Prabir** (University of Bridgeport)

15:00-16:30 WeD03.5
Material Depth Reconstruction Method of Multi-Energy X-Ray Images Using Neural Network 1514-1517
Lee, Woo-Jin (Seoul National University); *Kim, Dae-Seung* (Seoul National University); *Kang, Sung-Won* (Seoul National University); *Yi, WonJin** (Seoul National Univ Sch of Dentistry)

2.5.2 Electrical Impedance Imaging Posters (Oral Session)

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| 15:00-16:30 | | WeD04.1 |
| Electrical Impedance Tomography Reconstruction through Simulated Annealing with Total Least Square Error As Objective Function | | 1518-1521 |
| <i>Martins, Thiago de Castro* (Escola Politecnica da Universidade de Sao Paulo); Tsuzuki, Marcos de Sales Guerra (Escola Politecnica da Universidade de Sao Paulo)</i> | | |
| 15:00-16:30 | | WeD04.2 |
| Investigation of Brain Tissue Segmentation Error and Its Effect on EEG Source Localization | | 1522-1525 |
| <i>Shirvany, Yazdan* (Chalmers University of Technology)</i> | | |
| 15:00-16:30 | | WeD04.3 |
| Study on Conductivity Imaging with Current Excitation Based on Magneto-Acoustic Effect | | 1526-1529 |
| <i>Zhang, Shunqi (Institute of Biomedical Engineering, Chinese Academy of Medical Sciences, Peking Union Medical College); Yin, Tao (Chinese Academy of Medical Sciences, Peking Union Medical College); Liu, Zhipeng* (Chinese Academy of Medical Sciences, Peking Union Medical College)</i> | | |
| 15:00-16:30 | | WeD04.4 |
| Feasibility Study of a Trans-Admittance Mammography (TAM) System with 3600 Current-Sensing Electrodes | | 1530-1533 |
| <i>Zhao, Mingkang (Kyung Hee University); Wi, Hun (KyungHee University); Kamal, Abu Hena Mostofa (Kyung Hee University); Oh, Tong In* (Kyunghee University); Woo, Eung Je (Kyung Hee University)</i> | | |
| 15:00-16:30 | | WeD04.5 |
| Random Location of Multiple Sparse Priors for Solving the MEG/EEG Inverse Problem | | 1534-1537 |
| <i>Lopez, Jose David* (Universidad Nacional de Colombia); Espinosa, Jairo Jose (Universidad Nacional de Colombia); Barnes, Gareth (Aston University)</i> | | |
| 15:00-16:30 | | WeD04.6 |
| An Evaluation of EEG Scanner's Dependence on the Imaging Technique, Forward Model Computation Method, and Array Dimensionality | | 1538-1541 |
| <i>Stahlhut, Carsten* (Technical University of Denmark); Attias, Hagai Thomas (Golden Metallic Inc.); Stopczynski, Arkadiusz (DTU Informatics); Petersen, Michael Kai (DTU Informatics); Larsen, Jakob Eg (DTU Informatics); Hansen, Lars Kai (DTU Informatics)</i> | | |
| 15:00-16:30 | | WeD04.7 |
| Mobile Brain/Body Imaging (MoBI): High-Density Electrical Mapping of Inhibitory Processes During Walking | | 1542-1545 |
| <i>De Sanctis, Pierfilippo* (The Sheryl and Daniel R. Tishman Cognitive Neurophysiology Laboratory, Albert Einstein College of Medicine); Butler, John (Albert Einstein College of Medicine); Green, Jason (Albert Einstein College of Medicine); Snyder, Adam C (University of Pittsburgh); Foxe, John (City College of the City University of New York)</i> | | |
| 15:00-16:30 | | WeD04.8 |
| A Physiologically Motivated Sparse, Compact, and Smooth (SCS) Approach to EEG Source Localization | | 1546-1549 |
| <i>Cao, Cheng* (University of California San Diego); Acar, Zeynep (University of California, San Diego); Delgado, Kenneth Kreutz (University of California, San Diego); Makeig, Scott (University of California San Diego)</i> | | |
| 15:00-16:30 | | WeD04.9 |
| Investigation of Cross-Frequency Phase-Amplitude Coupling in Visuomotor Networks Using Magnetoencephalography | | 1550-1553 |
| <i>Soto, Juan* (University of Sao Paulo); Jerbi, Karim (Lyon Neuroscience Research Center)</i> | | |

WeD06: 15:00-16:30 Indigo Ballroom
2.8.6 Cardiac and Thoracic Imaging (Oral Session)

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| 15:00-16:30 | WeD06.1 |
| High Precision Semi-Automated Vertebral Height Measurement Using Computed Tomography: A Phantom Study | 1554-1557 |
| <i>Tan, Sovira* (NIH); Yao, Jianhua (National Institutes of Health); Yao, Lawrence (NIH); Ward, Michael (NIH)</i> | |
| 15:00-16:30 | WeD06.2 |
| GPU Acceleration of Optical Mapping Algorithm for Cardiac Electrophysiology | 1558-1561 |
| <i>Meng, Pingfan* (University of California, San Diego); Kastner, Ryan (University of California, San Diego); Irturk, Ali (University of California, San Diego)</i> | |
| 15:00-16:30 | WeD06.4 |
| Detection of Quiescent Phases in Echocardiography Data Using Non-Linear Filtering and Boundary Detection | 1562-1565 |
| <i>Ravichandran, Lakshminarayan* (Emory University, School of Medicine); Wick, Carson (Georgia Institute of Technology); Tridandapani, Srinii (Emory University)</i> | |
| 15:00-16:30 | WeD06.5 |
| An Investigation into the Viability of Image Processing for the Measurement of Sarcomere Length in Isolated Cardiac Trabeculae | 1566-1569 |
| <i>Anderson, Alexander, John* (Auckland Bioengineering Institute, University of Auckland); Nielsen, Poul (The University of Auckland); Taberner, Andrew (The University of Auckland)</i> | |

WeD07: 15:00-16:30 Indigo Ballroom
3.4.4 Monitoring Physiological Signals I (Oral Session)

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| 15:00-16:30 | WeD07.1 |
| Novel Method for Quantitative Assessment of Physical Workload of Healthcare Workers by a Tetherless Ergonomics Workstation | 1570-1573 |
| <i>Smith, Warren* (California State University); Alharbi, Kamal A. (California State University, Sacramento); Dixon, Jeremy B. (California State University, Sacramento); Reggad, Hind (California State University, Sacramento)</i> | |
| 15:00-16:30 | WeD07.2 |
| Towards Minimally Invasive Monitoring for Gastroenterology – An External Squamocolumnar Junction Locator | 1574-1577 |
| <i>Whiting, James Gerald Holland* (University of Strathclyde); Djennati, Nasser (University of Strathclyde); Lee, Yeong Yeh (University of Glasgow); Robertson, Elaine V (University of Glasgow); Derakhshan, Mohammad H (University of Glasgow); Connolly, Patricia (University of Strathclyde); McColl, Kenneth E L (University of Glasgow)</i> | |
| 15:00-16:30 | WeD07.3 |
| On the Use of Evoked Potentials for Quantification of Pain | 1578-1581 |
| <i>Ribeiro de Pádua, Machado, Alessandro* (Federal University of Uberlândia); Moraes, Oliveira, Iraides (Federal University of Uberlândia); Andrade, Adriano (Federal University of Ubelândia); Pereira, Adriano A. (Federal University of Uberlândia); Conte, Granado, Talita (Federal University of Uberlândia); Gonçalves da Silva, Chagas, Vitoria (Federal University of Uberlândia)</i> | |
| 15:00-16:30 | WeD07.4 |
| Investigation of Voltage Source Design's for Electrical Impedance Mammography (EIM) Systems | 1582-1585 |
| <i>Qureshi, Tabassum Ur Razaq* (University of Sussex); Chatwin, Chris R (University of Sussex); Zhou, Zhou (National University of Defense Technology); Li, Nan (University of Sussex); Wang, Wei (University of Sussex)</i> | |
| 15:00-16:30 | WeD07.5 |
| Activity Recognition in Planetary Navigation Field Tests Using Classification Algorithms Applied to Accelerometer Data | 1586-1589 |
| <i>Song, Wen* (Kansas State University); Ade, Carl (Kansas State University); Broxterman, Ryan (Kansas State University); Barstow, Thomas (Kansas State University); Nelson, Thomas Anthony (Kansas State University); Warren, Steve (Kansas State University)</i> | |

15:00-16:30 WeD07.6
Motion Artifact Reduction in Electrocardiogram Using Adaptive Filtering Based on Half Cell Potential Monitoring 1590-1593
Ko, Byung-Hoon (Samsung Advanced Institute of Technology); Lee, Tak Hyung (Future IT Research Center, Samsung Advanced Institute of Technology (SAIT), Samsung Electronics Co., Ltd.); Choi, Changmok (Samsung Advanced Institute of Technology); Kim, Youn Ho (Samsung Advanced Institute of Technology); Park, Gunguk (Future IT Research Center, Samsung Advanced Institute of Technology (SAIT), Samsung Electronics Co., Ltd.); Kang, KyoungHo (Samsung Advanced Institute of Technology); Bae, Sang Kon (Samsung Advanced Inst of Tech); Shin, Kunsoo (Future IT Research center)*

15:00-16:30 WeD07.7
Ultra-Wearable Capacitive Coupled and Common Electrode-Free ECG Monitoring System 1594-1597
Komensky, Tomas (Ilmenau University of Technology); Jurcisin, Michal (Technical University of Kosice, Department of Technologies in Electronics); Ruman, Kornel (Technical University in Kosice, Department of Technologies in Electronics); Ondrej, Kovac (Technical University in Kosice, Dept. of Electronics and Multimedia Communications); Laqua, Daniel (Ilmenau University of Technology); Husar, Peter (Ilmenau University of Technology)*

15:00-16:30 WeD07.8
Preliminary Study on Determining Stereotypical Motor Movements 1598-1601
Peixoto Gonçalves, Nuno (University of Minho); Costa, Sandra (University of Minho); Soares, Filomena (University of Minho); Rodrigues, José (University of Minho)*

WeD08: 15:00-16:30 Indigo Ballroom
3.4.5 Monitoring Physiological Signals II (Oral Session)

15:00-16:30 WeD08.1
Non-Contact Displacement Estimation Using Doppler Radar 1602-1605
Gao, Xiaomeng (University of Hawaii at Manoa); Singh, Aditya (University of Hawaii at Manoa); Yavari, Ehsan (University of Hawaii Manoa); Lubecke, Victor (University of Hawaii Manoa); Boric-Lubecke, Olga (University of Hawaii Manoa)*

15:00-16:30 WeD08.2
Impedance Pneumography Using Textile Electrodes 1606-1609
Fiedler, Patrique (Ilmenau University of Technology); Biller, Sebastian (Ilmenau University of Technology); Griebel, Stefan (Ilmenau University of Technology, Department of Mechanism Technology); Haeisen, Jens (Technical University Ilmenau)*

15:00-16:30 WeD08.3
Statistical Analysis of Heart Rate and Heart Rate Variability Monitoring through the Use of Smart Phone Cameras 1610-1613
Bolkhovskiy, Jeffrey (Worcester Polytechnic Institute); Scully, Christopher G. (Worcester Polytechnic Institute); Chon, Ki (Worcester Polytechnic Institute)*

15:00-16:30 WeD08.4
Noncontact ECG System for Unobtrusive Long-Term Monitoring 1614-1618
McDonald, Neil (Quantum Applied Science & Research, Inc.); Anumula, Harini (Quantum Applied Science and Research); Duff, Eric (Quantum Applied Science and Research); Soussou, Walid (Quantum Applied Science & Research Inc. (QUASAR))*

15:00-16:30 WeD08.5
Photoplethysmographic and SpO2 Readings from the Neonatal Anterior Fontanelle: A Case Study 1619-1622
May, James (City University London); Kyriacou, Panayiotis (City University London)*

15:00-16:30 WeD08.6
EEG and Eye-Tracking Based Measures for Enhanced Training 1623-1626
Soussou, Walid (Quantum Applied Science & Research Inc. (QUASAR)); Rooksby, Michael (Safe Passage International); Forty, Charles (Safe Passage International); Weatherhead, James (Eye-Tracking Inc); Marshall, Sandra (Eye-Tracking Inc)*

15:00-16:30 WeD08.7
Development of Enhanced Piezoelectric Energy Harvester Induced by Human Motion 1627-1630
Minami, Yosuke (Doshisha University); Nakamachi, Eiji (Doshisha University)*

WeD09: 15:00-16:30 Indigo Ballroom
3.5.2 Implantable Systems Posters I (Oral Session)

15:00-16:30 WeD09.1
An Improved Ultra Wideband Channel Model Including the Frequency-Dependent Attenuation for In-Body Communications 1631-1634
khaleghi, Ali (K.N.Toosi University Of Technology); Chavez-Santiago, Raul (Intervention Center, Oslo University Hospital); Balasingham, Ilangko (Intervention Center, Oslo University Hospital)*

15:00-16:30 WeD09.2
Case Study of Relevant Pressures for an Implanted Hydrocephalus Valve in Everyday Life 1635-1638
Elixmann, Inga Margrit (Helmholtz-Institute for Biomedical Engineering, RWTH Aachen); Goffin, Christine (Chair of Medical Engineering, Helmholtz-Institute for Biomedical Engineering, RWTH Aachen); Krueger, Rolf (Helmholtz Institute for Biomedical Engineering, RWTHAachenUniversity, Aachen); Meier, Ullrich (Department of Neurosurgery, Unfallkrankenhaus Berlin, Berlin); Lemcke, Johannes (Department of Neurosurgery, Unfallkrankenhaus Berlin, Berlin); Kiefer, Michael (Saarland University, Medical School); Antes, Sebastian (Saarland University, Medical School); Leonhardt, Steffen (RWTH Aachen University)*

15:00-16:30 WeD09.3
Vascular Stents with Rationally-Designed Surface Patterning 1639-1642
Gott, Shannon (University of California, Riverside); Jabola, Benjamin (Saratech Inc.); Xu, Guanshui (University of California, Riverside); Rao, Masaru P. (University of California, Riverside)*

15:00-16:30 WeD09.4
Protein Immobilization on 3C-SiC (100) As a Substrate for Detecting the Onset of Acute Myocardial Infarction (AMI) 1643-1646
Oliveros, Alexandra (University of South Florida); Guiseppi-Elie, Anthony (Virginia Commonwealth University); Jaroszeski, Mark (University of South Florida); Sadow, Stephen (University of South Florida)*

15:00-16:30 WeD09.5
An Ultra-Compact Green Bio-Regulator Dedicated for Brain Cortical Implant Using a Dynamic PSR Enhancement Technique 1647-1650
Kok, Chiang Liang (Nanyang Technological University); Liter, Siek (NTU)*

15:00-16:30 WeD09.6
Signal Transmission through Human Muscle for Implantable Medical Devices Using Galvanic Intra-Body Communication Technique 1651-1654
Chen, Xi Mei (University of Macau); Mak, Peng Un (University of Macau); Pun, Sio Hang (University of Macau); Gao, Yue Ming (Fu zhou University); Vai, Mang I. (University Of Macau); du, min (523 Gongye Road, Fuzhou University ,Fuzhou, Fujian, 350002,P.R. CHINA)*

15:00-16:30 WeD09.7
Multi-Layered Poly-Dimethylsiloxane As a Non-Hermetic Packaging Material for Medical MEMS 1655-1658
Ko, Wen (Case Western Reserve University); Zorman, Christian (Case Western Reserve University); Lachhman, Shem (Case Western Reserve University)*

WeD10: 15:00-16:30 Indigo Ballroom
3.5.3 Implantable Technologies (Oral Session)

15:00-16:30 WeD10.1
A Transcutaneous Power Transfer Interface Based on a Multicoil Inductive Link 1659-1662
Mirbozorgi, Seyedabdollah (Laval University); Gosselin, Benoit (Laval University); Sawan, Mohamad (Ecole Polytechnique)*

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| 15:00-16:30 | | WeD10.2 |
| Optimizing Analog-To-Digital Converters for Sampling Extracellular Potentials | | 1663-1666 |
| <i>Artan, Nabi Sertac* (Polytechnic Institute of New York University); Xu, Xiaoxiang (Polytechnic Institute of New York University); Shi, Wei (Polytechnic Institute of New York University); Chao, Jonathan (Polytechnic Institute of New York University)</i> | | |
| 15:00-16:30 | | WeD10.3 |
| Free Space Optical Link for Biomedical Applications | | 1667-1670 |
| <i>Abualhoul, Mohammad (Lund University); Svenmarker, Pontus (Lund University); Wang, Qin (Acreo); Andersson, Jan (Acreo); Johansson, Anders* (Lund University)</i> | | |
| 15:00-16:30 | | WeD10.4 |
| An Inductive-Link with a Regulated Secondary Voltage Based on Frequency Adjustment | | 1671-1674 |
| <i>Aqueveque, Pablo* (University of Concepcion); Saez, Marcial (University of Concepcion); Rodriguez, Juan Eduardo (University of Concepcion); Pino, Esteban J (Universidad de Concepcion)</i> | | |
| 15:00-16:30 | | WeD10.5 |
| A Feed-Forward Controlled AC-DC Boost Converter for Biomedical Implants | | 1675-1678 |
| <i>Jiang, Hao* (San Francisco State University); Lan, Di (San Francisco State University); Zhang, Jun Min (San Francisco State University); Liou, Shy Shenq (San Francisco State University); Shahnasser, Hamid (San Francisco State University); Harrison, Michael (University of California at San Francisco); Roy, Shuvo (University of California at San Francisco); Lin, Da-Hsien (San Francisco State University); Shen, Ming (Aalborg University, Aalborg, Denmark)</i> | | |
| 15:00-16:30 | | WeD10.6 |
| Implantable Multilayer Microstrip Antenna for Retinal Prosthesis: Antenna Testing | | 1679-1682 |
| <i>Permana, Hans* (RMIT University); Fang, Qiang (RMIT University); Rowe, Wayne (RMIT University)</i> | | |
| 15:00-16:30 | | WeD10.7 |
| High-Efficiency Wireless Power Delivery for Medical Implants Using Hybrid Coils | | 1683-1686 |
| <i>Artan, Nabi Sertac* (Polytechnic Institute of New York University); Patel, Ramesh (Polytechnic Institute of New York University); Ning, Chengzhi (Polytechnic Institute of New York University); Chao, Jonathan (Polytechnic Institute of New York University)</i> | | |
| WeD11: 15:00-16:30 | | Indigo Ballroom |
| 6.2.7 Brain-Machine Interface Posters I (Oral Session) | | |
| 15:00-16:30 | | WeD11.1 |
| Integration of Amplitude and Phase Feature Extraction with EMD Method in EEG-Based Brain-Computer Interface | | 1687-1690 |
| <i>He, Wei (Shenzhen Institutes of Advanced Technology Chinese Academy of Science); Wei, Pengfei* (Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences); Zhou, Yi (Shenzhen Institutes of Advanced Technology Chinese Academy of Science); Wang, Liping (Shenzhen Institutes of Advanced Technology Chinese Academy of Science)</i> | | |
| 15:00-16:30 | | WeD11.2 |
| Decoding Grasp Types with High Frequency of Local Field Potentials from Primate Primary Dorsal Premotor Cortex | | 1691-1694 |
| <i>Li, Yue (Zhejiang University); Hao, Yaoyao (Qiushi Academy for Advanced Studies, Zhejiang Univ., Hangzhou, China); Wang, Dong (Zhejiang University); Zhang, Qiaosheng (Zhejiang University); Liao, Yuxi (Zhejiang University); Zheng, Xiaoxiang (Zhejiang University); Chen, Weidong* (Shanghai Jiao Tong University)</i> | | |
| 15:00-16:30 | | WeD11.3 |
| EEG-Based Motor Imagery Classification Accuracy Improves with Gradually Increased Channel Number | | 1695-1698 |
| <i>Shan, Haijun* (Zhejiang University); Yuan, Han (Laureate Institute for Brain Research); Zhu, Shan (Zhejiang University); He, Bin (University of Minnesota)</i> | | |
| 15:00-16:30 | | WeD11.4 |
| Applying Best Practices from Digital Control Systems to BMI Implementation | | 1699-1702 |
| <i>Matlack, Charlie* (University of Washington); Moritz, Chet (University of Washington); Chizeck, Howard (University of Washington)</i> | | |

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| 15:00-16:30 | WeD11.5 |
| Generation of Spatial Filters by ICA for Detecting Motor-Related Oscillatory EEG | 1703-1706 |
| <i>Kanoh, Shin'ichiro* (Tohoku Institute of Technology); Miyamoto, Ko-ichiro (Tohoku University); Yoshinobu, Tatsuo (Tohoku University)</i> | |
| 15:00-16:30 | WeD11.6 |
| Development of Exoskeletal Robotic Limbs for a Rat Controlled by Neural Signals Based on a Vehicular Neuro-Robotic Platform RatCar | 1707-1710 |
| <i>Fukayama, Osamu* (The University of Tokyo); Otsuka, Hiroshi (The University of Tokyo); Hashimoto, Ryuta (The University of Tokyo); Suzuki, Takafumi (National Institute of Information and Communications Technology); Mabuchi, Kunihiko (The University of Tokyo)</i> | |
| 15:00-16:30 | WeD11.7 |
| High Gamma Oscillations Enhance the Subdural Visual Speller | 1711-1714 |
| <i>Song, Huaying (Tsinghua University); Zhang, Dan (Tsinghua University); Ling, Zhipei (General Hospital of People's Liberty Army); Zuo, Huancong (Affiliated Yuquan Hospital, School of Medicine, Tsinghua University); Hong, Bo* (Tsinghua University)</i> | |
| 15:00-16:30 | WeD11.8 |
| Speaking Mode Recognition from Functional Near Infrared Spectroscopy | 1715-1718 |
| <i>Herff, Christian* (Karlsruhe Institute of Technology); Heger, Dominic (Karlsruhe Institute of Technology, Cognitive Systems Lab); Putze, Felix (Karlsruhe Institute of Technology); Guan, Cuntai (Institute for Infocomm Research); Schultz, Tanja (Karlsruhe Institute of Technology, Cognitive Systems Lab)</i> | |
| 15:00-16:30 | WeD11.9 |
| Multiclass Classification of Single Trial Evoked EEG Responses | 1719-1722 |
| <i>Cecotti, Hubert* (University of California, Santa Barbara); Ries, Anthony (U.S. Army Research Lab); Eckstein, Miguel (University of California, Santa Barbara); Giesbrecht, Barry (University of California, Santa Barbara)</i> | |
| 15:00-16:30 | WeD11.10 |
| Effects of Performing Two Visual Tasks on Single-Trial Detection of Event-Related Potentials | 1723-1726 |
| <i>Cecotti, Hubert* (University of California, Santa Barbara); Eckstein, Miguel (University of California, Santa Barbara); Giesbrecht, Barry (University of California, Santa Barbara)</i> | |
| 15:00-16:30 | WeD11.11 |
| Pilot Study for a Brain-Muscle-Computer Interface Using the Extensor Pollicis Longus with Preselected Frequency Bands | 1727-1731 |
| <i>Skavhaug, Ida-Maria (University of California Davis); Bobell, Rebecca (University of California, Davis); Vernon, Benjamin (University of California at Davis); Joshi, Sanjay* (University of California, Davis)</i> | |
| 15:00-16:30 | WeD11.12 |
| Decoding of Finger, Hand and Arm Kinematics Using Switching Linear Dynamical Systems with Pre-Motor Cortical Ensembles | 1732-1735 |
| <i>Kang, Xiaoxu* (Johns Hopkins University); Schieber, Marc (University of Rochester); Thakor, Nitish (Johns Hopkins University)</i> | |

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| WeD12: 15:00-16:30 | Indigo Ballroom |
| 6.2.8 Brain-Machine Interface Posters II (Oral Session) | |

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| 15:00-16:30 | WeD12.1 |
| Study on an Online Collaborative BCI to Accelerate Response to Visual Targets | 1736-1739 |
| <i>Yuan, Peng (Tsinghua University); Wang, Yijun (University of California, San Diego); Wu, Wei (Tsinghua University); Xu, Honglai (Tsinghua University); Gao, Xiaorong (Tsinghua University); Gao, Shangkai* (Tsinghua University)</i> | |
| 15:00-16:30 | WeD12.2 |
| Stable Online Control of an Electroencephalographic Brain-Computer Interface Using a Static Decoder | 1740-1744 |
| <i>Ashmore, Robin* (University of Pittsburgh); Endler, Bridget (University of Pittsburgh); Smalianchuk, Ivan (University of Pittsburgh); Degenhart, Alan (University of Pittsburgh); Hatsopoulos, Nicholas (University of Chicago); Tyler-Kabara, Elizabeth (University of Pittsburgh); Batista, Aaron (University of Pittsburgh); Wang, Wei (University of Pittsburgh)</i> | |

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| 15:00-16:30 | | WeD12.3 |
| Visual Evoked Potentials for Attentional Gating in a Brain-Computer Interface | 1745-1748 | |
| <i>Geronimo, Andrew* (The Pennsylvania State University); Schiff, Steven (Pennsylvania State University); Kamrunnahar, Mst (Kamrun) (The Pennsylvania State University)</i> | | |
| 15:00-16:30 | | WeD12.4 |
| IPSIHAND BRAVO: An Improved EEG-Based Brain-Computer Interface for Hand Motor Control Rehabilitation | 1749-1752 | |
| <i>Holmes, Charles (Washington University in St. Louis); Wronkiewicz, Mark* (Washington University in St. Louis); Somers, Thane (Washington University in St. Louis); Liu, Jenny (Washington University in St. Louis); Kim, DoHyun (Washington University in St. Louis); Bundy, David (Washington University in St. Louis); Gilboa, Elad (Washington University in St. Louis); Leuthardt, Eric (Washington University in St. Louis)</i> | | |
| 15:00-16:30 | | WeD12.5 |
| Recursive Channel Selection Techniques for Brain Computer Interfaces | 1753-1756 | |
| <i>Oliver, Gareth* (Australian National University); Sunehag, Peter (Australian National University); Gedeon, Tom (Australian National University)</i> | | |
| 15:00-16:30 | | WeD12.6 |
| Decoding Arm and Hand Movements across Layers of the Macaque Frontal Cortices | 1757-1760 | |
| <i>Wong, Yan Tat* (New York University); Vigerel, Mariana (NYU); Putrino, David (New York University); Pfau, David (Columbia University); Merel, Josh (Columbia University); Paninski, Liam (Columbia University); Pesaran, Bijan (New York University)</i> | | |
| 15:00-16:30 | | WeD12.7 |
| On the Enhancement of Training Session Performance Via Attention for Single-Frequency/multi-Commands Based Steady State Auditory Evoked Potential BCI | 1761-1764 | |
| <i>Punsawad, Yunyong (Mahidol Univ); Wongsawat, Yodchanan* (Mahidol University)</i> | | |
| 15:00-16:30 | | WeD12.8 |
| Impact of Mental Focus on Steady-State Visually Evoked Potential under Eyes Closed Condition for Binary Brain Computer Interface | 1765-1768 | |
| <i>Nishifuji, Seiji* (Yamaguchi University); Kuroda, Takahiko (Yamaguchi University)</i> | | |
| 15:00-16:30 | | WeD12.9 |
| Combining ERPs and EEG Spectral Features for Decoding Intended Movement Direction | 1769-1772 | |
| <i>Li, Junhua (Shanghai Jiao Tong University); Wang, Yijun* (University of California, San Diego); Zhang, Liqing (Shanghai Jiao Tong University); Jung, Tzyy-Ping (University of California San Diego)</i> | | |
| 15:00-16:30 | | WeD12.10 |
| Discriminating Multiple Motor Imageries of Human Hands Using EEG | 1773-1776 | |
| <i>Xiao, Ran* (University of Oklahoma); liao, ke (University of Oklahoma); Ding, Lei (University of Oklahoma)</i> | | |
| 15:00-16:30 | | WeD12.11 |
| Electroencephalography(EEG)-Based Instinctive Brain-Control of a Quadruped Locomotion Robot | 1777-1781 | |
| <i>Jia, Wenchuan (Shanghai University); Huang, Dandan* (Virginia Commonwealth University); Luo, Xin (Huazhong University of Science and Technology); Pu, Huayan (Shanghai University); Chen, Xuedong (Huazhong University); Bai, Ou (Virginia Commonwealth University)</i> | | |
| 15:00-16:30 | | WeD12.12 |
| EEG Character Identification Using Stimulus Sequences Designed to Maximize Mimimal Hamming Distance | 1782-1785 | |
| <i>Fukami, Tadanori* (Yamagata University); Shimada, Takamasa (Tokyo Denki University); Forney, Elliott (Colorado State University); Anderson, Chuck (Colorado State University)</i> | | |

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| WeD13: 15:00-16:30 | Indigo Ballroom |
| 6.2.9 Brain-Machine Interface Posters III (Oral Session) | |

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| 15:00-16:30 | | WeD13.1 |
| Mushu, a Free and Open Source BCI Signal Acquisition, Written in Python | 1786-1788 | |
| <i>Venthur, Bastian* (Berlin Institute of Technology); Blankertz, Benjamin (Berlin Institute of Technology)</i> | | |

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| 15:00-16:30 | WeD13.2 |
| Auditory Display As a Prosthetic Hand Sensory Feedback for Reaching and Grasping Tasks | 1789-1792 |
| <i>Gonzalez, Jose* (Chiba University); Suzuki, Hiroyuki (Chiba University); Nakayama, Natsumi (Chiba University); Sekine, Masashi (Chiba University); Yu, Wenwei (University of Chiba)</i> | |
| 15:00-16:30 | WeD13.3 |
| Design of the Multi-Channel Electroencephalography-Based Brain-Computer Interface with Novel Dry Sensors | 1793-1797 |
| <i>Wu, Shang-Lin (National Chiao Tung University); Liao, Lun-De (National Chiao Tung University); Liu, Chang-Hong (National Chiao Tung University); Chen, Shi-An (National Chiao Tung University); Chen, Sheng-Fu (National Health Research Institutes); Lin, Chin-Teng* (National Chiao-Tung University)</i> | |
| 15:00-16:30 | WeD13.4 |
| Continuous Decoding of Motor Attempt and Motor Imagery from EEG Activity in Spinal Cord Injury Patients | 1798-1801 |
| <i>López-Larraz, Eduardo* (University of Zaragoza); Antelis, Javier M. (University of Zaragoza); Gil-Agudo, Ángel (Hospital Nacional de Paraplégicos de Toledo); Montesano, Luis (Universidad de Zaragoza); Minguez, Javier (Zaragoza University)</i> | |
| 15:00-16:30 | WeD13.5 |
| How stimulation speed affects Event-Related Potentials and BCI performance | 1802-1805 |
| <i>Höhne, Johannes* (Berlin Institute of Technology); Tangermann, Michael (Berlin Institute of Technology)</i> | |
| 15:00-16:30 | WeD13.6 |
| Measuring Steady-State Visual Evoked Potentials from Non-Hair-Bearing Areas | 1806-1809 |
| <i>Wang, Yu-Te* (University of California San Diego); Wang, Yijun (University of California, San Diego); Cheng, Chung-Kuan (University of California, San Diego); Jung, Tzyy-Ping (University of California San Diego)</i> | |
| 15:00-16:30 | WeD13.7 |
| SNR Analysis of High-Frequency Steady-State Visual Evoked Potentials from the Foveal and Extrafoveal Regions of Human Retina | 1810-1814 |
| <i>Lin, Fang-Cheng (National Chiao Tung University); Zao, John Kar-Kin* (National Chiao Tung University); Tu, Kuan-Chung (National Chiao Tung University); Wang, Yijun (University of California, San Diego); Huang, Yi-Pai (National Chiao-Tung University); CHUANG, CHE WEI (NCTU, Electrical Engineering and Computer Science Undergraduate Honors Program); Kuo, Heng-Yuan (National Chiao Tung University); Chien, Yu-Yi (National Chiao Tung University); Chou, Ching-Chi (National Chiao Tung University); Jung, Tzyy-Ping (University of California San Diego)</i> | |
| 15:00-16:30 | WeD13.8 |
| Control or No-Control? Reducing the Gap between Brain-Computer Interface and Classical Input Devices | 1815-1818 |
| <i>Schettini, Francesca* (Fondazione Santa Lucia, IRCCS Neuroelectrical Imaging and BCI Laboratory.); Aloise, Fabio (Fondazione Santa Lucia IRCCS); Aricò, Pietro (Fondazione Santa Lucia); Salinari, Serenella (La Sapienza University); Mattia, Donatella (Fondazione Santa Lucia IRCCS); Cincotti, Febo (Fondazione Santa Lucia IRCCS)</i> | |
| 15:00-16:30 | WeD13.9 |
| Flashing Color on the Performance of SSVEP-Based Brain-Computer Interfaces | 1819-1822 |
| <i>Cao, Teng* (University of Macau); Wan, Feng (University of Macau)</i> | |
| 15:00-16:30 | WeD13.10 |
| Control 2-Dimensional Movement Using a Three-Class Motor Imagery Based Brain-Computer Interface | 1823-1826 |
| <i>Xia, Bin* (Shanghai Maritime University); Hong, Yang (Shanghai Maritime University); Zhang, Qingmei (Shanghai Maritime University); Xie, Hong (Shanghai Maritime University); Yang, Wenglu (Shanghai Maritime University); Li, Jie (Tongji University); An, Dehua (Shanghai Maritime University)</i> | |

15:00-16:30 WeD13.11
Prototype of an Auto-Calibrating, Context-Aware, Hybrid Brain-Computer Interface 1827-1830
Faller, Josef (Graz University of Technology); Torrellas, Sergi (Barcelona Digital); Miralles, Felip (Barcelona Digital); Holzner, Clemens (g.tec medical engineering GmbH); Kapeller, Christoph (g.tec medical engineering GmbH); Guger, Christoph (g.tec medical engineering GmbH); Bund, Jürgen (Meticube); Müller-Putz, Gernot (Graz University of Technology); Scherer, Reinhold (Graz University of Technology)*

15:00-16:30 WeD13.12
Mental Task Classifications Using Prefrontal Cortex Electroencephalograph Signals 1831-1834
Chai, Rifai (University of Technology, Sydney); Ling, Steve (University of Technology Sydney); Hunter, Gregory Peter (University of Technology, Sydney); Nguyen, Hung T. (University of Technology, Sydney)*

WeD14: 15:00-16:30 Indigo Ballroom
6.3.3 Motor Neuroprostheses Posters I (Oral Session)

15:00-16:30 WeD14.1
Development of a Non-Invasive, Multifunctional Grasp Neuroprosthesis and Its Evaluation in an Individual with a High Spinal Cord Injury 1835-1838
Rupp, Rüdiger (Heidelberg University Hospital); Kreiling, Alex (Graz University of Technology); Rohm, Martin (Heidelberg University Hospital); Kaiser, Vera (Graz University of Technology); Müller-Putz, Gernot (Graz University of Technology)*

15:00-16:30 WeD14.2
Muscle Response to Simultaneous Stimulated and Physiological Action Potential Trains – A Simulation Study 1839-1842
Crago, Patrick (Case Western Reserve University); Makowski, Nathaniel (Case Western Reserve University)*

15:00-16:30 WeD14.3
Co-contraction of Antagonist Muscles During Knee Extension against Gravity: Insights for Functional Electrical Stimulation Control Design 1843-1846
Lynch, Cheryl (Toronto Rehab-UHN); Sayenko, Dimitry (Toronto Rehab-UHN); Popovic, Milos R. (University of Toronto)*

15:00-16:30 WeD14.4
Empirical Mode Decomposition As a Tool to Remove the Function Electrical Stimulation Artifact from Surface Electromyograms: Preliminary Investigation 1847-1850
Pilkar, Rakesh (Kessler Foundation / UMDNJ); Yarossi, Mathew (University of Medicine & Dentistry New Jersey/ Kessler Foundation); Forrest, Gail (Kessler Foundation)*

15:00-16:30 WeD14.5
Localized Stimulation and Recording in the Spinal Cord with Microelectrode Arrays 1851-1854
Arle, Jeffrey (Beth Israel Deaconess Medical Center); Shils, Jay (Lahey Clinic/Tufts Medical School); Malik, Wasim Q. (Massachusetts Institute of Technology)*

15:00-16:30 WeD14.6
Modulation of Ankle EMG in Spinally Contused Rats through Application of Neuromuscular Electrical Stimulation Timed to Robotic Treadmill Training 1855-1858
Askari, Sina (University of Southern California); Kamgar, Parisa (California State University, Los Angeles); Chao, Tekang (Student, California State University Los Angeles); de Leon, Ray (California State University Los Angeles); Won, Deborah Soonmee (California State University, Los Angeles); Diaz, Eric (University of Southern California)*

15:00-16:30 WeD14.7
Automatic Determination of Parameters for Multipad Functional Electrical Stimulation: Application to Hand Opening and Closing 1859-1863
Hoffmann, Ulrich (Tecnalia Research & Innovation); Deinhofer, Martin (Technikum Wien); Keller, Thierry (Tecnalia Research & Innovation)*

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| 15:00-16:30 | | WeD14.8 |
| Step Trajectory Analysis of Spinal Cord Injured Rats Trained with Neuromuscular Electrical Stimulation Coordinated with Robotic Treadmill Training | | 1864-1867 |
| <i>Kamgar, Parisa* (California State University, Los Angeles); Agarwal, Ankit (California State University, Los Angeles); Chao, Tekang (Student, California State University Los Angeles); Askari, Sina (University of Southern California); Tan, Matthew (California State University, Los Angeles); Honor, Ryan (Cal State Los Angeles); Won, Deborah Soonmee (California State University, Los Angeles)</i> | | |
| 15:00-16:30 | | WeD14.9 |
| A Novel FES Control Paradigm Based on Muscle Synergies for Postural Rehabilitation Therapy with Hybrid Exoskeletons | | 1868-1871 |
| <i>Piazza, Stefano* (Consejo Superior de Investigaciones Científicas (CSIC)); Torricelli, Diego (Grupo de Bioingeniería, CSIC); Brunetti, Fernando (Centro de Automática y Robótica); del-Ama, Antonio J. (Hospital Nacional de Paraplégicos de Toledo); Gil-Agudo, Ángel (Hospital Nacional de Paraplégicos de Toledo); Pons, Jose Luis (Instituto de Automática Industrial)</i> | | |
| 15:00-16:30 | | WeD14.10 |
| Directed Causality of the Human Electrocorticogram During Dexterous Movement | | 1872-1875 |
| <i>Benz, Heather* (Johns Hopkins University); Collard, Maxwell (Johns Hopkins University); Tsimpouris, Charalampos (University of Patras); Acharya, Soumyadipta (Johns Hopkins University); Crone, Nathan E. (Johns Hopkins University, School of Medicine); Thakor, Nitish (Johns Hopkins University); Bezerianos, Anastasios (University of Patras)</i> | | |
| 15:00-16:30 | | WeD14.11 |
| Prosthesis-Guided Training of Pattern Recognition-Controlled Myoelectric Prosthesis | | 1876-1879 |
| <i>Chicoine, Caitlin (Rehabilitation Institute of Chicago); Simon, Ann* (Rehabilitation Institute of Chicago); Hargrove, Levi (Rehabilitation Institute of Chicago)</i> | | |
| 15:00-16:30 | | WeD14.12 |
| Control of Tibialis Anterior FES Envelop for Unilateral Drop Foot Gait Correction Using NARX Neural Network | | 1880-1883 |
| <i>Kordjazi, Neda* (Islamic Azad University, Mashhad Branch); Kobravi, Hamid Reza (Islamic Azad University, Mashhad Branch)</i> | | |
| WeD15: 15:00-16:30 | | Indigo Ballroom |
| 6.3.4 Motor Neuroprostheses Posters II (Oral Session) | | |
| 15:00-16:30 | | WeD15.1 |
| Development of a Bayesian Neural Network to Perform Obstacle Avoidance for an Intelligent Wheelchair | | 1884-1887 |
| <i>Nguyen, Anh V.* (University of Technology, Sydney); Nguyen, Lien B. (University of Technology, Sydney); Su, Steven Weidong (University of Technology, Sydney); Nguyen, Hung T. (University of Technology, Sydney)</i> | | |
| 15:00-16:30 | | WeD15.2 |
| Biomimetic NMES Controller for Arm Movements Supported by a Passive Exoskeleton | | 1888-1891 |
| <i>Ferrante, Simona* (Politecnico di Milano); Ambrosini, Emilia (Politecnico di Milano); Ferrigno, Giancarlo (Politecnico di Milano); Pedrocchi, Alessandra (Politecnico di Milano)</i> | | |
| 15:00-16:30 | | WeD15.3 |
| A Comparative Study of the 3D Precentral Gyrus Model for Unipolar and Bipolar Current Stimulations | | 1892-1895 |
| <i>Seo, Hyeon (Gwangju Institute of Science and Technology); Jun, Sung Chan* (Gwangju Institute of Science and Technology)</i> | | |
| 15:00-16:30 | | WeD15.4 |
| Activation Using Infrared Light in a Mammalian Axon Model | | 1896-1899 |
| <i>Peterson, Erik* (Case Western Reserve University); Tyler, Dustin (Case Western Reserve University)</i> | | |

WeD16: 15:00-16:30 Indigo Ballroom
8.1.2 Orthotics (Oral Session)

- 15:00-16:30 WeD16.1
Active AFO with Ankle Joint Brake Friction Control Using Force Observer 1900-1903
Yoshizawa, Nobuyuki (Nippon Institute of Technology)*
- 15:00-16:30 WeD16.2
Gait Planning and Double Support Phase Model for Functional Electrical Stimulation-Based Walking ... 1904-1907
Sharma, Nitin (University of Alberta); Stein, Richard B. (University of Alberta)*
- 15:00-16:30 WeD16.3
Performance Evaluation of a Lower Limb Exoskeleton for Stair Ascent and Descent with Paraplegia 1908-1911
Farris, Ryan (Vanderbilt University); Quintero, Hugo A. (Vanderbilt University); Goldfarb, Michael (Vanderbilt University)*
- 15:00-16:30 WeD16.4
Towards the Use of a Lower Limb Exoskeleton for Locomotion Assistance in Individuals with Neuromuscular Locomotor Deficits 1912-1915
Murray, Spencer (Vanderbilt University); Goldfarb, Michael (Vanderbilt University)*

WeD17: 15:00-16:30 Indigo Ballroom
8.4.1 Assistive and Cognitive Robotics (Oral Session)

- 15:00-16:30 WeD17.1
Single Degree-Of-Freedom Exoskeleton Mechanism Design for Thumb Rehabilitation 1916-1920
Yihun, Yimesker (Idaho State University); Miklos, Robert (Idaho State University); Perez Gracia, Alba (Idaho State University); Reinkensmeyer, David J. (University of California); Denney, Keith (University of Idaho); Wolbrecht, Eric (University of Idaho)*
- 15:00-16:30 WeD17.2
A Taxonomy for User-Healthcare Robot Interaction 1921-1924
Bzura, Conrad (Worcester Polytechnic Institute); Im, Hosung (Worcester Polytechnic Institute); Liu, Tammy (Worcester Polytechnic Institute); Malehorn, Kevin (Worcester Polytechnic Institute); Padir, Taskin (Worcester Polytechnic Institute); Tulu, Bengisu (Worcester Polytechnic Institute)*
- 15:00-16:30 WeD17.3
Double Loop Control Strategy with Different Time Steps Based on Human Characteristics 1925-1928
Gu, Gwang Min (KAIST); Lee, Jinoh (KAIST); Kim, Jung (Korea Advanced Institute of Science and Technology)*
- 15:00-16:30 WeD17.4
Prosthesis-User-In-The-Loop: User-Centered Design Parameters and Visual Simulation 1929-1932
Christ, Oliver (Technische Universität Darmstadt); Wojtus, Janis Nikolas Harald (Technische Universität Darmstadt); Beckerle, Philipp (Technische Universität Darmstadt, Institute for Mechatronic Systems in Mechanical Engineering); Wolff, Kerstin (Technische Universität Darmstadt, Work and Engineering Psychology Research Group); Vogt, Joachim (TU Darmstadt); von Stryk, Oskar (Technische Universität Darmstadt); Rinderknecht, Stephan (TU Darmstadt, Institute for Mechatronic Systems in Mechanical Engineering)*
- 15:00-16:30 WeD17.5
Electric Motor Assisted Bicycle as an Aerobic Exercise Machine 1933-1935
Nagata, Takafumi (Ritsumeikan University)*
- 15:00-16:30 WeD17.6
An Upper Limb Robot Model of Children Limb for Cerebral Palsy NeuroRehabilitation 1936-1939
Pathak, Yagna (Marquette University); Johnson, Michelle (Medical College of Wisconsin)*
- 15:00-16:30 WeD17.7
Hidden Marker Position Estimation During Sit-To-Stand with Walker 1940-1943
Yoon, Sang Ho (LG Electronics); Jun, Hong Gul (LG Electronics); Dan, Byung Ju (LG Electronics); Jo, Byeong-Rim (LG Electronics); Min, Byung Hoon (LG Electronics)*

9.2.2 Patient Monitoring Devices and Systems I (Oral Session)

- 15:00-16:30 WeD19.1
A Synchronization System for the Analysis of Biomedical Signals Recorded with Different Devices from Mechanically Ventilated Patients 1944-1947
Camacho Laverde, Alejandro (University of Antioquia); Hernandez, Alher Mauricio (University of Antioquia); Serna Higueta, Leidy Yanet (Universitat Politècnica de Catalunya); Naranjo Londoño, Zulma (University of Antioquia); Mañanas, Miquel Angel (Technical University of Catalonia (UPC))*
- 15:00-16:30 WeD19.2
Evaluation of Pelvis Slope and Flattening on Children Gymnasts by Biophotogrammetry Technique 1948-1951
Vacari, Daiane A. (UTFPR – Federal Technological University of Paraná); Ricieri, Denise da Vinha (UFPR – Federal University of Paraná); Ulbricht, Leandra (UTFPR – Federal University of Technology – Paraná); Neves, Eduardo Borba (Federal Technological University of Paraná (UTFPR)); Romaneli, Eduardo F. R. (UTFPR – Federal University of Technology – Paraná)*
- 15:00-16:30 WeD19.3
Comparison between Body Fat Measurements Obtained by Portable Ultrasound and Caliper in Young Adults 1952-1955
Ulbricht, Leandra (UTFPR – Federal University of Technology – Paraná); Neves, Eduardo Borba (Federal Technological University of Paraná (UTFPR)); Ripka, Wagner L. (UTFPR- Federal Technological University of Paraná); Romaneli, Eduardo F. R. (UTFPR – Federal University of Technology – Paraná)*
- 15:00-16:30 WeD19.4
Automated Motion Sensor Quantification of Gait and Lower Extremity Bradykinesia 1956-1959
Heldman, Dustin (Great Lakes NeuroTechnologies Inc); Filipkowski, Danielle (Great Lakes NeuroTechnologies Inc.); Riley, David (University Hospitals and Case Western Reserve University School of Medicine); Whitney, Christina (University Hospitals and Case Western Reserve University School of Medicine); Walter, Benjamin (University Hospitals and Case Western Reserve University School of Medicine); Gunzler, Steven (University Hospitals and Case Western Reserve University School of Medicine); Giuffrida, Joseph (Great Lakes NeuroTechnologies Inc.); Mera, Thomas (Great Lakes NeuroTechnologies Inc.)*
- 15:00-16:30 WeD19.5
Accuracy Evaluation on Linear Measurement through Opto-Electronic Plethysmograph 1960-1963
Bastianini, Flavia (University Campus Bio-Medico of Rome); Schena, Emiliano (University of Rome Campus Bio-Medico); Silvestri, Sergio (Università Campus Bio-Medico di Roma)*
- 15:00-16:30 WeD19.6
Full Body Gait Analysis with Kinect 1964-1967
Gabel, Moshe (Technion – Israel Institute of Technology); Gilad-Bachrach, Ran (Microsoft Research); Renshaw, Erin (Microsoft Research); Schuster, Assaf (Technion – Israel Institute of Technology)*
- 15:00-16:30 WeD19.7
Development and Clinical Validation of an Unobtrusive Ambulatory Knee Function Monitoring System with Inertial 9DoF Sensors 1968-1971
Schulze, Mareike (Hannover Medical School, Peter L. Reichertz Institute for Medical Informatics); Calliess, Tilman (Hannover Medical School, Department of Orthopaedic Surgery); Gietzelt, Matthias (University of Braunschweig – Institute of Technology); Wolf, Klaus-Hendrik (University of Braunschweig – Institute of Technology); Liu, Tsung-Han (Hannover Medical School, Peter L. Reichertz Institute for Medical Informatics); Seehaus, Frank (Hannover Medical School, Department of Orthopaedic Surgery); Bocklage, Raphael (Hannover Medical School, Department of Orthopaedic Surgery); Windhagen, Henning (Hannover Medical School, Department of Orthopaedic Surgery); Marschollek, Michael (Univ of Braunschweig-Inst of Tech)*
- 15:00-16:30 WeD19.8
Indoor Magnetic Navigation for the Blind 1972-1975
Riehle, Timothy H (Koronis Biomed. Technologies Corp.); Anderson, Shane (Koronis Biomedical Technologies); Lichter, Patrick (Koronis Biomedical Technologies); Giudice, Nicholas (University of California, Santa Barbara); Sheikh, Suneel (ASTER Labs, Inc.); Knuesel, Robert (Koronis Biomedical Technologies); Kollmann, Daniel (Koronis Biomedical Technologies); Hedín, Daniel (Advanced Medical Electronics)*

15:00-16:30 WeD19.9
A Smartphone Application of Alcohol Resilience Treatment for Behavioral Self-Control Training 1976-1979
*Yu, Fei** (The University of Southern Denmark); *Albers, Jörg* (University of Southern Denmark); *Gao, Tian* (University of Southern Denmark, Mads Clausen Institute); *Bilberg, Arne* (The University of Southern Denmark); *Stenager, Elsebeth* (University of Southern Denmark)

15:00-16:30 WeD19.10
Towards the Run and Walk Activity Classification through Fall Detection – An Android Application 1980-1983
Oner, Melis (Central Michigan University); *Pulcifer-Stump, Jeffry* (Central Michigan University); *Seeling, Patrick* (Central Michigan University); *Kaya, Tolga** (Central Michigan University)

15:00-16:30 WeD19.11
The Simulation of Click and Double-Click through EMG Signals 1984-1987
*Pinheiro, Jr., Carlos G.** (Universidade Federal de Goiás); *Andrade, Adriano* (Federal University of Ubelandia)

15:00-16:30 WeD19.12
A Laser Doppler System for Monitoring of Intracerebral Microcirculation 1988-1991
*Rejmstad, Peter** (Linköping University); *Åkesson, Gustav* (Linköping University Hospital); *Hillman, Jan* (Linköping University Hospital); *Wårdell, Karin* (Linköping University)

WeD20: 15:00-16:30 Indigo Ballroom
9.2.3 Patient Monitoring Devices and Systems II (Oral Session)

15:00-16:30 WeD20.1
A Low-Impedance, Skin-Grabbing, and Gel-Free EEG Electrode 1992-1995
*Sun, Mingui** (University of Pittsburgh); *Jia, Wenyan* (University of Pittsburgh); *Liang, Wei* (Zhengzhou Institute of Light Industry); *Scabassi, Robert* (University of Pittsburgh)

15:00-16:30 WeD20.2
Reliability and Validity of the Grip-Ball Dynamometer for Grip-Strength Measurement 1996-1999
Chkeir, Aly (University of Technology of Troyes); *Jaber, Rana* (UTT); *Hewson, David J** (Université de technologie de Troyes); *Duchêne, Jacques* (UTT)

15:00-16:30 WeD20.3
Multi-Signal Visualization of Physiology (MVP): A Novel Visualization Dashboard for Physiological Monitoring of Traumatic Brain Injury Patients 2000-2003
Sebastian, Kevin (Anglo-Chinese School); *Vivian, Sari* (Hwa Chong Institute); *Loy, Liang Yu* (Institute for Infocomm Research); *Zhang, Feng* (Institute for Infocomm Research Singapore); *Zhang, Zhuo** (A*STAR); *Feng, Mengling* (Institute for Infocomm Research)

15:00-16:30 WeD20.4
Adaptive Cancellation of Motion Artifact in Wearable Biosensors 2004-2008
Yousefi, Rasoul (Univ. of Texas at Dallas); *Nourani, Mehrdad** (University of Texas at Dallas); *Panahi, Issa* (University of Texas at Dallas)

15:00-16:30 WeD20.5
Negative Effects of Obesity Analyzed through Bioimpedance, Indirect Calorimetry, Simpatovagal Index and the Clino-Ortho Maneuver* 2009-2012
Cadena, Miguel (Universidad Autonoma Metropolitana); *Azpiroz-leeahan, Joaquin** (Universidad Autonoma Metropolitana); *Martinez-Licon, Fabiola* (Universidad Autonoma Metropolitana); *Borja, Gisella* (UNIVERSIDAD AUTONOMA D EL CARIBE); *Ramos-Ibañez, Norma* (UAM-X); *Velázquez, Consuelo* (Universidad Autonoma Metropolitana); *Rodríguez, Magdalena* (Universidad Autonoma Metropolitana); *Díaz, Rafael* (Universidad Autonoma Metropolitana)

15:00-16:30 WeD20.6
Scale-Independent Stiffness Measurement of Upper Limbs with Lymphedema by a Circular Compression 2013-2016
*Tanaka, Nobuyuki** (Tokyo Women's Medical University); *Kataoka, Tsuyoshi* (Hiroshima University); *Kaneko, Makoto* (Osaka University); *Yamato, Masayuki* (Tokyo Women's Medical University); *Okano, Teruo* (Tokyo Women's Medical University)

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| 15:00-16:30 | | WeD20.7 |
| Wearable, Wireless Reflectance-Sensing Pulse Oximeter | | 2017-2020 |
| <i>Coker, Brandilyn* (Oregon State University); Leung, Jerry (Oregon State University); Cohen, Caleb (Oregon State University); Goska, Benjamin (Oregon State University); Albright, Ryan (Oregon State University); House, Samuel (Oregon State University); Chiang, Patrick (Oregon State University)</i> | | |
| 15:00-16:30 | | WeD20.8 |
| Human Behavior State Profile Mapping Based on Recalibrated Speech Affective Space Model | | 2021-2024 |
| <i>Kamaruddin, Norhaslinda* (MARA University of Technology); Abdul, Wahab (International Islamic University Malaysia)</i> | | |
| 15:00-16:30 | | WeD20.9 |
| A 3D Assessment Tool for Accurate Volume Measurement for Monitoring the Evolution of Cutaneous Leishmaniasis Wounds | | 2025-2028 |
| <i>Zvietcovich, José Fernando* (Pontificia Universidad Católica del Perú); Castañeda, Benjamín (Pontificia Universidad Católica del Perú); Valencia, Braulio (Institute of Tropical Medicine Alexander von Humbolt); Llanos, Alejandro (Institute of Tropical Medicine Alexander von Humbolt)</i> | | |
| 15:00-16:30 | | WeD20.10 |
| A Remote Drip Infusion Monitoring System Employing Bluetooth | | 2029-2032 |
| <i>Amano, Hikaru* (Hiroshima Institute of Technology); Ogawa, Hidekuni (Hiroshima Institute of Technology); Maki, Hiromichi (Hiroshima institute of Technology); Tsukamoto, Sosuke (Hiroshima Institute of Technology); Yonezawa, Yoshiharu (Hiroshima Institute of Technology); Caldwell, Morton (Caldwell Biomedical Electronics)</i> | | |
| 15:00-16:30 | | WeD20.11 |
| Biomechanical Assessment of Work Footwear for International Airline Personnel | | 2033-2035 |
| <i>Zequera Diaz, Martha Lucia* (Pontificia Universidad Javeriana); Wilches Pérez, Carlos Andrés (Pontificia Universidad Javeriana)</i> | | |
| 15:00-16:30 | | WeD20.12 |
| Basic Study on Non-Contact Measurement of Cardiac Beat by Using Grid-Based Active Stereo | | 2036-2039 |
| <i>Aoki, Hirooki* (Hiroshima City University); Furukawa, Ryo (Hiroshima City University); Sagawa, Ryusuke (National Institute of Advanced Industrial Science and Technology); Kawasaki, Hiroshi (Kagoshima University); Hiura, Shinsaku (Hiroshima City University)</i> | | |
| WeD21: 15:00-16:30 | | Indigo Ballroom |
| 9.2.4 Patient Monitoring Devices and Systems III (Oral Session) | | |
| 15:00-16:30 | | WeD21.1 |
| Development of a Cuffless Blood Pressure Measurement System | | 2040-2043 |
| <i>Shyu, Liang-Yu* (Chung Yuan Christian University); Kao, Yao-Lin (Chung Yuan Christian University); Tsai, Wen-Ya (Chung-Yuan Christian University); Hu, Wei-Chih (Chung Yuan Christian University)</i> | | |
| 15:00-16:30 | | WeD21.2 |
| First Steps in Adaptation of an Evidential Network for Data Fusion in the Framework of Medical Remote Monitoring | | 2044-2047 |
| <i>Paulo, Cavalcante (it-sudparis); Sehili, Mohamed El Amine* (ESIGETEL); Herbin, Michel (Université de Reims); Istrate, Dan (ESIGETEL); Blanchard, Frédéric (Université de Reims); Boudy, Jerome (it-sudparis); Dorizzi, Bernadette (Telecom Sud Paris)</i> | | |
| 15:00-16:30 | | WeD21.3 |
| Evaluation of Novel Algorithm Embedded in a Wearable sEMG Device for Seizure Detection | | 2048-2051 |
| <i>Conradsen, Isa* (Technical University of Denmark); Beniczky, Sandor (Danish Epilepsy Centre); Wolf, Peter (Danish Epilepsy Centre); Jennum, Poul (Danish Centre for Sleep Medicing); Sorensen, Helge B D (Technical University of Denmark)</i> | | |

9.2.5 Diagnostic and Therapeutic Devices (Oral Session)

- 15:00-16:30 WeD22.1
A Computational Model of a Controllable Needle-Free Jet Injector 2052-2055
Williams, Rhys Matthew James (University of Auckland); Hogan, N. Catherine (Massachusetts Institute of Technology); Nielsen, Poul (The University of Auckland); Hunter, Ian (Massachusetts Institute of Technology); Taberner, Andrew (The University of Auckland)*
- 15:00-16:30 WeD22.2
Experimental Glucose Regulation with a High-Order Sliding-Mode Controller 2056-2059
Gallardo-Hernández, Ana Gabriela (Instituto Mexicano del Seguro Social); Revilla-Monsalve, María Cristina (Unidad de Investigación Médica en Enfermedades Metabólicas. CMN SXXI); Fridman, Leonid (Universidad Nacional Autónoma de México); Leder, Ron (Universidad Nacional Autónoma de México); Islas-Andrade, Sergio (Unidad de Investigación Médica en Enfermedades Metabólicas. CMN SXXI); Shtessel, Yuri (University of Alabama in Huntsville)*
- 15:00-16:30 WeD22.3
A New Approach to Assess the Spasticity in Hamstrings Muscles Using Mechanomyography Antagonist Muscular Group 2060-2063
Krueger, Eddy (Federal Technological University of Paraná); Scheeren, Eduardo Mendonça (Federal Technological University of Paraná); Nogueira-Neto, Guilherme (State University of Campinas); Button, Vera Lúcia da Silveira Nantes (State University of Campinas); Nohama, Percy (Universidade Tecnológica Federal do Paraná)*
- 15:00-16:30 WeD22.4
Observation of Flow Variation in Capillaries of Artificial Blood Vessel by Producing Microbubble Aggregations 2064-2067
Masuda, Kohji (Tokyo Univ. A&T); Shigehara, Nobuhiko (Tokyo Univ of A&T); Koda, Ren (Graduate School of Bio-Applications and Systems Engineering); Watarai, Nobuyuki (Tokyo Univ of A&T); Ikeda, Seiichi (Nagoya University); Arai, Fumihito (Nagoya University); Miyamoto, Yoshitaka (Nagoya University); Chiba, Toshio (National Center for Child Health and Development)*
- 15:00-16:30 WeD22.5
Intradermal Needle-Free Powdered Drug Injection by a Helium-Powered Device 2068-2071
Liu, John (Massachusetts Institute of Technology); Hogan, N. Catherine (Massachusetts Institute of Technology); Hunter, Ian (Massachusetts Institute of Technology)*
- 15:00-16:30 WeD22.6
Dissolution of Magnetically Marked Tablets: Investigations in a Physical Phantom 2072-2075
Biller, Sebastian (Ilmenau University of Technology); Domey, Jörg (Ilmenau University of Technology); Fiedler, Patrique (Ilmenau University of Technology); Holzhey, Rocco (Innovent e.V.); Richert, Hendryk (Innovent e.V.); Haueisen, Jens (Technical University Ilmenau)*

10.1.1 Personal Health Systems (Oral Session)

- 15:00-16:30 WeD23.1
Estimation of Accelerometer Orientation for Activity Recognition 2076-2079
Hajj Chehade, Nabil (UCLA); Friedman, Ascher (UCLA Center For Embedded Networked Systems); Chien, Chieh (University of California, Los Angeles); Pottie, Greg (UCLA EE Department)*
- 15:00-16:30 WeD23.2
High Resolution Wireless Body Area Network with Statistically Synchronized Sensor Data for Tracking Pulse Wave Velocity 2080-2083
Li, Kejia (Kansas State University); Warren, Steve (Kansas State University)*

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| 15:00-16:30 | | WeD23.3 |
| Energy-Efficient Process-Stacking Multiplexing Access for 60-GHz Mm-Wave Wireless Personal Area Networks | | 2084-2087 |
| <i>Estevez, Claudio (Department of Electrical Engineering, Universidad de Chile, Santiago, Chile); Kailas, Aravind* (The University of North Carolina at Charlotte)</i> | | |
| 15:00-16:30 | | WeD23.4 |
| A Review of Non-Contact, Low-Cost Physiological Information Measurement Based on Photoplethysmographic Imaging | | 2088-2091 |
| <i>Wang, Lei* (Shenzhen Institutes of Advanced Technology)</i> | | |
| 15:00-16:30 | | WeD23.5 |
| Wireless Photoplethysmographic Device for Heart Rate Variability Signal Acquisition and Analysis | | 2092-2095 |
| <i>Franco, Mario (The University of Texas at El Paso); Nazeran, Homayoun (The University of Texas at El Paso); Reyes, Ivan* (University of Texas at El Paso); Haltiwanger, Emily (College of Health Sciences)</i> | | |
| 15:00-16:30 | | WeD23.6 |
| Real Time Digitally Assisted Analog Motion Artifact Reduction in Ambulatory ECG Monitoring System | | 2096-2099 |
| <i>Kim, Sunyoung* (IMEC)</i> | | |
| 15:00-16:30 | | WeD23.7 |
| Evaluation of a Technology Enabled Garment for Older Walkers | | 2100-2103 |
| <i>Burns, William Paul (University of Ulster); Nugent, Chris (University of Ulster); McCullagh, Paul (University of Ulster); Finlay, Dewar (University of Ulster); Cleland, Ian (University of Ulster); Scotney, Bryan (University of Ulster); McClean, Sally (University of Ulster); McCann, Jane (University of Wales, Newport); Guldenring, Daniel* (University of Ulster)</i> | | |
| 15:00-16:30 | | WeD23.8 |
| Speech Analysis for Mood State Characterization in Bipolar Patients | | 2104-2107 |
| <i>Vanello, Nicola (University of Pisa); Guidi, Andrea (University of Pisa); Gentili, Claudio (University of Pisa); Werner, Sandra (Forenap); Bertschy, Gilles (Department of Psychiatry and Mental Health, Strasbourg University Hospital); Valenza, Gaetano* (University of Pisa); Lanata, Antonio (University of Pisa); Scilingo, Enzo Pasquale (University of Pisa)</i> | | |
| 15:00-16:30 | | WeD23.9 |
| Estimating Uncomfortable Loudness Levels Using Evoked Potentials to Auditory Stimuli for Hearing Aid Fitting | | 2108-2111 |
| <i>Adachi, Shinobu* (Panasonic Corporation); Morikawa, Koji (Panasonic Corporation); Kato O., Yumiko (Panasonic Corporation); Ozawa, Jun (Panasonic Corporation); Nittono, Hiroshi (Hiroshima University)</i> | | |
| 15:00-16:30 | | WeD23.10 |
| Speech Activity Detection Using Accelerometer | | 2112-2115 |
| <i>Matic, Aleksandar* (CREATE-NET); Osmani, Venet (CREATE-NET); Mayora, Oscar (CREATE-NET)</i> | | |

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| WeD24: 15:00-16:30 | Indigo Ballroom |
| 10.1.3 Personal Health Systems, Mhealth/Ehealth and Telehealth (Oral Session) | |

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| 15:00-16:30 | | WeD24.1 |
| Tailor-made Preventive Medicine Integrating Amino Acid Checkup and its Application toward Disaster-stricken Areas | | 2116-2119 |
| <i>Kuroda, Masahiro* (National Inst of Information & Comm); Tochikubo, Osamu (Yokohama City University)</i> | | |
| 15:00-16:30 | | WeD24.2 |
| Group Profile Management in Ubiquitous Healthcare Environment | | 2120-2123 |
| <i>Fengou, Maria-Anna (University of Patras); Mantas, Georgios (University of Patras); Lymberopoulos, Dimitrios* (University of Patras)</i> | | |

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| 15:00-16:30 | WeD24.3 |
| A Preliminary Study of the Effect of Electrode Placement in Order to Define a Suitable Location for Two Electrodes and Obtain Sufficiently Reliable ECG Signals When Monitoring with Wireless System | 2124-2127 |
| <i>Noh, Hyung Wook* (Electronics and Telecommunications Research Institute); Jang, Yongwon (Electronics & Telecom Research Inst.); Lee, InBum (ETRI); Song, Yoonseon (Electronics & Telecom Research Inst); Jeong, Ji-Wook (ETRI); Lee, Sooyeul (Electronics & Telecom Research Inst)</i> | |
| 15:00-16:30 | WeD24.4 |
| Vital Analysis: Field Validation of a Framework for Annotating Biological Signals of First Responders in Action | 2128-2131 |
| <i>Gomes, Pedro Tiago* (Faculdade de Ciências da Universidade do Porto, Portugal); Lopes, Bruno (Instituto de Telecomunicações / Universidade do Porto); Coimbra, Miguel (Instituto de Telecomunicações / Universidade do Porto)</i> | |
| 15:00-16:30 | WeD24.5 |
| Protocol for Cardiac Assessment of Recreational Athletes | 2132-2135 |
| <i>China Espinoza, Ana Marian (GBBA); Lollett, Carlos Miguel* (Simon Bolivar University); HERRERA, HECTOR A (Universidad Simón Bolívar); Passariello, Gianfranco (Universidad Simón Bolívar); Wong C, Sara (Universidad Simon Bolivar)</i> | |
| 15:00-16:30 | WeD24.6 |
| HIMS Walking – Smart Game Designed for Promotion of Health | 2136-2139 |
| <i>Farooq, Umar* (Kyung Hee University); Jang, Dae-Geun (Korea Advanced Institute of Science and Technology); Park, Seung-Hun (Kyung Hee University)</i> | |
| 15:00-16:30 | WeD24.7 |
| Parameters Characterizing Nature of Personal Health in the Correlation between Energy Expenditure/Supply and Body-Fat | 2140-2143 |
| <i>Takeuchi, Hiroshi* (Takasaki University of Health and Welfare); Mayuzumi, Yuuki (Takasaki University of Health and Welfare); Kodama, Naoki (Takasaki University of Health and Welfare)</i> | |
| 15:00-16:30 | WeD24.8 |
| Sleep and Activity Monitoring for Returning Soldier Adjustment Assessment | 2144-2148 |
| <i>Cleary, Daniel J.* (General Electric Global Research); Yardibi, Tarik (General Electric Global Research); Wood, Joseph C (Department of Clinical Investigation, Dwight David Eisenhower Army Medical Center); Stachura, Max E. (Center for Telehealth, Medical College of Georgia); Astapova, Elena V. (Center for Telehealth, Medical College of Georgia); Dicks, Adrienne (Geneva Foundation)</i> | |
| 15:00-16:30 | WeD24.9 |
| Using Accelerometry to Identify Poor Signal Quality in Telehealth Blood Pressure Recordings | 2149-2152 |
| <i>Tamura, Sayuri (University of New South Wales); Lovell, Nigel H. (University of New South Wales); Redmond, Stephen James* (University of New South Wales)</i> | |
| 15:00-16:30 | WeD24.10 |
| PersonA: Persuasive Social Network for Physical Activity | 2153-2157 |
| <i>Ayubi, Soleh* (University of Pittsburgh); Parmanto, Bambang (University of Pittsburgh)</i> | |

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| WeD25: 15:00-16:30 | Indigo Ballroom |
| 10.4.2 Ehealth/Mhealth II (Oral Session) | |

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| 15:00-16:30 | WeD25.1 |
| Summarized Data to Achieve Population-Wide Anonymized Wellness Measures | 2158-2161 |
| <i>Clarke, Andrew Parame (University of Sydney); Steele, Robert* (University of Sydney)</i> | |
| 15:00-16:30 | WeD25.2 |
| Development of a Patch Type Embedded Cardiac Function Monitoring System Using Dual Microprocessor for Arrhythmia Detection in Heart Disease Patient | 2162-2165 |
| <i>Jang, Yongwon* (Electronics & Telecom Research Inst.); Noh, Hyung Wook (Electronics and Telecommunications Research Institute); Lee, InBum (ETRI); Jeong, Ji-Wook (ETRI); Song, Yoonseon (Electronics & Telecom Research Inst); Lee, Sooyeul (Electronics & Telecom Research Inst); Kim, Seunghwan (Electronics & Telecom Research Inst)</i> | |

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| 15:00-16:30 | WeD25.3 |
| Measurement of Food Volume Based on Single 2-D Image without Conventional Camera Calibration | 2166-2169 |
| <i>Yue, Yaofeng (University of Pittsburgh); Jia, Wenyan (University of Pittsburgh); Sun, Mingui* (University of Pittsburgh)</i> | |
| 15:00-16:30 | WeD25.4 |
| High Efficiency Video Coding for Ultrasound Video Communication in M-Health Systems | 2170-2173 |
| <i>Panayides, Andreas (University of Cyprus); C. Antoniou, Zinon (Department of Computer Science, University of Cyprus); Pattichis, Marios (University of New Mexico,); Pattichis, Constantinos* (University of Cyprus)</i> | |
| 15:00-16:30 | WeD25.5 |
| Validation of Heart Rate Extraction Using Video Imaging on a Built-In Camera System of a Smartphone | 2174-2177 |
| <i>Kwon, Sungjun* (Seoul National University); Kim, Hyun Seok (Seoul National University); Park, Kwang S. (Seoul National University)</i> | |
| 15:00-16:30 | WeD25.6 |
| A Mobile-Health System to Manage Chronic Obstructive Pulmonary Disease Patients at Home | 2178-2181 |
| <i>Ding, Hang (CSIRO); Moodley, Yuben (The Royal Perth Hospital, Perth, WA.); Kanagasingam, Yogi (The Australian eHealth Research Centre, Perth, CSIRO.); Karunanithi, Mohanraj* (CSIRO ICT Centre)</i> | |
| 15:00-16:30 | WeD25.7 |
| Medication Adherence for Patients with Mental Illness | 2182-2185 |
| <i>Varshney, Upkar* (Georgia State University); Vetter, Ron (University of North Carolina)</i> | |
| 15:00-16:30 | WeD25.8 |
| Biometric Identity Management for Standard Mobile Medical Networks | 2186-2189 |
| <i>Egner, Alexandru (University of Padova); Soceanu, Alexandru* (Munich University of Applied Sciences); Moldoveanu, Florica (University Politehnica of Bucharest)</i> | |
| 15:00-16:30 | WeD25.9 |
| EHS Subjects Do Not Perceive RF EMF Emitted from Smart Phones Better Than Non-EHS Subjects | 2190-2193 |
| <i>Kwon, Min Kyung (Yonsei University); Kim, Sung Kean (Yonsei University); Koo, Jeong Mo (Yonsei University); Kim, Deok Won* (Yonsei University College of Medicine)</i> | |

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| WeD26: 15:00-16:30 | Indigo Ballroom |
| 10.7.2 Decision Support and Data Mining II (Oral Session) | |

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| 15:00-16:30 | WeD26.1 |
| Overcoming Barriers to Development of Cooperative Medical Decision Support Models | 2194-2197 |
| <i>Hudson, Donna L* (University of California, San Francisco); Cohen, Maurice (University of California San Francisco)</i> | |
| 15:00-16:30 | WeD26.2 |
| Generalized Precursor Pattern Discovery for Biomedical Signals | 2198-2201 |
| <i>Lan, Mars* (University of California Los Angeles); Ghasemzadeh, Hassan (University of California Los Angeles); Sarrafzadeh, Majid (University of California Los Angeles)</i> | |
| 15:00-16:30 | WeD26.3 |
| Identifying Relatively High-Risk Group of Coronary Artery Calcification Based on Progression Rate: Statistical and Machine Learning Methods | 2202-2205 |
| <i>Kim, Ha-Young* (Samsung Advanced Institute of Technology (SAIT)); Yoo, Sanghyun (Samsung Advanced Institute of Technology (SAIT), Samsung Electronics); Lee, Jihyun (Samsung Advanced Institute of Technology (SAIT), Samsung Electronics); Kam, Hye Jin (SAIT, Samsung Electronics); Woo, Kyoung-Gu (Samsung Advanced Institute of Technology (SAIT), Samsung Electronics); Choi, Yoon-Ho (Center for Health Promotion, Samsung Medical Center, Sungkyunkwan University School of Medicine); Sung, Jidong (Center for Health Promotion, Samsung Medical Center, Sungkyunkwan University School of Medicine); Kang, Mira (Center for Health Promotion, Samsung Medical Center, Sungkyunkwan University School of Medicine)</i> | |

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| 15:00-16:30 | | WeD26.4 |
| Automated Knowledge-Based Fuzzy Models Generation for Weaning of Patients Receiving Ventricular Assist Device (VAD) Therapy | | |
| | | 2206-2209 |
| <i>Tsipouras, Markos G.* (University of Ioannina); Karvounis, Evaggelos (University of Ioannina); Tzallas, Alexandros (University of Ioannina); Goletsis, Yorgos (University of Ioannina); Fotiadis, Dimitrios I. (University of Ioannina); Adamopoulos, Stamatis (Onassis Cardiac Surgery Center, Athens); Trivella, Maria G. (Istituto di Fisiologia Clinica-CNR, Pisa)</i> | | |
| 15:00-16:30 | | WeD26.5 |
| Heart Failure Analysis Dashboard for Patient's Remote Monitoring Combining Multiple Artificial Intelligence Technologies | | |
| | | 2210-2213 |
| <i>Guidi, Gabriele (Department of Electronics and Telecommunications); Iadanza, Ernesto* (Università degli Studi di Firenze); Pettenati, Maria Chiara (ICON Foundation); Miniati, Roberto (Università di Firenze)</i> | | |
| 15:00-16:30 | | WeD26.6 |
| Multi-Label Classification for the Analysis of Human Motion Quality | | |
| | | 2214-2218 |
| <i>Taylor, Portia* (Carnegie Mellon University); Almeida, Gustavo J.M. (University of Pittsburgh); Hodgins, Jessica (Carnegie Mellon University); Kanade, Takeo (Carnegie Mellon University)</i> | | |
| 15:00-16:30 | | WeD26.7 |
| NEUROZONE: On-Line Recognition of Brain Structures in Stereotactic Surgery – Application to Parkinson's Disease | | |
| | | 2219-2222 |
| <i>Vargas Cardona, Hernán Darío (Universidad Tecnológica de Pereira); Padilla Bejarano, José Bestier (Universidad del Quindío); Arango, Ramiro (Universidad del Quindío); Carmona Villada, Hans (Universidad tecnologica de Pereira); Álvarez, Mauricio A.* (Universidad Tecnológica de Pereira); Guijarro, Enrique (Polytechnic University of Valencia); Orozco, Alvaro (Universidad Tecnológica de Pereira)</i> | | |
| 15:00-16:30 | | WeD26.8 |
| Dynamic Self-Adaptive Remote Health Monitoring System for Diabetics | | |
| | | 2223-2226 |
| <i>Suh, Myung-kyung (University of California, Los Angeles); Moin, Tannaz (University of Los Angeles, California); Woodbridge, Jonathan (University of California, Los Angeles); Lan, Mars* (University of California Los Angeles); Ghasemzadeh, Hassan (University of California Los Angeles); Ahmadi, Sheila (University of Los Angeles, California); Bui, Alex (University of California, Los Angeles); Sarrafzadeh, Majid (University of California Los Angeles)</i> | | |
| WeE01: 16:30-18:00 | | Sapphire A |
| 1.1.3 Time-Frequency and Time-Scale Analysis of Biosignals II (Oral Session) | | |
| Chair: Bianchi, Anna Maria (<i>Pol. di Milano</i>) | | |
| Co-Chair: Yamamoto, Yoshiharu (<i>The Univ. of Tokyo</i>) | | |
| 16:30-16:45 | | WeE01.1 |
| Robust, Automatic Real-Time Monitoring of the Time Course of the Individual Alpha Frequency in the Time and Frequency Domain | | |
| | | 2227-2231 |
| <i>Garn, Heinrich* (AIT Austrian Institute of Technology GmbH); Waser, Markus (AIT Austrian Institute of Technology GmbH); Lechner, Manuel (AIT Austrian Institute of Technology GmbH); Dorfer, Matthias (AIT Austrian Institute of Technology GmbH); Grossegger, Dieter (B.E.S.T. Medical Systems Dr. Grossegger und Drbal GmbH)</i> | | |
| 16:45-17:00 | | WeE01.2 |
| Pre-Processing of Multi-Channel EEG for Improved Compression Performance Using SPIHT | | |
| | | 2232-2235 |
| <i>Daou, Hoda* (McGill University); Labeau, Fabrice (McGill University)</i> | | |
| 17:00-17:15 | | WeE01.3 |
| Optimization of Time-Variant Autoregressive Models for Tracking REM – Non REM Transitions During Sleep | | |
| | | 2236-2239 |
| <i>Tacchino, Giulia* (Politecnico di Milano); Mariani, Sara (Politecnico di Milano); Migliorini, Matteo (Politecnico di Milano); Bianchi, Anna Maria (Politecnico di Milano)</i> | | |

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| 17:15-17:30 | WeE01.4 |
| Clinical State Assessment in Bipolar Patients by Means of HRV Features Obtained with a Sensorized T-Shirt | 2240-2243 |
| <i>Mariani, Sara* (Politecnico di Milano); Migliorini, Matteo (Politecnico di Milano); Tacchino, Giulia (Politecnico di Milano); Gentili, Claudio (University of Pisa); Bertschy, Gilles (Department of Psychiatry and Mental Health, Strasbourg University Hospital); Werner, Sandra (Forenap); Bianchi, Anna Maria (Politecnico di Milano)</i> | |
| 17:30-17:45 | WeE01.5 |
| Analysis of EMG Signals of Patients with Essential Tremor Focusing on the Change of Tremor Frequency | 2244-2250 |
| <i>Matsumoto, Yuya* (Waseda University); Seki, Masatoshi (Waseda University); Ando, Takeshi (Waseda University); Kobayashi, Yo (Waseda University); Iijima, Hiroshi (Yokohama Rehabilitation Foundation); Nagaoka, Masanori (Juntendo University, Graduate school); Fujie, Masakatsu G. (Waseda University)</i> | |
| 17:45-18:00 | WeE01.6 |
| Discrete Wavelet Transform Coefficients for Emotion Recognition from EEG Signals | 2251-2254 |
| <i>Yohanes, Rendi Ein Janvier (Nanyang Technological University); Ser, Wee* (Nanyang Technological University); Huang, Guang-bin (Nanyang Technological University)</i> | |
| WeE03: 16:30-18:00 | Sapphire E |
| 1.4.2 Biomedical Signal Classification II (Oral Session) | |
| Chair: Cerutti, Sergio (<i>Pol. di Milano</i>) | |
| Co-Chair: Yana, Kazuo (<i>Hosei Univ.</i>) | |
| 16:30-16:45 | WeE03.1 |
| Automated NREM Sleep Staging Using the Electro-Oculogram: A Pilot Study | 2255-2258 |
| <i>Garcia-Molina, Gary Nelson* (Philips Research North America); Abtahi, Farhad (KTH (Royal Institute of Technology)); Lagares Lemos, Miguel (Universidad Carlos III of Madrid)</i> | |
| 16:45-17:00 | WeE03.2 |
| Adaptive Sleep Stage Classification under Covariate Shift | 2259-2262 |
| <i>Khalighi, Sirvan* (Institute of systems and robotics, University of Coimbra); Sousa, Teresa (University of Coimbra); Nunes, Urbano (University of Coimbra)</i> | |
| 17:00-17:15 | WeE03.3 |
| A Gaussian Model for Movement Detection During Sleep | 2263-2266 |
| <i>Adami, Adriana Miorelli (University of Caxias do Sul); Adami, Andre* (Universidade de Caxias do Sul); Hayes, Tamara (Oregon Health & Science University); Pavel, Michael (Oregon Health and Science University); Beattie, Zachary Todd (Oregon Health & Science University)</i> | |
| 17:15-17:30 | WeE03.4 |
| Automated Detection of Rapid Eye Movements in Children | 2267-2270 |
| <i>Held, Claudio M.* (Universidad de Chile); Causa, Javier (Universidad de Chile); Causa, Leonardo (Universidad de Chile); Estevez, Pablo A. (Universidad de Chile); Perez, Claudio A. (Universidad de Chile); Garrido, Marcelo (Universidad de Chile); Chamorro, Rodrigo (Universidad de Chile); Algarin, Cecilia (Universidad de Chile); Peirano, Patricio (Universidad de Chile)</i> | |
| 17:30-17:45 | WeE03.5 |
| Adding Real-Time Noise Suppression Capability to the Cochlear Implant PDA Research Platform | 2271-2274 |
| <i>Mirzahasanloo, Taher* (University of Texas-Dallas); Gopalakrishna, Vanishree (University of Texas at Dallas); Kehtarnavaz, Nasser (University of Texas at Dallas); Loizou, Philipos (University of Texas at Dallas)</i> | |
| 17:45-18:00 | WeE03.6 |
| An Actigraphy Heterogeneous Mixture Model for Sleep Assessment | 2275-2278 |
| <i>Domingues, Alexandre (IST-ID (509 830 072)); Paiva, Teresa (Instituto Superior Técnico); Sanches, J. Miguel* (IST(NIF:501507930))</i> | |

2.1.3 MRI III: Neuroimaging (Oral Session)**Chair:** Wu, Ed X. (*The Univ. of Hong Kong*)**Co-Chair:** Ji, Jim Xiuquan (*Texas A&M Univ.*)

16:30-16:45

WeE04.1

In vivo Manganese-enhanced MRI for Visuotopic Brain Mapping 2279-2282*Chan, Kevin C. (University of Pittsburgh); Wu, Ed X.* (The University of Hong Kong)*

16:45-17:00

WeE04.2

A Novel Approach of Fmri-Guided Tractography Analysis within a Group:**Construction of an Fmri-Guided Tractographic Atlas** 2283-2286*Preti, Maria Giulia* (Politecnico di Milano); Makris, Nikos (Massachusetts General Hospital); Lagana, Maria Marcella (IRCCS S.Maria Nascente); Papadimitriou, George (CMA, A. Martinos Center for Biomedical Imaging, MGH, Boston); Baglio, Francesca (Fondazione Don Carlo Gnocchi, Milano); Griffanti, Ludovica (Fondazione Don Carlo Gnocchi, Milano); Nemni, Raffaello (Fondazione Don Carlo Gnocchi Milano); Cecconi, Pietro (Fondazione Don Carlo Gnocchi ONLUS – IRCCS S. Maria Nascente, Milano); Westin, Carl-Fredrik (Brigham and Women's Hospital, Harvard Medical School); Baselli, Giuseppe (Politecnico di Milano)*

17:00-17:15

WeE04.3

Directionality Analysis on Functional Magnetic Resonance Imaging During**Motor Task Using Granger Causality** 2287-2290*Anwar, Abdul Rauf* (University of Kiel); Muthalib, Mark (Queensland University of Technology); Perrey, Stéphane (University of Montpellier 1); Galka, Andreas (Kiel University); Granert, Oliver (University of Kiel); Wolff, Stephan (University of Kiel); Gunther, Deuschl (Department of Neurology); Jan, Raethjen (Department of Neurology); Heute, Ulrich (University of Kiel); Muthuraman, Muthuraman (Christian Albrechts University)*

17:15-17:30

WeE04.4

DWI Based Thermometry: The Effects of B-Values, Resolutions, Signal-To-Noise**Ratio, and Magnet Strength** 2291-2293*Sakai, Koji* (Kyoto University); Sakamoto, Ryo (Kyoto University); Okada, Tomohisa (Kyoto University Graduate School of Medicine); Sugimoto, Naozo (Kyoto University); Togashi, Kaori (Kyoto University Graduate School of Medicine, Kyoto, Japan.)*

17:30-17:45

WeE04.5

Spherical Finite Rate of Innovation Theory for the Recovery of Fiber Orientations 2294-2297*Deslauriers-Gauthier, Samuel* (Nanyang Technological University); Marziliano, Pina (Nanyang Technological University)*

17:45-18:00

WeE04.6

Diffusion Kurtosis Imaging with Tract-Based Spatial Statistics Reveals White Matter**Alterations in Preschool Children** 2298-2301*Li, Xianjun (Xi'an Jiaotong University); Gao, Jie (Xi'an Jiaotong University); Hou, Xin (Xi'an Jiaotong University); Chan, Kevin C. (University of Pittsburgh); Ding, Abby Y. (The University of Hong Kong); Sun, Qinli (Department of Radiology, the First Affiliated Hospital of Medical College of Xi'an Jiaotong University); Wan, Mingxi (Xi'an Jiaotong University); Wu, Ed X. (The University of Hong Kong); Yang, Jian* (Xi'an Jiaotong University)***2.2.6 Advanced Ultrasound Imaging and Evaluation** (Oral Session)**Chair:** Yen, Jesse (*Univ. of Southern California*)**Co-Chair:** Nguyen, Nghia (*Univ. of Illinois Urbana-Champaign*)

16:30-16:45

WeE05.1

Acquisition Information Spectrum for Evaluating Sonographic Quality 2302-2305*Insana, Michael F.* (University of Illinois); Nguyen, Nghia (University of Illinois Urbana-Champaign); Abbey, Craig (University of California Santa Barbara)*

16:45-17:00

WeE05.2

An Ideal Observer Approach to Mechanical Limits in B-Mode Ultrasound Imaging 2306-2309*Abbey, Craig* (University of California Santa Barbara); Nguyen, Nghia (University of Illinois Urbana-Champaign); O'Brien, Jr., William D. (University of Illinois); Insana, Michael F. (University of Illinois)*

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| 17:00-17:15 | | WeE05.3 |
| Monitoring Cerebral Hemodynamics with Transcranial Doppler Ultrasound During Cognitive and Exercise Testing in Adults Following Unilateral Stroke | | 2310-2313 |
| <i>Watt, Brian (University of Nebraska); Burnfield, Judith (Madonna Rehabilitation Hospital); Truemper, Edward (Children's Hospital and Medical Center); Buster, Thad (Madonna Rehabilitation Hospital); Bashford, Greg* (University of Nebraska-Lincoln)</i> | | |
| 17:15-17:30 | | WeE05.4 |
| Source Effects in SWIPE: Shear-Wave-Assisted Ultrasound Imaging | | 2314-2317 |
| <i>McAleavey, Stephen* (University of Rochester)</i> | | |
| 17:30-17:45 | | WeE05.5 |
| Volumetric Ultrasound and Computer-Assisted Analysis at the Point-Of-Care: A Musculoskeletal Exemplar | | 2318-2322 |
| <i>Mills, David* (GE Global Research); Cao, Kunlin (GE Global Research); Thiele, Ralf (University of Rochester Medical Center); Patwardhan, Kedar (GE Global Research)</i> | | |
| 17:45-18:00 | | WeE05.6 |
| Multi-Push (MP) Acoustic Radiation Force (ARF) Ultrasound for Assessing Tissue Viscoelasticity, in Vivo | | 2323-2326 |
| <i>Scola, Mallory (The University of North Carolina at Chapel Hill); Baggesen, Leslie (The University of North Carolina at Chapel Hill); Gallippi, Caterina* (The University of North Carolina at Chapel Hill)</i> | | |
| WeE06: 16:30-18:00 | | Sapphire M |
| 2.7.5 Image Segmentation I (Oral Session) | | |
| Chair: Dillenseger, Jean-Louis (<i>Univ. de Rennes 1</i>) | | |
| Co-Chair: Alirezaie, Javad (<i>Ryerson Univ. Univ. of Waterloo</i>) | | |
| 16:30-16:45 | | WeE06.1 |
| Fully Automatic 3D Segmentation of Iceball for Image-Guided Cryoablation | | 2327-2330 |
| <i>Liu, Xinyang* (Harvard Medical School and Brigham and Women's Hospital); Tuncali, Kemal (Brigham and Women's Hospital); Wells, William (Harvard Medical School); Morrison, Paul (Brigham and Women's Hospital); Zientara, Gary P. (Harvard Medical School and Brigham and Women's Hospital)</i> | | |
| 16:45-17:00 | | WeE06.2 |
| Semi-Automatic Vessel Tracking and Segmentation Using Epicardial Ultrasound in Bypass Surgery | | 2331-2334 |
| <i>Jørgensen, Alex Skovsbo* (Aalborg University); Schmidt, Samuel Emil (Aalborg University); Staalsen, Niels-Henrik (Aalborg Hospital); Østergaard, Lasse Riis (Aalborg University)</i> | | |
| 17:00-17:15 | | WeE06.3 |
| Spectral Clustering of Shape and Probability Prior Models for Automatic Prostate Segmentation in Ultrasound Images | | 2335-2338 |
| <i>Ghose, Soumya* (Université de Bourgogne); Mitra, Jhimli (Université de Bourgogne); Oliver, Arnau (University of Girona); Martí, Robert (University of Girona); Lladó, Xavier (University of Girona); Freixenet, Jordi (University of Girona); Vilanova, Joan Carles (University of Girona); Comet, Josep (Hospital Dr. Josep Trueta); Sidibé, Désiré (Université de Bourgogne); Meriaudeau, Fabrice (Universite de Bourgogne)</i> | | |
| 17:15-17:30 | | WeE06.4 |
| Unsupervised Tumour Segmentation in PET Based on Local and Global Intensity Fitting Active Surfaces and Alpha Matting | | 2339-2342 |
| <i>Ziming, Zeng* (Aberystwyth University); Shepherd, Tony (Turku University Hospital); Zwiggelaar, Reyer (Aberystwyth University)</i> | | |
| 17:30-17:45 | | WeE06.5 |
| Aorta Segmentation with a 3D Level Set Approach and Quantification of Aortic Calcifications in Non-Contrast Chest CT | | 2343-2346 |
| <i>Kurugol, Sila* (Brigham and Women's Hospital and Harvard Medical School); San Jose Estepar, Raul (Brigham Women's Hospital and Harvard Medical School); Ross, James (Brigham Women's Hospital and Harvard Medical School); Washko, George R. (Brigham Women's Hospital and Harvard Medical School)</i> | | |

17:45-18:00 WeE06.6
Extraction of Liver Vessel Centerlines under Guidance of Patient-Specific Models 2347-2350
HUANG, (Edward) XISHI (Hospital for Sick Children)*

WeE07: 16:30-18:00 Sapphire 410
3.1.4 Optical and Mechanical Sensors and Systems (Oral Session)
Chair: McShane, Mike (*Texas A&M Univ.*)
Co-Chair: Candler, Robert (*Univ. of California, Los Angeles*)

16:30-16:45 WeE07.1
High-Throughput Spectral System for Interrogation of Dermal-Implanted Luminescent Sensors 2351-2354
Long, Ruiqi (Texas A&M University); McShane, Mike (Texas A&M University)*

16:45-17:00 WeE07.2
Fabrication of a Thin-Film Capacitive Force Sensor Array for Tactile Feedback in Robotic Surgery 2355-2358
Paydar, Omeed (University of California, Los Angeles); Wottawa, Christopher (UCLA); Fan, Richard (UCLA);
Dutson, Erik P. (UCLA); Grundfest, Warren S. (UCLA); Culjat, Martin O. (UCLA);
Candler, Robert (University of California, Los Angeles)*

17:00-17:15 WeE07.3
Determination of Vessel Wall Dynamics by Optical Microsensors 2359-2362
Ruh, Dominic (University of Freiburg); Sherman, Stanislav (University of Freiburg); Theodor, Michael
(University Freiburg); Ruhhammer, Johannes (University of Freiburg); Foerster, Katharina (Department of
Cardiovascular Surgery, Albert-Ludwigs-University Freiburg); Heilmann, Claudia (Department of Cardiovascular
Surgery, Albert-Ludwigs-University Freiburg); Beyersdorf, Friedhelm (Department of Cardiovascular Surgery,
Albert-Ludwigs-University Freiburg); Zappe, Hans (University of Freiburg, Department of Microsystems
Engineering, Laboratory for Micro-optics); Seifert, Andreas (University of Freiburg)*

17:15-17:30 WeE07.4
Investigating Nanoparticle-Substrate Interaction in LSPR Biosensing Using the Image-Charge Theory . 2363-2366
Mortazavi, Daryoush (Deakin University); Kouzani, Abbas Z. (Deakin University);
Kaynak, Akif (Deakin University)*

17:30-17:45 WeE07.5
**Development of Real-Time Muscle Stiffness Sensor Based on Resonance Frequency for
Physical Human Robot Interactions** 2367-2370
*Han, Hyonyoung (KAIST); Han, Heeseop (KAIST);
Kim, Jung* (Korea Advanced Institute of Science and Technology)*

17:45-18:00 WeE07.6
Noncontact Respiratory Measurement of Volume Change Using Depth Camera 2371-2374
Yu, Meng-Chieh (National Taiwan University); Liou, JiaLin (National Taiwan University);
Kuo, Shuenn-Wen (National Taiwan University Hospital); Lee, Ming-Sui (National Taiwan University);
Hung, Yi-Ping (National Taiwan University)*

WeE08: 16:30-18:00 Sapphire 411
3.4.2 Physiological Monitoring I (Oral Session)
Chair: Jabbari, Esmail (*Univ. of South Carolina*)
Co-Chair: Bragos, Ramon (*Tech. Univ. of Catalonia (UPC)*)

16:30-16:45 WeE08.1
Non-Contact Doppler Radar Monitoring of Cardiorespiratory Motion for Siberian Sturgeon 2375-2378
Hafner, Noah (University of Hawaii); Lubecke, Victor (University of Hawaii Manoa)*

16:45-17:00 WeE08.2
Automated Hand-Forearm Ergometer Data Collection System 2379-2382
Gude, Dana (Kansas State University); Broxterman, Ryan (Kansas State University); Ade, Carl (Kansas State
University); Barstow, Thomas (Kansas State University); Nelson, Thomas Anthony (Kansas State University);
Song, Wen (Kansas State University); Warren, Steve (Kansas State University)*

17:00-17:15 WeE08.3
Heartbeat Detection from a Hydraulic Bed Sensor Using a Clustering Approach 2383-2387
Rosales, Licet (University of Missouri); Skubic, Marjorie (University of Missouri); Heise, David (Lincoln University); Devaney, Michael (University of Missouri); Schaumburg, Mark (University of Missouri)*

17:15-17:30 WeE08.4
A Portable System for Recording Neural Activity in Indoor and Outdoor Environments 2388-2391
Baluch, Farhan (University of Southern California); Itti, Laurent (USC)*

17:30-17:45 WeE08.5
A Low-Cost, Reliable, High-Throughput System for Rodent Behavioral Phenotyping in a Home Cage 2392-2395
Parkison, Steven (University of Nebraska – Lincoln); Carlson, Jay (University of Nebraska-Lincoln); Chaudoin, Tammy (University of Nebraska Medical Center); Hoke, Traci (University of Nebraska Medical Center); Schenk, A. Katrin (Randolf College); Goulding, Evan (Northwestern University); Pérez, Lance (University of Nebraska-Lincoln); Bonasera, Stephen (University of Nebraska Medical Center)*

WeE09: 16:30-18:00 Sapphire 400
9.2.1 Point-Of-Care Diagnosis and Clinical Laboratory Measurements (Oral Session)
Chair: Cabodi, Mario (*Boston Univ.*)
Co-Chair: Jo, Javier Antonio (*Texas A&M Univ.*)

16:30-16:45 WeE09.1
Sample Concentration and Purification for Point-Of-Care Diagnostics 2396-2399
Ho, Nga (Boston University); Fan, Andy (Boston University); Klapperich, Catherine M. (Boston University); Cabodi, Mario (Boston University)*

16:45-17:00 WeE09.2
**Achieving Appropriate Design for Developing World Health Care:
The Case of a Low-Cost Autoclave for Primary Health Clinics** 2400-2403
Cho, Hallie Sue (MIT); Tao, Gregory (MIT)*

17:00-17:15 WeE09.3
Biophotogrammetry Model of Respiratory Motion Analysis Applied to Children 2404-2407
Ripka, Wagner L. (UTFPR- Federal Technological University of Paraná); Ricieri, Denise da Vinha (UFPR – Federal University of Paraná); Ulbricht, Leandra (UTFPR – Federal University of Technology – Paraná); Neves, Eduardo Borba (Federal Technological University of Paraná (UTFPR)); Stadnik, Adriana Maria Wan (UTFPR – Federal Technological University of Paraná); Romaneli, Eduardo F. R. (UTFPR – Federal University of Technology – Paraná)*

17:15-17:30 WeE09.4
**A mathematical model to predict the optimal test line location and sample
volume for lateral flow immunoassays** 2408-2411
M.S, Ragavendar (Siemens Corporate Research & Technology); Chopra, Anmol . M (Indian Institute of Technology, Kharagpur)*

17:30-17:45 WeE09.5
**A New Automatic Cell Isolation System for Flow Cytometry:
Cell Isolation Unit and Staining Reagent Kit** 2412-2415
Suzuki, Akane (Nihon Kohden corporation); Shioyama, Takahiro (Nihon Kohden Corporation); Kubo, Hirotsugu (Nihon Kohden Corporation); Fukushima, Yuta (Tokyo University of Technology); Naemura, Kiyoshi (Tokyo University of Technology); Hinata, Nae (Tokyo University of Technology); Kanda, Hiroaki (Cancer Institute Hospital); Yamamori, Shinji (Nihon Kohden Corporation); Takeda, Sunao (Tokyo University of Technology); Yamaguchi, Toshiharu (Cancer Institute Hospital); Ishikawa, Yuichi (Cancer Institute Hospital); Kato, You (Tokyo University of Technology)*

17:45-18:00 WeE09.6
Specific Detection of Topoisomerase I from the Malaria Causing P. Falciparum Parasite Using Isothermal Rolling Circle Amplification 2416-2419
Tesaro, Cinzia (University of Rome 'Tor Vergata'); Juul, Sissel (Aarhus University, Duke University); Arnö, Barbara (University of Rome 'Tor Vergata'); Nielsen, Christine J. F. (Aarhus University); Fiorani, Paola (University of Rome 'Tor Vergata'); Frohlich, Rikke F. (Aarhus University); Andersen, Félicie F. (Aarhus University); Desideri, Alesandro (University of Rome 'Tor Vergata'); Stougaard, Magnus (Aarhus University Hospital); Petersen, Eskild (Aarhus University Hospital Skejby); Knudsen, Birgitta R. (Aarhus University)*

WeE11: 16:30-18:00 Cobolt 520
7.4.1 Cell Mechanics (Oral Session)
Chair: Shamloo, Amir (*Sharif Univ. of Tech.*)
Co-Chair: Wang, Andrew (*Univ. of North Carolina at Chapel Hill*)

16:30-16:45 WeE11.1
Artificial Tissue Bioreactor (ATB) for Biological and Imaging Applications 2420-2423
Whitehead, Timothy (Washington University School of Medicine, St. Louis); Nemanich, Samuel (Washington University School of Medicine, St. Louis); Shoghi, Kooresh (Washington University School of Medicine, St. Louis)*

16:45-17:00 WeE11.2
A Low-Cost Intracellular Delivery System Based on Microbubble and High Gravity Field 2424-2427
Chen, Jle (University of Alberta)*

17:00-17:15 WeE11.3
Injectable Macroporous Microparticles for Soft Tissue Augmentation 2428-2431
Corrin, Abigail (University of California Los Angeles); Ngai, Matthew (University of California Los Angeles); Walthers, Christopher (University of California Los Angeles); Dunn, James (University of California Los Angeles); Wu, Benjamin (University of California Los Angeles)*

17:15-17:30 WeE11.4
In Vitro Degradation and Cytocompatibility of Magnesium-Zinc-Strontium Alloys with Human Embryonic Stem Cells 2432-2435
Cipriano, Aaron (University of California, Riverside); Liu, Huinan (University of California, Riverside); Guan, Ren-Guo (Northeastern University); Cui, Tong (Northeastern University); Zhao, Zhan-Yong (Northeastern University); Garcia, Salvador (California State University, San Bernardino); Johnson, Ian (University of California at Riverside)*

17:30-17:45 WeE11.5
Roles of Bioactive Sphingolipid Metabolites in Ovarian Cancer Cell Biomechanics 2436-2439
Babahosseini, Hesam (Virginia Tech); Roberts, Paul (Virginia Tech); Schmelz, Eva (Virginia Tech); Agah, Masoud (Virginia Tech)*

WeE13: 16:30-18:00 Aqua 306B
10.3.2 Mobile Health (Oral Session)
Chair: Wang, May D. (*Georgia Tech. and Emory Univ.*)
Co-Chair: Redmond, Stephen James (*Univ. of New South Wales*)

16:30-16:45 WeE13.1
Study of Arrhythmia Prevalence in NUVANT Mobile Cardiac Telemetry System Patients 2440-2443
Engel, Jonathan (Corventis, Inc); Mehta, Vipin (Corventis, Inc.); Fogoros, Richard (Corventis, Inc.); Chavan, Abhi (Corventis, Inc)*

16:45-17:00 WeE13.2
Automated Skin Lesion Assessment Using Mobile Technologies and Cloud Platforms 2444-2447
Doukas, Charalampos (University of the Aegean); Stagkopoulos, Paris (University of Central Greece); Maglogiannis, Ilias (University of Central Greece)*

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| 17:00-17:15 | | WeE13.3 |
| Design Challenges for Camera Oximetry on a Mobile Phone | | 2448-2451 |
| <i>Karlen, Walter* (UBC); Lim, Joanne (British Columbia Children's Hospital); Ansermino, J. Mark (British Columbia's Children's Hospital); Dumont, Guy (University of British Columbia); Scheffer, Cornie (Stellenbosch University)</i> | | |
| 17:15-17:30 | | WeE13.4 |
| Real-Time ECG Monitoring and Arrhythmia Detection Using Android-Based Mobile Devices | | 2452-2455 |
| <i>Gradl, Stefan (University of Erlangen-Nuremberg); Kugler, Patrick (University of Erlangen-Nuremberg); Lohmüller, Clemens (University Hospital Erlangen); Eskofier, Bjoern M* (University of Erlangen-Nuremberg)</i> | | |
| 17:30-17:45 | | WeE13.5 |
| Activity and School Attendance Monitoring System for Adolescents with Sickle Cell Disease | | 2456-2459 |
| <i>Venugopalan, Janani (Georgia Institute of Technology); Cheng, Chihwen (Georgia Institute of Technology); Stokes, Todd (Georgia Institute of Technology); Wang, May D.* (Georgia Tech and Emory University)</i> | | |
| 17:45-18:00 | | WeE13.6 |
| Evaluating the Usability of a Virtual Reality-Based Android Application in Managing the Pain Experience of Wheelchair Users | | 2460-2463 |
| <i>Spyridonis, Fotios (Brunel University); Grønli, Tor-Morten* (Norwegian School of Information Technology); Hansen, Jarle (Brunel University); Ghinea, Gheorghita (Brunel University)</i> | | |
| WeE14: 16:30-18:00 | | Aqua 308 |
| 10.2.1 Body Sensor Networks (Oral Session) | | |
| Chair: Kaiser, William (<i>Univ. of California, Los Angeles</i>) | | |
| Co-Chair: Wang, Lei (<i>Shenzhen Inst. of Advanced Tech.</i>) | | |
| 16:30-16:45 | | WeE14.1 |
| Performance Analysis of Coexisting IEEE 802.15.4 Based Health Monitoring WBANs | | 2464-2467 |
| <i>Deylami, Mohammad (University of Alabama in Huntsville); Jovanov, Emil* (University of Alabama in Huntsville)</i> | | |
| 16:45-17:00 | | WeE14.2 |
| Ear-Worn Reference Data Collection and Annotation for Multimodal Context-Aware Hearing Instruments | | 2468-2471 |
| <i>Tessendorf, Bernd* (ETH Zurich); Derleth, Peter (Phonak AG); Feilner, Manuela (Phonak AG); Gravenhorst, Franz (ETH Zurich); Kettner, Andreas (ETH Zurich); Roggen, Daniel (Wearable computing laboratory, ETHZ); Stiefmeier, Thomas (ETH Zurich); Troster, Gerhard (ETH Zurich)</i> | | |
| 17:00-17:15 | | WeE14.3 |
| Automated Real-Time Atrial Fibrillation Detection on a Wearable Wireless Sensor Platform | | 2472-2475 |
| <i>Rincon, Francisco* (Complutense University of Madrid); Grassi, Paolo Roberto (Politecnico di Milano); Khaled, Nadia (Nestlé Research Center); Sciuto, Donatella (Politecnico di Milano); Atienza, David (Ecole Polytechnique Federale de Lausanne)</i> | | |
| 17:15-17:30 | | WeE14.4 |
| Quantified Reflex Strategy Using an Ipad As a Wireless Accelerometer Application | | 2476-2479 |
| <i>LeMoyne, Robert* (Independent); Mastroianni, Timothy (Cognition Engineering)</i> | | |
| 17:30-17:45 | | WeE14.5 |
| Capturing Basic Movements for Mobile Platforms Embedded with Motion Sensors | | 2480-2483 |
| <i>Kailas, Aravind* (The University of North Carolina at Charlotte); Chong, Chia-Chin (Huawei Device USA); Watanabe, Fujio (DOCOMO Innovations)</i> | | |
| 17:45-18:00 | | WeE14.6 |
| Prototype Ultra Wideband-Based Wireless Body Area Network -Consideration of CAP and CFP Slot Allocation During Human Walking Motion- | | 2484-2488 |
| <i>Takei, Yuichiro* (Meiji University); Katsuta, Hiroki (Meiji University); Takizawa, Kenichi (NICT); Hamaguchi, kiyoshi (National Institute of Information and Communications Technology); Ikegami, Tetsushi (Meiji University)</i> | | |

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| WeE15: 16:30-18:00 | Sapphire P |
| 6.13.2 Rehabilitation Engineering for Speech and Hearing Applications (Oral Session) | |
| Chair: Stepp, Cara (<i>Boston Univ.</i>) | |
| Co-Chair: Viirre, Erik (<i>School of Medicine, Univ. of California, San Diego</i>) | |

16:30-16:45 WeE15.1
The Depth, Waveform and Pulse Rate for Electrical Microstimulation of the Auditory Cortex 2489-2492
Otto, Kevin (Purdue University); Koivuniemi, Andrew (Purdue University)*

16:45-17:00 WeE15.2
On the Design and Evaluation of the PDA-Based Research Platform for Electric and Acoustic Stimulation 2493-2496
Ali, Hussnain (University of Texas at Dallas); Lobo, Arthur (University of Texas at Dallas); Loizou, Philipos (University of Texas at Dallas)*

17:00-17:15 WeE15.3
Improved Accuracy Using Recursive Bayesian Estimation Based Language Model Fusion in ERP-Based BCI Typing Systems 2497-2500
Orhan, Umut (Northeastern University); Erdogmus, Deniz (Northeastern University); Roark, Brian (Oregon Health & Science University); Oken, Barry (Oregon Health & Science University); Purwar, Shalini (Northeastern University); Hild II, Kenneth (Oregon Health & Science University); Fowler, Andrew (Oregon Health & Science University); Fried-Oken, Melanie (Oregon Health and Science University)*

17:15-17:30 WeE15.4
No Surprise – Fixed Sequence Event-Related Potentials for Brain-Computer Interfaces 2501-2504
Tangermann, Michael (Berlin Institute of Technology); Höhne, Johannes (Berlin Institute of Technology); Stecher, Heiko (University of Bremen); Schreuder, Martijn (Berlin Institute of Technology)*

17:30-17:45 WeE15.5
The Unlock Project: A Python-Based Framework for Practical Brain-Computer Interface Communication “app” Development 2505-2508
Brumberg, Jonathan (Boston University); Lorenz, Sean (Boston University); Galbraith, Byron (Boston University); Guenther, Frank (Boston University)*

17:45-18:00 WeE15.6
Electrical Stimulation for the Management of Aspiration During Swallowing 2509-2512
Tyler, Dustin (Case Western Reserve University); Kolb, Ilya (Case Western Reserve University); Thompson, Paul (Case Western Reserve University); Hadley, Aaron (Case Western Reserve University)*

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| WeE16: 16:30-18:00 | Sapphire L |
| 6.10.2 Analysis of Neural Signals (Oral Session) | |
| Chair: Jones, Richard D. (<i>New Zealand Brain Res. Inst.</i>) | |
| Co-Chair: Farajidavar, Aydin (<i>New York Inst. of Tech.</i>) | |

16:30-16:45 WeE16.1
Using Neuronal States for Transcribing Cortical Activity into Muscular Effort 2513-2516
Boussaton, Octave (Cortex project team, Inria Nancy-Grand Est, Villers-les-Nancy); Bougrain, Laurent (University of Lorraine)*

16:45-17:00 WeE16.2
Performance of Beamformers on EEG Source Reconstruction 2517-2521
Jon Mohamadi, Yaqub (University of Otago); Innes, Carrie R. H. (Canterbury District Health Board); Poudel, Govinda (University of Otago); Jones, Richard D. (New Zealand Brain Research Institute)*

17:00-17:15 WeE16.3
Quantification of Event-Related Desynchronization / Synchronization at Low Frequencies in a Semantic Memory Task 2522-2526
Gómez, Juan (University of Zaragoza); Aguilar Herrero, Monica (Bit&Brain Technologies S.L.); Horna, Eduardo (University of Zaragoza); Minguez, Javier (Zaragoza University)*

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| 17:15-17:30 | WeE16.4 |
| Nonlocal Two Dimensional Denoising of Frequency Specific Chirp Evoked ABR Single Trials | 2527-2530 |
| <i>Schubert, J. Kristof (SNN-Unit); Teuber, Tanja (University of Kaiserslautern); Steidl, Gabriele (University of Kaiserslautern); Strauss, Daniel J. (Saarland University, Medical Faculty); Corona-Strauss, Farah I.* (Saarland University Hospital)</i> | |
| 17:30-17:45 | WeE16.5 |
| Locating Spatial Patterns of Waveforms During Sensory Perception in Scalp EEG | 2531-2534 |
| <i>Brockmeier, Austin* (University of Florida); Khodam Hazrati, Mehrnaz (University of Luebeck); Freeman, Walter J. (University of California at Berkeley); Principe, Jose (University of Florida)</i> | |
| 17:45-18:00 | WeE16.6 |
| Detection of Thermal Pain in Rodents through Wireless Electrocochography | 2535-2538 |
| <i>Farajidavar, Aydin* (New York Institute of Technology); Athar, Shariq (St. Jude Medical); Hagains, Christopher (The University of Texas at Arlington); Peng, Yuan (The University of Texas at Arlington); Chiao, Jung-chih (The University of Texas at Arlington)</i> | |
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| WeE17: 16:30-18:00 | Sapphire H |
| 6.9.2 Brain Physiology and Modeling II (Oral Session) | |
| Chair: Shah, Sameer (UCSD) | |
| Co-Chair: Sarma, Sridevi V. (Johns Hopkins Univ.) | |
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| 16:30-16:45 | WeE17.1 |
| Point Process Modeling Reveals Anatomical Non-Uniform Distribution across the Subthalamic Nucleus in Parkinson's Disease | 2539-2542 |
| <i>Pedoto, Gilda* (University of Sannio); Santaniello, Sabato (Johns Hopkins University); Fiengo, Giovanni (University of Sannio); Glielmo, Luigi (University of Sannio); Hallett, Mark (NINDS – National Institutes of Health); Zhuang, Ping (Johns Hopkins University); Sarma, Sridevi V. (Johns Hopkins University)</i> | |
| 16:45-17:00 | WeE17.2 |
| Prediction of Single Neuron Spiking Activity Using an Optimized Nonlinear Dynamic Model | 2543-2546 |
| <i>Mitra, Anish* (George Mason University); Manitiu, Andre (George Mason University); Sauer, Timothy (George Mason University)</i> | |
| 17:00-17:15 | WeE17.3 |
| Describing Relevant Indices from the Resting State Electrophysiological Networks | 2547-2550 |
| <i>Toppi, Jlenia* (University of Rome "Sapienza"); Astolfi, Laura (University of Rome Sapienza)</i> | |
| 17:15-17:30 | WeE17.4 |
| Modeling of Visuospatial Perspectives Processing and Modulation of the Fronto-Parietal Network Activity During Action Imitation | 2551-2554 |
| <i>Oh, Hyuk* (University of Maryland, College Park); Gentili, Rodolphe (University of Maryland; School of Public Health); Reggia, James (University of Maryland-College Park); Contreras-Vidal, José (University of Houston)</i> | |
| 17:30-17:45 | WeE17.5 |
| Functional Connectivity between Layer 2/3 and Layer 5 Neurons in Prefrontal Cortex of Nonhuman Primates During a Delayed Match-To-Sample Task | 2555-2558 |
| <i>Song, Dong* (University of Southern California); Opris, Ioan (Wake Forest University Health Sciences); Chan, Rosa H. M. (City University of Hong Kong); Marmarelis, Vasilis (University of Southern California); Hampson, Robert (Wake Forest School of Medicine); Deadwyler, Sam (Wake Forest University); Berger, Theodore (University of Southern California)</i> | |
| 17:45-18:00 | WeE17.6 |
| Effects of ECT Stimulus Pulsewidth and Amplitude Computed with an Anatomically-Realistic Head Model | 2559-2562 |
| <i>Bai, Siwei (University of New South Wales); Loo, Colleen (School of Psychiatry, University of New South Wales); Dokos, Socrates* (University of New South Wales)</i> | |

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| WeE18: 16:30-18:00 | Aqua 309 |
| 7.7.2 Electroporation (Oral Session) | |
| Chair: Ghafar-Zadeh, Ebrahim (<i>Ec. Pol.</i>) | |
| Co-Chair: Sawan, Mohamad (<i>Ec. Pol.</i>) | |

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| 16:30-16:45 | WeE18.1 |
| Versatile Broadband Electrode Assembly for Cell Electroporation | 2563-2566 |
| <i>Wu, Yu-Hsuan (Mork Family Department of Chemical Engineering and Materials Science, VsOE, University of Southern California); Arnaud-Cormos, Delia* (CNRS-University of Limoges); Casciola, Maura (Sapienza University of Rome); Sanders, Jason (Ming Hsieh Department of Electrical Engineering, VsOE, University of Southern California); Leveque, Philippe (XLIM, CNRS-University of Limoges); Vernier, P. Thomas (University of Southern California)</i> | |
| 16:45-17:00 | WeE18.2 |
| Effects of Nanosecond Pulsed Electric Fields on the Activity of a Hodgkin and Huxley Neuron Model ... | 2567-2570 |
| <i>Camera, Francesca (Sapienza University of Rome); Paffi, Alessandra (ICEmB@La Sapienza Univ Rome); Merla, Caterina (ICEmB @ La Sapienza Univ Rome); Denzi, Agnese (Sapienza University of Rome); Apollonio, Francesca (ICEmB@La Sapienza Univ Rome); Marracino, Paolo* (ICEmB); D'Inzeo, Guglielmo (ICEmB@"La Sapienza" University of Rome); Liberti, Micaela (ICEmB at Sapienza University of Rome)</i> | |
| 17:00-17:15 | WeE18.3 |
| Automatic System for Electroporation of Adherent Cells Growing in Standard Multi-Well Plates | 2571-2574 |
| <i>García-Sánchez, Tomás* (Technical University of Catalonia); Bragos, Ramon (Technical University of Catalonia (UPC)); Rosell, Javier (Polytechnic University of Catalonia); Guitart, Maria (University of Barcelona); Gomez-Foix, Anna M^a (University of Barcelona)</i> | |
| 17:15-17:30 | WeE18.4 |
| Towards a Predictive Model of Electroporation-Based Therapies Using Pre-Pulse Electrical Measurements | 2575-2578 |
| <i>Garcia, Paulo, A. * (Virginia Tech – Wake Forest University); Arena, Christopher (Virginia Tech); Davalos, Rafael (Virginia Tech)</i> | |
| 17:30-17:45 | WeE18.5 |
| Gene Delivery by Microfluidic Flow-Through Electroporation Based on Constant DC and AC Field | 2579-2582 |
| <i>Geng, Tao (Purdue University); Zhan, Yihong (University of South Carolina); Lu, Chang* (Virginia Tech)</i> | |
| 17:45-18:00 | WeE18.6 |
| On-Chip Electroporation: Characterization, Modeling and Experimental Results | 2583-2586 |
| <i>Ghafar-Zadeh, Ebrahim* (Ecole Polytechnique)</i> | |

Thursday, 30 August 2012

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| ThA01: 08:00-09:30 | Sapphire A |
| 1.1.5 Time-Frequency and Time-Scale Analysis of Biosignals III (Oral Session) | |
| Chair: Nomura, Taishin (<i>Osaka Univ.</i>) | |
| Co-Chair: Yamamoto, Yoshiharu (<i>The Univ. of Tokyo</i>) | |

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| 08:00-08:15 | ThA01.1 |
| Pulse Rate Estimation Using Hydraulic Bed Sensor | 2587-2590 |
| <i>Su, Bo-Yu* (University of Missouri-Columbia); Ho, K.C. (University of Missouri); Skubic, Marjorie (University of Missouri); Rosales, Licet (University of Missouri)</i> | |
| 08:15-08:30 | ThA01.2 |
| Estimation of Central Aortic Pressure Waveform Features Derived from the Brachial Cuff Volume Displacement Waveform | 2591-2594 |
| <i>Butlin, Mark* (Macquarie University); Qasem, Ahmad (Macquarie University); Avolio, Alberto P (Macquarie University)</i> | |

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| 08:30-08:45 | ThA01.3 |
| Automatic Identification and Accurate Temporal Detection of Inhalations in Asthma Inhaler Recordings | 2595-2598 |
| <i>Holmes, Martin S.* (Trinity College Dublin); Le Menn, Marine (Trinity College Dublin); D'Arcy, Shona (Trinity College Dublin); Rapcan, Viliam (Trinity College Dublin); MacHale, Elaine (Dublin Centre for Clinical Research (DCCR)); Costello, Richard (Royal College of Surgeons in Ireland (RCSI)); Reilly, Richard (Trinity College Dublin)</i> | |
| 08:45-09:00 | ThA01.4 |
| Silent Aspiration Detection by Breath and Swallowing Sound Analysis | 2599-2602 |
| <i>Sarraf Shirazi, Samaneh* (University of Manitoba); Moussavi, Zahra (University of Manitoba)</i> | |
| 09:00-09:15 | ThA01.5 |
| Detection of Motion Artifacts in Photoplethysmographic Signals Based on Time and Period Domain Analysis | 2603-2606 |
| <i>Couceiro, Ricardo (University of Coimbra); de Carvalho, Paulo* (University of Coimbra – NIF: 501617582); Paiva, Rui Pedro (University of Coimbra); Henriques, Jorge (University of Coimbra – NIF 501617582); Muehlsteff, Jens (Philips)</i> | |
| 09:15-09:30 | ThA01.6 |
| Empirical Mode Decomposition of Respiratory Inductive Plethysmographic Signals for Stroke Volume Variations Monitoring: Respiratory Protocol and Comparison with Impedance Cardiography | 2607-2610 |
| <i>Videliere, Benjamin* (UJF-Grenoble 1 / CNRS / TIMC-IMAG UMR 5525); Fontecave-Jallon, Julie (UJF-Grenoble 1 / CNRS / TIMC-IMAG UMR 5525); Calabrese, Pascale (Univerité Joseph Fourier); Baconnier, Pierre (Université Joseph Fourier); Gumery, Pierre-Yves (université joseph fourier)</i> | |
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| ThA03: 08:00-09:30 | Sapphire E |
| 1.4.3 Biomedical Signal Classification III (Oral Session) | |
| Chair: Akalin Acar, Zeynep (Univ. of California San Diego) | |
| Co-Chair: Farina, Dario (Göttingen) (Bernstein Center for Computational Neuroscience, Univ. Medical Center Göttingen) | |
| 08:00-08:15 | ThA03.1 |
| Highly Accurate Classification of Postures and Activities by a Shoe-Based Monitor through Classification with Rejection | 2611-2614 |
| <i>Tang, Wenlong* (The University of Alabama); Sazonov, Edward (University of Alabama)</i> | |
| 08:15-08:30 | ThA03.2 |
| Augmenting the Decomposition of EMG Signals Using Supervised Feature Extraction Techniques | 2615-2618 |
| <i>Parsaei, Hossein (University of Waterloo); Gangeh, Mehrdad* (University of Waterloo); Stashuk, Daniel William (University of Waterloo); Ghodsi, Ali (University of Waterloo); Kamel, Mohamed (University of Waterloo)</i> | |
| 08:30-08:45 | ThA03.3 |
| Muscle Categorization Using PDF Estimation and Naive Bayes Classification | 2619-2622 |
| <i>Adel, Tameem* (University of Waterloo); Smith, Benn (Mayo Clinic); Stashuk, Daniel William (University of Waterloo)</i> | |
| 08:45-09:00 | ThA03.4 |
| Low-Cost Intracortical Spiking Recordings Compression with Classification Abilities for Implanted BMI Devices | 2623-2626 |
| <i>COPPA, Bertrand* (CEA-LETI); Hélot, Rodolphe (CEA – LETI MINATEC); MICHEL, Olivier (Grenoble INP); Moisan, Eric (Grenoble INP); DAVID, Dominique (CEA-LETI)</i> | |
| 09:00-09:15 | ThA03.5 |
| Whitening of the Electromyogram for Improved Classification Accuracy in Prosthesis Control | 2627-2630 |
| <i>Liu, Lukai (Worcester Polytechnic Institute); Liu, Pu (Worcester Polytechnic Institute); Clancy, Edward A.* (Worcester Polytechnic Institute); Scheme, Erik (University of New Brunswick); Englehart, Kevin (University of New Brunswick)</i> | |

09:15-09:30 ThA03.6
Quantification of Physiological Kinetic Tremor and Its Correlation with Aging 2631-2634
Almeida, Maria Fernanda S. (Federal University of Uberlândia); Cavalheiro, Guilherme L. (Federal University of Uberlândia); Furtado, Daniel A. (Federal University of Uberlândia); Pereira, Adriano A. (Federal University of Uberlândia); Andrade, Adriano (Federal University of Ubelândia)*

ThA04: 08:00-09:30 Sapphire 412
2.3.4 Optical Imaging I (Oral Session)
Chair: Chen, Zhongping (*Univ. of California, Irvine*)

08:00-08:15 ThA04.1
Localization and Detection of Breast Cancer Tumors with Digital Image Elasto-Tomography 2635-2638
Van Houten, Elijah (Université de Sherbrooke); Kershaw, Helen (University of Canterbury); Lotz, Thomas (University of Canterbury); Chase, J. Geoffrey (University of Canterbury)*

08:15-08:30 ThA04.2
Nanodiamond Imaging: A New Molecular Imaging Approach 2639-2642
Hegy, Alex (University of California, Berkeley); Yablonovitch, Eli (University of California, Berkeley)*

08:30-08:45 ThA04.3
Frequency-Domain Measurement of Neuronal Activity Using Dynamic Optical Coherence Tomography 2643-2646
Lee, Jonghwan (Harvard Medical School); Boas, David (Harvard Medical School)*

08:45-09:00 ThA04.4
3D Reconstruction of Coronary Arteries Using Frequency Domain Optical Coherence Tomography Images and Biplane Angiography 2647-2650
Athanasίου, Lambros (University of Ioannina); Bourantas, Christos (Dept. of Academic Cardiology, Castle Hill Hospital, Cottingham, HU 16 5JQ, East Yorkshire, UK); Siogkas, Panagiotis (FORTH-IMBB); Sakellarios, Antonis (University of Ioannina); Exarchos, Themis P. (Unit of Medical Tech & Intelligent Info); Naka, Katerina (University of Ioannina); Papafaklis, Michail (Brigham and Women's Hospital, Harvard Medical School); Michalis, Lampros (University of Ioannina); Prati, Francesco (San Giovanni Hospital); Fotiadis, Dimitrios I. (University of Ioannina)*

09:00-09:15 ThA04.5
Assessment of Microcirculatory Effects of Glycine by Intravital Microscopy in Rats 2651-2654
Podoprigora, Guennady (Institute of Cytochemistry and Molecular Pharmacology); Blagosklonov, Oleg (CHU Jean Minjot); Angoué, Orland (University hospital of Besançon); Boulahdour, Hatem (Jean Minjot University Hospital and University of Franche-Comte); Nartsissov, Yaroslav (Institute of Cytochemistry and Molecular Pharmacology)*

09:15-09:30 ThA04.6
Imaging the Early Cerebral Blood Flow Changes in Rat Middle Cerebral Artery Occlusion Stroke Model 2655-2658
Zhu, Shuping (Shanghai Jiao Tong University); Li, Yao (Shanghai Jiao Tong University); Lu, Hongyang (Shanghai Jiao Tong University); Li, Hangdao (Shanghai Jiao Tong University); Tong, Shanbao (Shanghai Jiao Tong University)*

ThA05: 08:00-09:30 Sapphire I
2.2.1 Ultrasonic Imaging I (Oral Session)
Chair: Shung, K. Kirk (*Univ. of Southern California*)
Co-Chair: Czarnota, Gregory (*Univ. of Toronto, Sunnybrook Health Sciences Centre*)

08:00-08:15 ThA05.1
AREA: An Augmented Reality system for Epidural Anaesthesia 2659-2663
Ashab, Hussam Al-Deen (University Of British Columbia); Lessoway, Victoria (British Columbia Womens Hospital and Health Centre); Khallaghi, Siavash (Electrical and Computer Engineering Department, University of British); Cheng, Alexis (Department of Computer Science Johns Hopkins University); Rohling, Robert (University of British Columbia); Abolmaesumi, Purang (UBC)*

08:15-08:30 ThA05.2
Ultrasound Bone Detection Using Patient-Specific CT Prior 2664-2667
Beitzel, Julian (TU Munich); Ahmadi, Seyed-Ahmad (TU Munich); Karamalis, Athanasios (TU Munich); Wein, Wolfgang (White Lion AG); Navab, Nassir (TU Munich)*

08:30-08:45 ThA05.3
Carotid IMT Variability (IMTV): Its Design and Validation in Symptomatic vs. Asymptomatic 142 Italian Population 2668-2671
Molinari, Filippo (Politecnico di Torino); Meiburger, Kristen Mariko (Politecnico di Torino); saba, luca (Policlinico Universitario); Ledda, Giuseppe (AOU); Piga, Mario (University of Cagliari); Acharya, Rajendra (NgeeAnn Polytechnic); Zeng, Guang (Mayo Clinic); Shafique, Shoaib (CorVasc MDs); Nicolaidis, Andrew (Imperial College); Suri, Jasjit (Biomedical Technologies)*

08:45-09:00 ThA05.4
Quantitative Ultrasound Spectral Parametric Maps: Early Surrogates of Cancer Treatment Response ... 2672-2675
Sadeghi-Naini, Ali (University of Toronto | Sunnybrook Health Sciences Centre); Falou, Omar (Sunnybrook Health Sciences Centre / University of Toronto); Czarnota, Gregory (University of Toronto, Sunnybrook Health Sciences Centre)*

09:00-09:15 ThA05.5
Evaluation of Vortex Flow in Left Ventricle by Echo-Dynamography and Phase Contrast Magnetic Resonance Angiography 2676-2679
Kojima, Takanori (Graduate School of Biomedical Engineering, Tohoku University); Kameyama, Takeyoshi (Miyagi Social Insurance Hospital); Nakajima, Hiroyuki (Tohoku Welfare Pension Hospital); Khmyrova, Elena (Graduate School of Biomedical Engineering, Tohoku University); Kurokawa, Takafumi (Tohoku Welfare Pension Hospital); Saijo, Yoshifumi (Tohoku University)*

ThA06: 08:00-09:30 Sapphire M
2.7.8 Image Segmentation II (Oral Session)
Chair: Hamitouche, Chafiaâ (Télécommunications Bretagne)
Co-Chair: Carmichael, Owen (Univ. of California, Davis)

08:00-08:15 ThA06.1
Brain Shape Regression Components 2680-2683
Xie, Jing (University of California, Davis); Carmichael, Owen (University of California, Davis)*

08:15-08:30 ThA06.2
Most Edges in Markov Random Fields for White Matter Hyperintensity Segmentation Are Worthless 2684-2687
Schwarz, Christopher G. (University of California, Davis); Fletcher, Evan (University of California, Davis); Singh, Baljeet (University of California, Davis); Liu, Amy (University of California, Davis); Smith, Noel (University of California, Davis); DeCarli, Charles (University of California, Davis); Carmichael, Owen (University of California, Davis)*

08:30-08:45 ThA06.3
Classification of Individuals Based on Sparse Representation of Brain Cognitive Patterns: A Functional MRI Study 2688-2691
Ramezani, Mahdi (Robotics and Control Laboratory, The University of British Columbia); Abolmaesumi, Purang (UBC); Marble, Kris (Department of Psychology, Queen's University,); MacDonald, Heather (Department of Psychology, Queen's University); Johnsrude, Ingrid (Queen's University)*

08:45-09:00 ThA06.4
Three-Way FMRI-DTI-Methylation Data Fusion Based on MCCA+jICA and Its Application to Schizophrenia 2692-2695
SUI, JING (the Mind Research Network); He, Hao (The Mind Research Network); liu, Jingyu (institute of living); Yu, Qingbao (the Mind Research Network); Adali, Tulay (University of Maryland Baltimore County); Pearlson, Godfrey (Yale University School of Medicine); Calhoun, Vince (The Mind Research Network/University of New Mexico)*

09:00-09:15 ThA06.5
Dual-Modal Visibility Metrics for Interactive PET-CT Visualization 2696-2699
Jung, Younhyun (The University of Sydney); Kim, Jinman (University of Sydney); Feng, Dagan (The University of Sydney)*

09:15-09:30 ThA06.6
Characterizing Non-Linear Dependencies among Pairs of Clinical Variables and Imaging Data 2700-2703
Caban, Jesus (National Institutes of Health); Bagci, Ulas (National Institutes of Health); Mollura, Daniel J. (National Institutes of Health)*

ThA09: 08:00-09:30 Sapphire 411
9.3.1 Detection and Diagnosis Devices and Systems (Oral Session)
Chair: Panescu, Dorin (*Intuitive Surgical*)
Co-Chair: Sodini, Charles G. (*Massachusetts Inst. of Tech.*)

08:00-08:15 ThA09.1
Detection of Acute Myocardial Infarction from Serial ECG Using Multilayer Support Vector Machine 2704-2707
Dhawan, Akshay (Cornell University); Wenzel, Brian (Home); George, Samuel (NewCardio, Inc); Gussak, Ihor (NewCardio, Inc); Bojovic, Bosko (NewCardio, Inc); Panescu, Dorin (Intuitive Surgical)*

08:15-08:30 ThA09.2
Cardiac Output Estimation in Mechanically Ventilated Patients: A Comparison between Prolonged Expiration Method and Thermodilution 2708-2711
Cecchini, Stefano (University Campus Bio-Medico of Rome); Schena, Emiliano (University of Rome Campus Bio-Medico); Saccomandi, Paola (University Campus Bio-Medico of Rome); polisca, francesco (University campus Bio-Medico of Rome); Di Cecca, Irma (università campus bio-medico di roma); Notaro, maria (università campus bio-medico di roma); Carassiti, Massimiliano (University Campus Bio-Medico of Rome); Silvestri, Sergio (Università Campus Bio-Medico di Roma)*

08:30-08:45 ThA09.3
Development of an Automatic Electronic System to Human Blood Typing 2712-2715
Pimenta, Sara (University of Minho); Soares, Filomena (University of Minho); Minas, Graca (University of Minho)*

08:45-09:00 ThA09.4
Identification of Hypoglycemia and Hyperglycemia in Type 1 Diabetic Patients Using ECG Parameters . 2716-2719
Nguyen, Linh Lan (University of Technology, Sydney); Su, Steven Weidong (University of Technology, Sydney); Nguyen, Hung T. (University of Technology, Sydney)*

09:00-09:15 ThA09.5
Statistical Error Detection for Clinical Laboratory Tests 2720-2723
Leen, Todd (Oregon Health & Science University); Erdogmus, Deniz (Northeastern University); Kazmierczac, Steven (OHSU)*

09:15-09:30 ThA09.6
A Wearable Vital Signs Monitor at the Ear for Continuous Heart Rate and Pulse Transit Time Measurements 2724-2727
Winokur, Eric S. (Massachusetts Institute of Technology); He, David Da (Massachusetts Institute of Technology); Sodini, Charles G. (Massachusetts Institute of Technology)*

ThA15: 08:00-09:30 Sapphire P
6.2.1 Brain-Machine Interface – I (Oral Session)
Chair: Perreault, Eric (*Northwestern Univ.*)
Co-Chair: Jung, Tzyy-Ping (*Univ. of California San Diego*)

08:00-08:15 ThA15.1
Asynchronous Brain Computer Interface Using Hidden Semi-Markov Models 2728-2731
Oliver, Gareth (Australian National University); Sunehag, Peter (Australian National University); Gedeon, Tom (Australian National University)*

08:15-08:30 ThA15.2
Online Semi-Supervised Learning with KL Distance Weighting for Motor Imagery-Based BCI 2732-2735
Bamdadian, Atieh (Institute for Infocomm Research, Agency for Science, Technology and Research); Guan, Cuntai (Institute for Infocomm Research); Ang, Kai Keng (Institute for Infocomm Research); Xu, Jian-Xin (National University of Singapore)*

08:30-08:45 ThA15.3
A Framework for Relating Neural Activity to Freely Moving Behavior 2736-2739
Foster, Justin D. (Stanford University); Nuyujukian, Paul (Stanford University); Freifeld, Oren (Brown University); Ryu, Stephen (Stanford University); Black, Michael J. (Max Planck Institute for Intelligent Systems); Shenoy, Krishna V. (Stanford University)*

08:45-09:00 ThA15.4
Bayesian Learning in Assisted Brain-Computer Interface Tasks 2740-2743
Zhang, Yin (Carnegie Mellon University); Schwartz, Andrew B. (University of Pittsburgh); Chase, Steven M. (Carnegie Mellon University); Kass, Robert E. (Carnegie Mellon University)*

09:00-09:15 ThA15.5
Time-Frequency Selection in Two Bipolar Channels for Improving the Classification of Motor Imagery EEG 2744-2747
Yang, Yuan (Telecom ParisTech-CNRS UMR 5141 LTCI); Chevallier, Sylvain (Laboratoire d'Ingénierie des Systèmes de Versailles (LISV)); Wiart, Joe (Orange Labs R&D and WHIST Lab); Bloch, Isabelle (Télécom ParisTech – CNRS UMR 5141 LTCI)*

09:15-09:30 ThA15.6
Mutual Information Analysis on Non-Stationary Neuron Importance for Brain Machine Interfaces 2748-2751
Liao, Yuxi (Zhejiang University); Wang, Yiwen (Zhejiang University); Zheng, Xiaoxiang (Zhejiang University); Principe, Jose (University of Florida)*

ThA16: 08:00-09:30 Sapphire L
6.6.1 Neuromuscular Systems I (Oral Session)
Chair: Huang, He (*Univ. of Rhode Island*)
Co-Chair: Mischi, Massimo (*Eindhoven Univ. of Tech.*)

08:00-08:15 ThA16.1
Design and Validation of a Myoelectric Cursor Control System for Trans-Radial Amputees 2752-2755
Lee, In-Hwa T. (The Johns Hopkins University); Smith, Ryan J (The Johns Hopkins University); Rastogi, Anisha (Washington University in St. Louis); Thakor, Nitish (Johns Hopkins University)*

08:15-08:30 ThA16.2
Continuous Estimation of Finger Joint Angles Using Muscle Activation Inputs from Surface EMG Signals 2756-2759
Ngeo, Jimson (Nara Institute of Science and Technology); Tamei, Tomoya (Nara Institute of Science and Technology); Shibata, Tomohiro (Nara Institute of Science and Technology)*

08:30-08:45 ThA16.3
Characterization of a Novel Instrument for Vibration Exercise 2760-2763
Xu, Lin (Eindhoven University of Technology); Rabotti, Chiara (Eindhoven University of Technology); Mischi, Massimo (Eindhoven University of Technology)*

08:45-09:00 ThA16.4
Feasibility of Measuring Event Related Desynchronization with Electroencephalography During Walking 2764-2767
Severens, Marianne (Sint Maartenskliniek); Nienhuis, Bart (Research Development & Education department, Sint Maartenskliniek, Nijmegen); Desain, Peter (Radboud University Nijmegen); Duysens, Jacques (KU-Leuven, FABER)*

09:00-09:15 ThA16.5
Preliminary Study of the Effect of User Intent Recognition Errors on Volitional Control of Powered Lower Limb Prostheses 2768-2771
Zhang, Fan (University of Rhode Island); Liu, Ming (University of Rhode Island); Huang, He (University of Rhode Island)*

09:15-09:30 ThA16.6
Reduction of the Effect of Arm Position Variation on Real-Time Performance of Motion Classification ... 2772-2775
Geng, Yanjuan (Shenzhen Institutes of Advanced Technology); Zhang, Fan (Shenzhen Institutes of Advanced Technology, Chinese Academy of Science); Yang, Lin (Shenzhen Institutes of Technology, Chinese Academy of Sciences); Zhang, Yuan-Ting (The Chinese University of Hong Kong); Li, Guanglin (Shenzhen Institutes of Advanced Technology)*

ThA17: 08:00-09:30 Sapphire H
6.4.3 Visual Prostheses (Oral Session)
Chair: Khraiche, Massoud (*Univ. of California, San Diego*)
Co-Chair: Schuettler, Martin (*Univ. of Freiburg*)

08:00-08:15 ThA17.1
Efficacy of the Hexpolar Configuration in Localizing the Activation of Retinal Ganglion Cells under Electrical Stimulation 2776-2779
Habib, Amgad (University of New South Wales); Cameron, Morven (University of Western Sydney); Suaning, Gregg (The University of New South Wales); Lovell, Nigel H. (University of New South Wales); Morley, John William (University of Western Sydney)*

08:15-08:30 ThA17.2
Time-To-Contact Maps for Navigation with a Low Resolution Visual Prosthesis 2780-2783
McCarthy, Chris (NICTA); Barnes, Nick (NICTA Canberra Research Laboratory)*

08:30-08:45 ThA17.3
Hermetic Glass Soldered Micro-Packages for a Vision Prosthesis 2784-2787
Ordonez, Juan Sebastian (University of Freiburg); Dautel, Philip (University of Freiburg); Schuettler, Martin (University of Freiburg); Stieglitz, Thomas (University of Freiburg)*

08:45-09:00 ThA17.4
Intrinsic Activation of Iridium Electrodes Over a Wireless Link 2788-2791
Hu, Zhe (Illinois Institute of Technology); Troyk, Philip (Illinois Institute of Technology); DeMichele, Glenn (Sigenics Inc.); Kayvani, Kevin (Sigenics); Suh, Sungjae (Illinois Institute of Technology)*

09:00-09:15 ThA17.5
Image Segmentation for Enhancing Symbol Recognition in Prosthetic Vision 2792-2795
Horne, Lachlan (National ICT Australia); Barnes, Nick (NICTA Canberra Research Laboratory); McCarthy, Chris (NICTA); He, Xuming (National ICT Australia)*

09:15-09:30 ThA17.6
A 232-Channel Retinal Vision Prosthesis with a Miniaturized Hermetic Package 2796-2799
Ordonez, Juan Sebastian (University of Freiburg); Schuettler, Martin (University of Freiburg); Ortmanns, Maurits (University of Ulm); Stieglitz, Thomas (University of Freiburg)*

ThA19: 08:00-09:30 Aqua 304
8.5.1 Surgery and Micromanipulation (Oral Session)
Chair: Nakamura, Ryoichi (*Chiba Univ.*)
Co-Chair: Rodriguez y Baena, Ferdinando (*Imperial College London*)

08:00-08:15 ThA19.1
GPU Based Real-Time Surgical Navigation System with Three-Dimensional Ultrasound Imaging for Water-Filled Laparo-Endoscope Surgery 2800-2803
Otsuka, Ryo (Chiba Univ.); Sato, Ikuma (Chiba University); Nakamura, Ryoichi (Chiba University)*

08:15-08:30 ThA19.2
New Software Tools for Enhanced Precision in Robot-Assisted Laser Phonomicrosurgery 2804-2807
Dagnino, Giulio (Istituto Italiano di Tecnologia); Mattos, Leonardo (IIT – Istituto Italiano di Tecnologia); Caldwell, Darwin G. (Italian Institute of Technology)*

08:30-08:45 ThA19.3
CHIC: Cylindrical Helix Imaging Coordinate Registration Fiducial for MRI-Guided Interventions 2808-2812
Ma, Yunzhao (WPI); Dobrev, Ivo (Worcester Polytechnic Institute); Shang, Weijian (Worcester Polytechnic Institute); Su, Hao (Worcester Polytechnic Institute); Janga, Satyanarayana Reddy (WPI); Fischer, Gregory (Worcester Polytechnic Institute)*

08:45-09:00 ThA19.4
Localized Viscoelasticity Measurements with Untethered Intravitreal Microrobots 2813-2816
Pokki, Juho Anton Ilmari (ETH Zurich); Ergeneman, Olgac (ETH Zurich); Bergeles, Christos (Boston Children's Hospital, Harvard Medical School); Torun, Hamdi (Bogazici University); Nelson, Bradley (ETH Zurich)*

09:00-09:15 ThA19.5
A Study on Estimation of the Deformation Behavior in the Collapse Process of Lung 2817-2822
Katsuyama, Yusuke (Waseda University); Yamazaki, Nozomu (Waseda University); Kobayashi, Yo (Waseda University); Hoshi, Takeharu (Waseda University); Miyashita, Tomoyuki (Waseda University)*

09:15-09:30 ThA19.6
Bacterial Chemotaxis Enabled Autonomous Sorting of Micro-Particles 2823-2826
Traore, Mahama (Virginia Tech); Behkam, Bahareh (Virginia Tech)*

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| ThB01: 09:30-11:00 | Indigo Ballroom |
| 1.1.6 Nonstationary and Multivariate Signal Processing I (Poster Session) | |

09:30-11:00 ThB01.1
Exploring the Use of Fuzzy Logic Models to Describe the Relation between SBP and RR Values 2827-2830
Gouveia, Sonia (Universidade de Aveiro); Bras, Susana (Universidade de Aveiro)*

09:30-11:00 ThB01.2
Bivariate Point Process Modeling and Joint Non-Stationary Analysis of Pulse Transit Time and Heart Period 2831-2834
Orini, Michele (University of Zaragoza); Citi, Luca (MGH / Harvard Medical School); Barbieri, Riccardo (MGH-Harvard Medical School-MIT)*

09:30-11:00 ThB01.3
Effects of Propofol Anesthesia Induction on the Relationship between Arterial Blood Pressure and Heart Rate 2835-2838
Dorantes Méndez, Guadalupe (Politecnico di Milano); Aletti, Federico (Politecnico di Milano); Toschi, Nicola (University of Rome "Tor Vergata", Faculty of Medicine); Guerrisi, Maria (University of Rome "Tor Vergata"); Coniglione, Filadelfo (University of Rome "Tor Vergata"); Dauri, Mario (University of Rome "Tor Vergata"); Baselli, Giuseppe (Politecnico di Milano); Signorini, Maria G. (Politecnico di Milano); Cerutti, Sergio (Politecnico di Milano); Ferrario, Manuela (Politecnico di Milano)*

09:30-11:00 ThB01.4
Bayesian Combination of Multiple Plasma Glucose Predictors 2839-2844
Ståhl, Fredrik (Lund University); Johansson, Rolf (Lund University)*

09:30-11:00 ThB01.5
Disease Progression Modeling Using Hidden Markov Models 2845-2848
Sukkar, Rafid (Voxelon, Inc.); Katz, Elyse (Individual); Zhang, Yanwei (Pfizer, Inc); Raunig, David (ICON Medical Imaging); Wyman, Bradley (Pfizer, Inc)*

09:30-11:00 ThB01.6
CIC Signal Processing Embedded System a Modulizable Platform for Multi-Domain Signal Processing 2849-2852
Kuo, Chih-Ting (National Chip Implementation Center); Chen, Chun-Yu (National Chip Implementation Center); Chang, Yu-Tsang (National Chip Implementation Center); Lin, Chun-Pin (National Chip Implementation Center); Wu, Chien-Ming (National Chip Implementation Center); Huang, Chun-Ming (National Chip Implementation Center)*

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| 09:30-11:00 | | ThB01.7 |
| Automatic Seizure Detection Based on the Activity of a Set of Current Dipoles: First Steps | 2853-2856 | |
| <i>Gritsch, Gerhard (AIT Austrian Institute of Technology GmbH); Hartmann, Manfred (AIT Austrian Institute of Technology GmbH); Perko, Hannes (Austrian Institute of Technology); Fürbaß, Franz* (AIT Austrian Institute of Technology GmbH); Kluge, Tilmann (Austrian Institute of Technology)</i> | | |
| 09:30-11:00 | | ThB01.8 |
| Evaluation of a New Approach for Speech Enhancement Algorithms in Hearing Aids | 2857-2860 | |
| <i>Montazeri, Vahid (The University of Texas at Dallas); Ardestani Khoubrouy, Soudeh (University of Texas at Dallas); Panahi, Issa* (University of Texas at Dallas)</i> | | |
| 09:30-11:00 | | ThB01.9 |
| Stationarity and Variability in Eyes Open and Eyes Closed EEG Signals from Able-Bodied and Spinal Cord Injured Persons | 2861-2864 | |
| <i>Tran, Yvonne* (University of Technology, Sydney); Thuraisingham, Ranjit Arulnayagam (University of Technology Sydney); Craig, Ashley (University of Technology, Sydney); Nguyen, Hung T. (University of Technology, Sydney)</i> | | |
| 09:30-11:00 | | ThB01.10 |
| Frequency Analysis of Eyes Open and Eyes Closed EEG Signals Using the Hilbert-Huang Transform ... | 2865-2868 | |
| <i>Thuraisingham, Ranjit Arulnayagam (University of Technology Sydney); Tran, Yvonne* (University of Technology, Sydney); Craig, Ashley (University of Technology, Sydney); Nguyen, Hung T. (University of Technology, Sydney)</i> | | |
| 09:30-11:00 | | ThB01.11 |
| Reducing Human Error in P300 Speller Paradigm for Brain-Computer Interface | 2869-2872 | |
| <i>Gavett, Scott (University of North Dakota); Wygant, Zachary (University of North Dakota); Amiri, Setare (University of North Dakota); Fazel-Rezai, Reza* (University of North Dakota)</i> | | |
| 09:30-11:00 | | ThB01.12 |
| Brain-Computer Interfacing in Discriminative and Stationary Subspaces | 2873-2876 | |
| <i>Samek, Wojciech* (Berlin Institute of Technology); Müller, Klaus-Robert (Berlin Institute of Technology); Kawanabe, Motoaki (Fraunhofer FIRST); Vidaurre, Carmen (Berlin Institute of Technology)</i> | | |
| ThB02: 09:30-11:00 | | Indigo Ballroom |
| 1.1.7 Nonstationary and Multivariate Signal Processing II (Poster Session) | | |
| 09:30-11:00 | | ThB02.1 |
| Phase-Locking Factor in a Motor Imagery Brain-Computer Interface | 2877-2880 | |
| <i>Carreiras, Carlos (Institute for Systems and Robotics, Instituto Superior Técnico / Technical University of Lisbon); Borges de Almeida, Luís (Telecommunications Institute, Instituto Superior Técnico / Technical University of Lisbon); Sanches, J. Miguel* (IST(NIF:501507930))</i> | | |
| 09:30-11:00 | | ThB02.2 |
| Segmenting Human Motion for Automated Rehabilitation Exercise Analysis | 2881-2884 | |
| <i>Lin, Jonathan Feng-Shun* (University of Waterloo); Kulic, Dana (University of Waterloo)</i> | | |
| 09:30-11:00 | | ThB02.3 |
| Theoretical Study of Bone's Microstructural Effects on Rayleigh Wave Propagation | 2885-2888 | |
| <i>Vavva, Maria* (University of Ioannina); Gergidis, Leonidas (University of Ioannina, Department of Material Science and Engineering); Charalambopoulos, Antonis (National Technical University of Athens, School of Applied Mathematical and Physical sciences, Department of Mathematics); Protopappas, Vasilios C. (University of Patras); Fotiadis, Dimitrios I. (University of Ioannina)</i> | | |
| 09:30-11:00 | | ThB02.4 |
| A Predictive Model of Subcutaneous Glucose Concentration in Type 1 Diabetes Based on Random Forests | 2889-2892 | |
| <i>Georga, Eleni I. (University of Ioannina); Protopappas, Vasilios C.* (University of Patras); Polyzos, Demosthenes (University of Patras); Fotiadis, Dimitrios I. (University of Ioannina)</i> | | |

09:30-11:00 ThB02.5
Patient Specific Multiscale Modelling for Plaque Formation and Progression 2893-2896
Exarchos, Themis P. (Unit of Medical Tech & Intelligent Info); Sakellarios, Antonis (University of Ioannina); Siogkas, Panagiotis (FORTH-IMBB); Fotiadis, Dimitrios I. (University of Ioannina); Milosevic, Zarko (University of Kragujevac); Nikolic, Dalibor (University of Kragujevac); Filipovic, Nenad (University of Kragujevac); Marraccini, Paolo (IFC-CNR); Vozzi, Federico (IFC-CNR); Parodi, Oberdan (CNR Clinical Physiology Institute – Milan)*

09:30-11:00 ThB02.6
ECG Denoising Using Angular Velocity As a State and an Observation in an Extended Kalman Filter Framework 2897-2900
Akhbari, Mahsa (Sharif University of Technology); Shamsollahi, Mohammad Bagher (Sharif University of Technology); Jutten, Christian (University of Grenoble)*

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| ThB03: 09:30-11:00 | Indigo Ballroom |
| 1.1.8 Time-Frequency Analysis of Biosignals I (Poster Session) | |

09:30-11:00 ThB03.1
Estimating Heart Rate Using Wrist-Type Photoplethysmography and Acceleration Sensor While Running 2901-2904
Fukushima, Hayato (Aichi Prefectural University); Kawanaka, Haruki (Aichi Prefectural University); Bhuiyan, Shoaib (Suzuka University of Medical Science); Oguri, Koji (Aichi Prefectural University)*

09:30-11:00 ThB03.2
Estimation of Venous Oxygenation Saturation Using the Finger Photoplethysmograph (PPG) Waveform 2905-2908
Shafqat, Kamran (City University); Langford, Richard (St Bartholomew's Hospital); Pal, Sandip (Broomfield Hospital); Kyriacou, Panayiotis (City University London)*

09:30-11:00 ThB03.3
Application of FRI to Modeling of Electrocardiogram Signals 2909-2912
Quick, Roy Franklin (Qualcomm, Inc.); Crochiere, Ronald (Qualcomm); Hong, John (Qualcomm); Hormati, Ali (EPFL); Baechler, Gilles (EPFL)*

09:30-11:00 ThB03.4
Automatic QRS Complex Detection Algorithm Designed for a Novel Wearable, Wireless Electrocardiogram Recording Device 2913-2916
Nielsen, Dorthe Bodholt (Technical University of Denmark); Egstrup, Kenneth (OUH Svendborg Hospital); Branebjerg, Jens (DELTA); Andersen, Gunnar Bjarne (DELTA); Sorensen, Helge B D (Technical University of Denmark)*

09:30-11:00 ThB03.5
Assessing Normality of Heart Sound by Matching Pursuit Residue with Frequency-Domain-Based Templates 2917-2920
Chen, Hong-Hui (National Taiwan University); Chen, Tung-Chien (National Taiwan University); Chen, Liang-Gee (NTU)*

09:30-11:00 ThB03.6
Multivariate Principal Oscillation Pattern Analysis of ICA Sources During Seizure 2921-2924
Mullen, Tim (University of California, San Diego, Swartz Center for Computational Neuroscience, Institute for Neural Computation); Worrell, Gregory A. (Mayo Clinic); Makeig, Scott (University of California San Diego)*

09:30-11:00 ThB03.7
Real-Time Source Separation on a Field Programmable Gate Array Platform 2925-2928
Hanson, Valerie (Dartmouth College); Odame, Kofi (Dartmouth College)*

09:30-11:00 ThB03.8
Investigating Brief Motor Imagery for an ERD/ERS Based BCI 2929-2932
Thomas, Eoin (INRIA); Fruitet, Joan (INRIA); Clerc, Maureen (INRIA)*

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| 09:30-11:00 | ThB03.9 |
| EEG Analysis of Frontal Lobe Area in Arousal Maintenance State against Sleepiness | 2933-2936 |
| <i>Yoshida, Hisashi* (Kinki University)</i> | |
| 09:30-11:00 | ThB03.10 |
| Discrete Wavelet Transform EEG Features of Alzheimer's Disease in Activated States | 2937-2940 |
| <i>Ghorbanian, Parham (Villanova University); Devilbiss, David (NexStep Biomarkers); Simon, Adam (Brain Computer Interface, Inc.); Bernstein, Allan (Palm Drive Hospital, Sebastopol, CA); Hess, Terry (Palm Drive Hospital, Sebastopol, CA); Ashrafioun, Hashem* (Villanova University)</i> | |
| 09:30-11:00 | ThB03.11 |
| Separation of Parkinson's Patients in Early and Mature Stages from Control Subjects Using One EOG Channel | 2941-2944 |
| <i>Christensen, Julie Anja Engelhard* (Technical University of Denmark); Frandsen, Rune (Danish Center for Sleep Medicine, Glostrup Hospital); Kempfner, Jacob (Technical University of Denmark); Arvastson, Lars (H. Lundbeck A/S); Christensen, Soren Rahn (Lundbeck); Jennum, Poul (Danish Centre for Sleep Medicing); Sorensen, Helge B D (Technical University of Denmark)</i> | |
| 09:30-11:00 | ThB03.12 |
| Singular Spectrum Analysis Improves Analysis of Local Field Potentials from Macaque V1 in Active Fixation Task | 2945-2948 |
| <i>Bonizzi, Pietro (Maastricht University); Karel, Joël* (Maastricht University); Westra, Ronald (Universiteit Maastricht); Meste, Olivier (UNSA-CNRS); Peeters, Ralf (Universiteit Maastricht)</i> | |

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| ThB04: 09:30-11:00 | Indigo Ballroom |
| 1.1.9 Time-Frequency Analysis of Biosignals II (Poster Session) | |

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| 09:30-11:00 | ThB04.1 |
| Gait Episode Identification Based on Wavelet Feature Clustering of Spectrogram Images | 2949-2952 |
| <i>Yuwono, Mitchell* (University of Technology Sydney); Su, Steven Weidong (University of Technology, Sydney); moulton, Bruce (University of Technology, Sydney); Nguyen, Hung T. (University of Technology, Sydney)</i> | |
| 09:30-11:00 | ThB04.2 |
| Automatic Newborn Cry Analysis: a Non-Invasive Tool to Help Autism Early Diagnosis | 2953-2956 |
| <i>Orlandi, Silvia* (Università degli Studi di Firenze); Manfredi, Claudia (Università degli Studi di Firenze); Bocchi, Leonardo (Università degli Studi di Firenze, Firenze, Italy); Scattoni, Maria Luisa (Istituto Superiore di Sanità, Roma, Italy)</i> | |

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| ThB05: 09:30-11:00 | Indigo Ballroom |
| 6.4.4 Sensory Neuroprostheses Posters I (Poster Session) | |

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| 09:30-11:00 | ThB05.1 |
| Subspace Matching of Tactile and Thalamic Microstimulation Evoked Potentials in Rat Somatosensory Cortex | 2957-2960 |
| <i>Brockmeier, Austin* (University of Florida); Choi, John Stephen (SUNY Downstate Medical Center); Emigh, Matthew (University of Florida); Li, Lin (University of Florida); Francis, Joseph Thachil (SUNY Downstate Medical Center); Principe, Jose (University of Florida)</i> | |
| 09:30-11:00 | ThB05.2 |
| On Just Noticeable Difference for Bionic Eye | 2961-2964 |
| <i>Li, Yi* (NICTA and ANU); McCarthy, Chris (NICTA); Barnes, Nick (NICTA Canberra Research Laboratory)</i> | |
| 09:30-11:00 | ThB05.3 |
| Information Theoretic Inference of the Optimal Number of Electrodes for Future Cochlear Implants Using a Spiral Cochlea Model | 2965-2968 |
| <i>Moroz, Alexey (University of South Australia); McDonnell, Mark Damian* (University of South Australia); Burkitt, Anthony Neville (The University of Melbourne); Grayden, David B. (The University of Melbourne); Meffin, Hamish (National ICT Australia)</i> | |

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| 09:30-11:00 | ThB05.4 |
| Grasping Force and Slip Feedback through Vibrotactile Stimulation to Be Used in Myoelectric Forearm Prostheses | 2969-2972 |
| <i>Witteveen, Heidi* (University of Twente); Rietman, Johan S (Roessingh Research and Development, University of Twente, The Netherlands); Veltink, Peter (University of Twente)</i> | |
| 09:30-11:00 | ThB05.5 |
| Extraction of Control Signals from a Mixture of Source Activity in the Peripheral Nerve | 2973-2976 |
| <i>Tang, Yuang* (Case Western Reserve University); Wodlinger, Brian (University of Pittsburgh); Durand, Dominique (Case Western Reserve University)</i> | |
| 09:30-11:00 | ThB05.6 |
| Text Image Processing for Visual Prostheses | 2977-2980 |
| <i>Wang, Song* (Australian National University); Li, Yi (NICTA and ANU); Barnes, Nick (NICTA Canberra Research Laboratory)</i> | |
| 09:30-11:00 | ThB05.7 |
| An Face-Based Visual Fixation System for Prosthetic Vision | 2981-2984 |
| <i>He, Xuming* (National ICT Australia); Kim, Junae (NICTA); Barnes, Nick (NICTA Canberra Research Laboratory)</i> | |
| 09:30-11:00 | ThB05.8 |
| Physiological Response of Normal and RD Mouse Retinal Ganglion Cells to Electrical Stimulation | 2985-2988 |
| <i>Cho, Alice* (University of Southern California); Sampath, Alapakkam (University of Southern California, Keck School of Medicine); Weiland, James (University of Southern California)</i> | |
| 09:30-11:00 | ThB05.9 |
| Epiretinal Electrical Stimulation and the Inner Limiting Membrane in Rat Retina | 2989-2992 |
| <i>Cloherty, Shaun L.* (National Vision Research Institute); Wong, Raymond C. S. (Australian National University); Hadjinicolaou, Alex E. (Australian National University); Meffin, Hamish (National ICT Australia); Ibbotson, Michael R (Australian National University); O'Brien, Brendan J. (National Vision Research Institute)</i> | |
| 09:30-11:00 | ThB05.10 |
| Effects of Rates of Spontaneous Synaptic Vesicle Secretions in Inner Hair Cells on Information Transmission in an Auditory Nerve Fiber Model | 2993-2996 |
| <i>Kumsa, Parichat* (Kanto-Gakuin University); Mino, Hiroyuki (Kanto Gakuin University)</i> | |
| 09:30-11:00 | ThB05.11 |
| Threshold Analysis of Quasi-Monopolar Stimulation Strategy in Vision Prosthetics | 2997-3000 |
| <i>Matteucci, Paul Brendan* (University of New South Wales); Chen, Spencer Chin-Yu (University of New South Wales); Dodds, Christopher William Douglas (University of New South Wales); Dokos, Socrates (University of New South Wales); Morley, John William (University of Western Sydney); Lovell, Nigel H. (University of New South Wales); Suaning, Gregg (The University of New South Wales)</i> | |
| 09:30-11:00 | ThB05.12 |
| A Precise Charge Balancing and Compliance Voltage Monitoring Stimulator Front-End for 1024-Electrodes Retinal Prosthesis | 3001-3004 |
| <i>Chun, Hosung* (University of Melbourne); Tran, Nhan (Centre for Neural Engineering, The University of Melbourne); Yang, Yuanyuan (University of Melbourne); Kavehei, Omid (University of Melbourne); Bai, Shun (The University of Melbourne); Skafidas, Stan (NICTA Victoria Research Lab)</i> | |

ThB06: 09:30-11:00

Indigo Ballroom

6.4.5 Sensory Neuroprostheses Posters II (Poster Session)

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| 09:30-11:00 | ThB06.1 |
| Determining the Electrical Impedance of the Retina from a Complex Voltage Map | 3005-3008 |
| <i>Venables, Nicholas Alexander (The University of Melbourne); Tahayori, Bahman* (University of Melbourne); Meffin, Hamish (National ICT Australia); Grayden, David B. (The University of Melbourne); Burkitt, Anthony Neville (The University of Melbourne)</i> | |

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| 09:30-11:00 | | ThB06.2 |
| Minimisation of Required Charge for Desired Neuronal Spike Rate | | 3009-3012 |
| <i>Savage, Craig Owen* (University of Melbourne); Kameneva, Tatiana (The University of Melbourne); Grayden, David B. (The University of Melbourne); Meffin, Hamish (National ICT Australia); Burkitt, Anthony Neville (The University of Melbourne)</i> | | |
| 09:30-11:00 | | ThB06.3 |
| Can Electric Cross-Talk Be Used to Control Perception of a Retinal Prosthesis Patient? | | 3013-3016 |
| <i>Savage, Craig Owen* (University of Melbourne); Kiral-Kornek, Filiz Isabell (University of Melbourne); Tahayori, Bahman (University of Melbourne); Grayden, David B. (The University of Melbourne)</i> | | |
| 09:30-11:00 | | ThB06.4 |
| Electrical Potential Distribution within the Inner Ear: A Preliminary Study for Vestibular Prosthesis Design | | 3017-3020 |
| <i>Marianelli, Prisca (Scuola Superiore Sant'Anna); Bassi Luciani, Lorenzo (Scuola Superiore Sant'Anna); Micera, Silvestro* (Scuola Superiore Sant'Anna)</i> | | |
| 09:30-11:00 | | ThB06.5 |
| Crosstalk Current Measurements Using Multi-Electrode Arrays in Saline | | 3021-3024 |
| <i>Tran, Nhan* (Centre for Neural Engineering, The University of Melbourne); Halpern, Mark E (NICTA Victoria Res. Lab.); Skafidas, Stan (NICTA Victoria Research Lab); Bai, Shun (The University of Melbourne)</i> | | |
| 09:30-11:00 | | ThB06.6 |
| Required Matching Accuracy of Biphasic Current Pulse in Multi-Channel Current Mode Bipolar Stimulation for Safety | | 3025-3028 |
| <i>Chun, Hosung* (University of Melbourne); Yang, Yuanyuan (University of Melbourne); Lehmann, Torsten (University of New South Wales)</i> | | |
| 09:30-11:00 | | ThB06.7 |
| Computational Model of Electrical Stimulation of a Retinal Ganglion Cell with Hexagonally Arranged Electrodes | | 3029-3032 |
| <i>Abramian, Miganoosh* (University of New South Wales); Lovell, Nigel H. (University of New South Wales); Morley, John William (University of Western Sydney); Suaning, Gregg (The University of New South Wales); Dokos, Socrates (University of New South Wales)</i> | | |
| ThB07: 09:30-11:00 | | Indigo Ballroom |
| 8.2.2 Robotics: Prosthetics II (Poster Session) | | |
| 09:30-11:00 | | ThB07.1 |
| Designing Shoulder Prostheses with a Small Pneumatic Actuator Driven Parallel Mechanism for Spatial Accessibility in Daily Living Use | | 3033-3036 |
| <i>Sekine, Masashi* (Chiba University); Sugimori, kento (Chiba University); Yu, Wenwei (University of Chiba)</i> | | |
| 09:30-11:00 | | ThB07.2 |
| Interfragmentary Movement of Percutaneous Fixation of Acetabular Fractures During Gait – A Finite Element Study | | 3037-3039 |
| <i>Shim, Vickie* (University of Auckland, New Zealand); Mithraratne, Kumar (University of Auckland); Josten, Christoph (University of Leipzig); Boehme, Joerg (University of Leipzig)</i> | | |
| 09:30-11:00 | | ThB07.3 |
| Gait Motion Analysis in the Unrestrained Condition of Trans-Femoral Amputee with a Prosthetic Limb | | 3040-3043 |
| <i>Hayashi, Yuichiro* (Doshisha University); Tsujiuchi, Nobutaka (Doshisha University); Koizumi, Takayuki (Doshisha University); Uno, Ryuji (Graduate School, Doshisha University); Matsuda, Yasushi (Kawamura Gishi Co., LTD); Tsuchiya, Youtaro (Tec Gihan Co., LTD); Inoue, Yoshio (Kochi University of Technology)</i> | | |
| 09:30-11:00 | | ThB07.4 |
| Design of a Hand Prosthesis with Precision and Conformal Grasp Capability | | 3044-3047 |
| <i>Bennett, Daniel* (Vanderbilt University); Dalley, Skyler (Vanderbilt University); Goldfarb, Michael (Vanderbilt University)</i> | | |

09:30-11:00 ThB07.5
Identification of Widely Applicable Configurations for the Electrostimulative Total Hip Revision System 3048-3051
Zimmermann, Ulf (University of Rostock)*

09:30-11:00 ThB07.6
Cortex Inspired Model for Inverse Kinematics Computation for a Humanoid Robotic Finger 3052-3055
Gentili, Rodolphe (University of Maryland; School of Public Health); Oh, Hyuk (University of Maryland, College Park); Molina-Vilaplana, Javier (Department of Systems Engineering and Automation. Technical University of Cartagena); Reggia, James (University of Maryland-College Park); Contreras-Vidal, José (University of Houston)*

09:30-11:00 ThB07.7
Design of a Prosthetic Hand with Remote Actuation 3056-3060
Scott, Kurt (Idaho State University); Perez Gracia, Alba (Idaho State University)*

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| ThB08: 09:30-11:00 8.7.3 Hardware and Control Developments in Robotics II (Poster Session) | Indigo Ballroom |
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09:30-11:00 ThB08.1
A User-Driven Treadmill Control Scheme for Simulating Overground Locomotion 3061-3064
Kim, Jonghyun (National Institute of Health); Stanley, Christopher (National Institutes of Health); Bellini, Lindsey (National Institutes of Health); Park, Hyung-Soon (National Institute of Health)*

09:30-11:00 ThB08.2
Preventing Drowsiness by Heartbeat-Synchronized Vibration 3065-3068
Takahashi, Issey (Nagoya City University); Yokoyama, Kiyoko (Nagoya City University)*

09:30-11:00 ThB08.4
Real-Time Performance of a Hands-Free Semi-Autonomous Wheelchair System Using a Combination of Stereoscopic and Spherical Vision 3069-3072
Nguyen, Jordan Son (University of Technology, Sydney); Nguyen, Tuan Nghia (University of Technology, Sydney); Tran, Yvonne (University of Technology, Sydney); Su, Steven Weidong (University of Technology, Sydney); Craig, Ashley (University of Technology, Sydney); Nguyen, Hung T. (University of Technology, Sydney)*

09:30-11:00 ThB08.5
Assisting Control for Attendant Propelled Wheelchair Based on Force Velocity Relationship 3073-3076
Suzuki, Tatsuto (Maizuru National College of Technology); Uchiyama, Hironobu (Kansai University); Holloway, Catherine (University College London); Nick, Tyler (Department of Civil Environmental & Geomatic Engineering, University College London)*

09:30-11:00 ThB08.6
A Data-Driven Surrogate Model to Connect Scales between Multi-Domain Biomechanics Simulations ... 3077-3080
Paiva, Gavin (University of Missouri Kansas City); Bhashyam, Sampath (University of Missouri, Kansas City); Thiagarajan, Ganesh (University of Missouri, Kansas City); Derakhshani, Reza (University of Missouri Kansas City); Guess, Trent (University of Missouri, Kansas City)*

09:30-11:00 ThB08.7
Differential-Damper Topologies for Actuators in Rehabilitation Robotics 3081-3085
Tucker, Michael (ETH Zurich); Gassert, Roger (ETH Zurich)*

09:30-11:00 ThB08.8
A Task Description Model for Robotic Rehabilitation 3086-3089
Carmichael, Marc Garry (University of Technology, Sydney); Liu, Dikai (University of Technology, Sydney)*

09:30-11:00 ThB08.9
Integration of a Multigrid ODE Solver into an Open Medical Simulation Framework 3090-3093
Wu, Xunlei (SAS); Enquobahrie, Andinet (Kitware Inc); Lee, Huai-Ping (University of North Carolina at Chapel Hill); Audette, Michel (Old Dominion University); Yao, Jianhua (National Institutes of Health)*

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| ThC01: 13:30-15:00 | Sapphire A |
| 1.2.3 Signal Processing in Physiological Systems I (Oral Session) | |
| Chair: Jané, Raimon (<i>Inst. de Bioenginyeria de Catalunya (IBEC)</i>) | |
| Co-Chair: Bianchi, Anna Maria (<i>Pol. di Milano</i>) | |

13:30-13:45 ThC01.1
Muscle Activity Onset Detection Using Energy Detectors 3094-3097
Rasool, Ghulam (University of Arkansas at Little Rock); Iqbal, Kamran (University of Arkansas at Little Rock)*

13:45-14:00 ThC01.2
Enhanced Multi-Site EMG-Force Estimation Using Contact Pressure 3098-3101
Hashemi, Javad (Queen's University); Morin, Evelyn (Queen's University); Mousavi, Parvin (Queen's University); Hashtrudi-Zaad, Keyvan (Queen's University)*

14:00-14:15 ThC01.3
Fusion of Spectral Models for Dynamic Modeling of Seng and Skeletal Muscle Force 3102-3105
Potluri, Chandra Sekhar (Idaho State University); Anugolu, Madhavi (Idaho State University); Chiu, Steve (Idaho State University); Urfer, Alex (Idaho State University); Perez Gracia, Alba (Idaho State University); Schoen, Marco P. (Idaho State University); Naidu, D Subbaram (Idaho State University)*

14:15-14:30 ThC01.4
Cross-Correlation Analysis of Multichannel Uterine EMG Signals 3106-3109
Halabi, Ramzi (Rafik Hariri University); Diab, Mohamad (Rafik Hariri University); Khalil, Mohamad (Lebanese University, Doctoral school for sciences and Technology, Azm center for research in bioTechnology); Moslem, Bassam (Hariri Canadian University)*

14:30-14:45 ThC01.5
Detecting Missing Signals in Multichannel Recordings by Using Higher Order Statistics 3110-3113
Halabi, Ramzi (Rafik Hariri University); Diab, Mohamad (Rafik Hariri University); Khalil, Mohamad (Lebanese University, Doctoral school for sciences and Technology, Azm center for research in bioTechnology); Moslem, Bassam (Hariri Canadian University)*

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| ThC02: 13:30-15:00 | Sapphire D |
| 1.2.7 Cardiovascular Modeling for Critical Care Monitoring (Oral Session) | |
| Chair: Aletti, Federico (<i>Pol. di Milano</i>) | |
| Co-Chair: Ferrario, Manuela (<i>Pol. di Milano</i>) | |

13:30-13:45 ThC02.1
An Elementary Analysis of Physiologic Shock and Multi-Organ Failure: The Autodigestion Hypothesis 3114-3115
Schmid-Schönbein, Geert (University of California San Diego); DeLano, Frank (University of California San Diego); Penn, Alexander (University of California San Diego); Kistler, Erik (University of California San Diego)*

13:45-14:00 ThC02.2
Early Detection of Hemorrhage Via Central Pulse Pressure Derived from a Non-Invasive Peripheral Arterial Blood Pressure Waveform 3116-3119
Zhang, Guanqun (Michigan State University); Ryan, Kathy (US Army Institute of Surgical Research); Rickards, Caroline (University of Texas at San Antonio); Convertino, Victor (U.S. Army Institute of Surgical Research); Mukkamala, Ramakrishna (Michigan State University)*

14:00-14:15 ThC02.3
Autonomic Control Mechanism of Maximal Lower Body Negative Pressure Application 3120-3123
Selvaraj, Nandakumar (Vital Connect Inc); Shelley, Kirk H. (Department of Anesthesiology, Yale University); Silverman, David G. (Department of Anesthesiology, Yale University); Chon, Ki (Worcester Polytechnic Institute)*

14:15-14:30 ThC02.4
Monitoring Heartbeat Nonlinear Dynamics During General Anesthesia by Using the Instantaneous Dominant Lyapunov Exponent 3124-3127
Citi, Luca (MGH / Harvard Medical School); Valenza, Gaetano (University of Pisa); Purdon, Patrick L (Massachusetts General Hospital); Brown, Emery (MIT); Barbieri, Riccardo (MGH-Harvard Medical School-MIT)*

14:30-14:45 ThC02.5
Comparisons of Predictors of Fluid Responsiveness in Major Surgery 3128-3130
Pala, Salvatore (Politecnico di Milano); Aletti, Federico (Politecnico di Milano); Toschi, Nicola (University of Rome "Tor Vergata", Faculty of Medicine); Guerrisi, Maria (University of Rome "Tor Vergata"); Coniglione, Filadelfo (University of Rome "Tor Vergata"); Dauri, Mario (University of Rome "Tor Vergata"); Baselli, Giuseppe (Politecnico di Milano); Ferrario, Manuela (Politecnico di Milano)*

ThC03: 13:30-15:00 Sapphire E
1.1.4 Biomedical Signal Classification IV (Oral Session)
Chair: Karlen, Walter (*UBC*)
Co-Chair: Abeyratne, Udantha R (*Univ. of Queensland*)

13:30-13:45 ThC03.1
Adaptive Pulse Segmentation and Artifact Detection in Photoplethysmography for Mobile Applications 3131-3134
Karlen, Walter (UBC); Ansermino, J. Mark (British Columbia's Children's Hospital); Dumont, Guy (University of British Columbia)*

13:45-14:00 ThC03.2
Highly Comparative Fetal Heart Rate Analysis 3135-3138
Fulcher, Benjamin David (University of Oxford); Georgieva, Antoniya (University of Oxford); Redman, Christopher WG (University of Oxford); Jones, Nick S. (University of Oxford)*

14:00-14:15 ThC03.3
A Multiresolution Analysis for Detection of Abnormal Lung Sounds 3139-3142
Emmanouilidou, Dimitra (Department of Electrical and Computer Engineering, Johns Hopkins University, Baltimore, MD); West, James E. (Johns Hopkins University); Elhilali, Mounya (Johns Hopkins University); Patil, Kailash (Johns Hopkins University)*

14:15-14:30 ThC03.4
Multi-Lead QRS Detection Using Window Pairs 3143-3146
Torbey, Sami (Queen's University); Akl, Selim G (Queen's University); Redfearn, Damian P (Queen's University)*

14:30-14:45 ThC03.5
Automated Algorithm for Wet/Dry Cough Sounds Classification 3147-3150
Swarnkar, Vinayak (University of Queensland); Abeyratne, Udantha R (University of Queensland)*

14:45-15:00 ThC03.6
Robust Artefact Detection in Long-Term ECG Recordings Based on Autocorrelation Function Similarity and Percentile Analysis 3151-3154
Varon, Carolina (Katholieke Universiteit Leuven); Testelmans, Dries (Universitair Ziekenhuis Gasthuisberg); Buyse, Bertien (Katholieke Universiteit Leuven); Suykens, Johan (K.U. Leuven); Van Huffel, Sabine (Katholieke Universiteit Leuven)*

ThC04: 13:30-15:00 Sapphire 412
2.3.5 Optical Imaging II (Oral Session)
Chair: Jiao, Shuliang (*Univ. of Southern California*)
Co-Chair: Nygren, Anders (*Univ. of Calgary*)

13:30-13:45 ThC04.1
Diffuse Optical Imaging for Monitoring Treatment Response in Breast Cancer Patients 3155-3158
Falou, Omar (Sunnybrook Health Sciences Centre / University of Toronto); Sadeghi-Naini, Ali (University of Toronto | Sunnybrook Health Sciences Centre); Soliman, Hany (University of Toronto, Sunnybrook Health Sciences Centre); Yaffe, Martin (University of Toronto); Czarnota, Gregory (University of Toronto, Sunnybrook Health Sciences Centre)*

13:45-14:00 ThC04.2
Single Molecule Tracking of P-Glycoprotein in Live Cells Reveals Dynamic Heterogeneity 3159-3162
Cheney, Philip P (University of Denver); Stachler, Michael D (University of Denver); Assoudani, Halima A (University of Denver); Knowles, Michelle K (University of Denver)*

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| 14:00-14:15 | ThC04.3 |
| Performance Enhancement and Background Removal to Improve Dynamic Phase Imaging of Biological Organisms | 3163-3166 |
| <i>Creath, Katherine* (4D Technology Corporation); Goldstein, Goldie (4D Technology Corp)</i> | |
| 14:15-14:30 | ThC04.4 |
| Anterior Chamber Angle Classification Using Multiscale Histograms of Oriented Gradients for Glaucoma Subtype Identification | 3167-3170 |
| <i>Xu, Yanwu* (Institute for Infocomm Research); Liu, Jiang (Institute for Infocomm Research, A STAR); Tan, Ngan Meng (A*STAR, Institute for Infocomm Research); Lee, Beng Hai (Institute for Infocomm Research); Wong, Damon (Institute for Infocomm Research); Baskaran, Mani (Singapore Eye Research Institute); Perera, Shamira (Singapore Eye Research Institute); Aung, Tin (Singapore Eye Research Institute)</i> | |
| 14:30-14:45 | ThC04.5 |
| Application of Scale-Space Descriptors for the Reliable Detection of Keypoints for Image Registration in Optical Mapping Studies in Whole Heart Preparations | 3171-3174 |
| <i>Rodriguez Ramirez, Marcela Patricia* (University of Calgary); Nygren, Anders (University of Calgary)</i> | |
| 14:45-15:00 | ThC04.6 |
| Integrated Intravascular Optical Coherence Tomography (OCT) – Ultrasound (US) Catheter for Characterization of Atherosclerotic Plaques in Vivo | 3175-3178 |
| <i>Li, Jiawen* (University of California, Irvine); li, xiang (University of Southern California); Jing, Joseph (Beckman Laser Institute, Department of Biomedical Engineering, University of California, Irvine); Mohar, Dilbahar (University of California, Irvine); Raney, Aidan (University of California, Irvine); Mahon, Sari (University of California, Irvine); Brenner, Matthew (University of California, Irvine); zhou, Qifa (University of Southern California); Patel, Pranav (University of California, Irvine); Shung, K. Kirk (University of Southern California); Chen, Zhongping (University of California, Irvine)</i> | |
| ThC05: 13:30-15:00 | Sapphire I |
| 2.2.2 Ultrasonic Imaging II (Oral Session) | |
| Chair: Shung, K. Kirk (<i>Univ. of Southern California</i>) | |
| Co-Chair: Tavakoli, Vahid (<i>Univ. of Louisville</i>) | |
| 13:30-13:45 | ThC05.1 |
| Performance Assessment and Optimization of Pulse Wave Imaging (PWI) in Ex Vivo Canine Aortas and In Vivo Normal Human Arteries | 3179-3182 |
| <i>Li, Ronny* (Columbia University); Qaqish, William (Columbia University); Shahmirzadi, Danial (Columbia University); Konofagou, Elisa (Columbia University)</i> | |
| 13:45-14:00 | ThC05.2 |
| Organ Boundary Determination Algorithm for Detecting Internal Bleeding | 3183-3186 |
| <i>Ito, Keiichiro* (Waseda University); Sugano, Shigeki (Waseda University); Iwata, Hiroyasu (Waseda University)</i> | |
| 14:00-14:15 | ThC05.3 |
| A Biventricular Multimodal (MRI/Ultrasound) Cardiac Phantom | 3187-3190 |
| <i>Tavakoli, Vahid* (University of Louisville); Negahdar, MJ (University of Louisville); Kendrick, Michael (Veteran's Affairs Medical Center); Alshaher, Motaz (University of Louisville Hospital); Stoddard, Marcus (University of Louisville); Amini, Amir (University of Louisville)</i> | |
| 14:15-14:30 | ThC05.4 |
| Noninvasive Internal Bleeding Detection Method by Measuring Blood Flow under Ultrasound Cross-Section Image | 3191-3194 |
| <i>Ito, Keiichiro* (Waseda University); Tsuruta, Koichi (Waseda University); Sugano, Shigeki (Waseda University); Iwata, Hiroyasu (Waseda University)</i> | |
| 14:30-14:45 | ThC05.5 |
| Volumetric Imaging Using Single Chip Integrated CMUT-On-CMOS IVUS Array | 3195-3198 |
| <i>Tekes, Coskun* (Georgia Institute of Technology); Jaime, Zahorian (Georgia Institute of Technology); Gokce, Gurun (Georgia Institute of Technology); Sarp, Satir (Georgia Institute of Technology); Toby, Xu (Georgia Institute of Technology); Micheal, Hochman (Georgia Institute of Technology); F. Levent, Degertekin (Georgia Institute of Technology)</i> | |

14:45-15:00 ThC05.6
**Carotid Ultrasound Symptomatology Using Atherosclerotic Plaque Characterization:
 A Class of Atheromatic Systems** 3199-3202
Acharya, Rajendra (NgeeAnn Polytechnic); S, Vinitha Sree (Global Biomedical Technologies Inc., Roseville, CA, USA); Molinari, Filippo (Politecnico di Torino); saba, luca (Policlinico Universitario); Nicolaidis, Andrew (Imperial College); Shafique, Shoaib (CorVasc MDs); Suri, Jasjit (Biomedical Technologies)*

ThC06: 13:30-15:00 Sapphire M
2.7.3 MR Image Segmentation (Oral Session)
Chair: Frouin, Frederique (INSERM)
Co-Chair: All, Angelo (Johns Hopkins Univ.)

13:30-13:45 ThC06.1
Causal Markov Random Field for Brain Mr Image Segmentation 3203-3206
Razlighi, Qolamreza (Department of Neurology, Columbia University,); Orekhov, Aleksey (Columbia University); Laine, Andrew (Columbia University); Stern, Yaakov (Columbia University)*

13:45-14:00 ThC06.2
**Fully Automated Segmentation of the Left Ventricle Applied to Cine MR Images:
 Description and Results on a Database of 45 Subjects** 3207-3210
Constantinidès, Constantin (ESME-Sudria, INSERM UMR_S 678); Roullot, Elodie (ESME-Sudria); Lefort, Muriel (INSERM UMR_S 678); Frouin, Frederique (INSERM)*

14:00-14:15 ThC06.3
**Automatic Segmentation of the Left Atrium from MRI Images Using Salient Feature and
 Contour Evolution** 3211-3214
Zhu, Liangjia (Georgia Institute of Technology); Gao, Yi (Harvard Medical School); Yezzi, Anthony (Georgia Institute of Technology); MacLeod, Rob (University of Utah); Cates, Joshua (University of Utah); Tannenbaum, Allen (Georgia Institute of Technology)*

14:15-14:30 ThC06.4
A Deformable Cosegmentation Algorithm for Brain MR Images 3215-3218
Zhang, Tong (The University of Sydney); Xia, Yong (The University of Sydney); Feng, Dagan (The University of Sydney)*

14:30-14:45 ThC06.5
Parcellation of Human Inferior Parietal Lobule Based on Diffusion MRI 3219-3222
Soran, Bilge (University of Washington); Xie, Zhiyong (University of Washington); Tungaraza, Rosalia (University of Washington); Lee, Su-In (University of Washington); Shapiro, Linda G. (University of Washington); Grabowski, Thomas (University of Washington)*

ThC08: 13:30-15:00 Sapphire 400
3.4.3 Physiological Monitoring II (Oral Session)
Chair: Mohseni, Pedram (Case Western Res. Univ.)
Co-Chair: Basu, Amar (Wayne State Univ.)

13:30-13:45 ThC08.1
**Towards on line monitoring the evolution of the myocardium infarction scar with an
 implantable electrical impedance spectrum monitoring system** 3223-3226
Sanchez, Benjamin (Technical University of Catalonia, Barcelona, SPAIN); Guasch, Aleix (Technical University of Catalonia); Bogóñez-Franco, Paco (Technical University of Catalonia, Electronic Engineering Department.); Gálvez-Montón, Carolina (ICREC, IGTP, Hospital Universitari Germans Trias i Pujol); Puig-Sanvicenç, Veronica (Instituto Quimico Sarria); Prat-Vidal, Cristina (ICREC, IGTP, Hospital Universitari Germans Trias i Pujol); Semino, Carlos E. (Instituto Quimico Sarria); Bayes-Genis, Antoni (Hospital de la Santa Creu i Sant Pau); Bragos, Ramon (Technical University of Catalonia (UPC))*

13:45-14:00 ThC08.2
Non-Contact Cardiopulmonary Monitoring Algorithm for a 24 GHz Doppler Radar 3227-3230
Birsan, Nicusor (Military Technical Academy)*

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| 14:00-14:15 | ThC08.3 |
| On the Use of Smart Stents for Monitoring In-Stent Restenosis | 3231-3234 |
| <i>Keikhosravy, Kamyar* (University of British Columbia); Zargaran-Yazd, Arash (University of British Columbia); Mirabbasi, Shahriar (University of British Columbia)</i> | |
| 14:15-14:30 | ThC08.4 |
| Development of an Autonomic Portable Single-Board Computer Based High Resolution NIRS Device for Microcirculation Analysis | 3235-3238 |
| <i>Elagiri Ramalingam, Rajkumar* (VIT University); Safaie, Javad (University of Picardie); Gupta, Rishabh (VIT University); Pattnaik, Deepak (VIT University); Grebe, Reinhard (University of Picardie Jules Verne); Wallois, Fabrice (University of Picardie Jules Verne)</i> | |
| 14:30-14:45 | ThC08.5 |
| Blood Pressure Estimation Using Maximum Slope of Oscillometric Pulse | 3239-3242 |
| <i>Mafi, Majid (University of ottawa); Rajan, Sreeraman (DRDC Ottawa); Bolic, Miodrag* (University of ottawa); Groza, Voicu (University of ottawa); Dajani, Hilmi (University of Ottawa)</i> | |
| 14:45-15:00 | ThC08.6 |
| Plug-And-Play, Single-Chip Photoplethysmography | 3243-3246 |
| <i>Chandrasekar, Deepak (Wayne State University); Arnetz, Bengt (Wayne State University); Basu, Amar* (Wayne State University)</i> | |
| ThC09: 13:30-15:00 Sapphire 411 | |
| 9.3.2 Impedance-Based Monitoring and Diagnosis Techniques (Oral Session) | |
| Chair: Halter, Ryan (<i>Dartmouth Coll.</i>) | |
| Co-Chair: Bashir, Rashid (<i>Univ. of Illinois at Urbana-Champaign</i>) | |
| 13:30-13:45 | ThC09.1 |
| Application of the Geselowitz Relationship to the Murine Conductance Catheter | 3247-3250 |
| <i>Larson, Erik (The University of Texas at Austin); Pearce, John Anthony* (University of Texas at Austin)</i> | |
| 13:45-14:00 | ThC09.2 |
| Design of a High Sensitive Non-Faradaic Impedimetric Sensor | 3251-3254 |
| <i>Panneer Selvam, Anjan* (University of Texas at Dallas); Vattipalli, Krishna Mohan (University of Texas at Dallas); Prasad, Shalini (UT Dallas)</i> | |
| 14:00-14:15 | ThC09.3 |
| Electrical Flow Metering of Blood for Point-Of-Care Diagnostics | 3255-3257 |
| <i>Watkins, Nicholas (University of Illinois); Hassan, Umer* (University of Illinois); Rodriguez, William (Daktari Diagnostics); Bashir, Rashid (Univ of Illinois at Urbana-Champaign)</i> | |
| 14:15-14:30 | ThC09.4 |
| Electrical Impedance Spectroscopy for Prostate Cancer Diagnosis | 3258-3261 |
| <i>Mishra, Vaishali* (Dartmouth College); Bouayad, Hamza (Dartmouth College); Schned, Alan (Dartmouth-Hitchcock Medical Center); Heaney, John (Dartmouth-Hitchcock Medical Center); Halter, Ryan (Dartmouth College)</i> | |
| 14:30-14:45 | ThC09.5 |
| Electrical Impedance of Human Blood with and without Anticoagulants in the Beta-Dispersion Region | 3262-3264 |
| <i>Şimşek, Fatma* (Bogazici University); ulgen, yekta (Bogazici University)</i> | |
| 14:45-15:00 | ThC09.6 |
| The Compact Electro-Acupuncture System for Multi-Modal Feedback Electro-Acupuncture Treatment | 3265-3268 |
| <i>Song, Kiseok* (KAIST); Lee, Hyungwoo (KAIST); Hong, Sunjoo (KAIST); Cho, Hyunwoo (KAIST); Yoo, Hoi-Jun (KAIST)</i> | |

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| ThC15: 13:30-15:00 | Sapphire P |
| 6.2.2 Brain-Machine Interface – II (Oral Session) | |
| Chair: Chavarriaga, Ricardo (<i>Ec. Pol. Federale de Lausanne</i>) | |
| Co-Chair: Birch, Gary E. (<i>Univ. of British Columbia</i>) | |

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| 13:30-13:45 | ThC15.1 |
| First Study towards Linear Control of an Upper-Limb Neuroprosthesis with an EEG-Based Brain-Computer Interface | 3269-3273 |
| <i>Pascual, Javier* (Berlin Institute of Technology); Velasco-Álvarez, Francisco (University of Malaga); Müller, Klaus-Robert (Berlin Institute of Technology); Vidaurre, Carmen (Berlin Institute of Technology)</i> | |
| 13:45-14:00 | ThC15.2 |
| Adaptive Classification in a Self-Paced Hybrid Brain-Computer Interface System | 3274-3279 |
| <i>Yong, Xinyi* (University of British Columbia); Fatourech, Mehrdad (University of British Columbia); Ward, Rabab (University of British Columbia); Birch, Gary E. (University of British Columbia)</i> | |
| 14:00-14:15 | ThC15.3 |
| Self-Paced Movement Intention Detection from Human Brain Signals: Invasive and Non-Invasive EEG | 3280-3283 |
| <i>Lew, Eileen* (Swiss Federal Institute of Technology, Lausanne); Chavarriaga, Ricardo (Ecole Polytechnique Federale de Lausanne); Zhang, Huaijian (École Polytechnique Fédérale de Lausanne); Seeck, Margitta (Geneva University Hospital); Millán, José del R. (Swiss Federal Institute of Technology, Lausanne)</i> | |
| 14:15-14:30 | ThC15.4 |
| Properties of a Temporal Difference Reinforcement Learning Brain Machine Interface Driven by a Simulated Motor Cortex | 3284-3287 |
| <i>Tarigoppula, Aditya* (SUNY Downstate Medical Center); Rotella, Nick (The Cooper Union); Francis, Joseph Thachil (SUNY Downstate Medical Center)</i> | |
| 14:30-14:45 | ThC15.5 |
| Latency Correction of Error Potentials between Different Experiments Reduces Calibration Time for Single-Trial Classification | 3288-3291 |
| <i>Iturrate, Iñaki* (University of Zaragoza); Chavarriaga, Ricardo (Ecole Polytechnique Federale de Lausanne); Montesano, Luis (Universidad de Zaragoza); Minguez, Javier (Zaragoza University); Millán, José del R. (Swiss Federal Institute of Technology, Lausanne)</i> | |
| 14:45-15:00 | ThC15.6 |
| Spoken Sentences Decoding Based on Intracranial High Gamma Response Using Dynamic Time Warping | 3292-3295 |
| <i>Zhang, Dan (Tsinghua University); Gong, Enhao (Tsinghua University); Wu, Wei (Tsinghua University); Lin, Jiuluan (Tsinghua University); Zhou, WenJing (Tsinghua University.); Hong, Bo* (Tsinghua University)</i> | |

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| ThC16: 13:30-15:00 | Sapphire L |
| 6.6.2 Neuromuscular Systems II (Oral Session) | |
| Chair: Kearney, Robert Edward (<i>McGill Univ.</i>) | |
| Co-Chair: Agrawal, Sunil (<i>Univ. of Delaware</i>) | |

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| 13:30-13:45 | ThC16.1 |
| Taking Balance Measurement Out of the Laboratory and into the Home: Discriminatory Capability of Novel Centre of Pressure Measurement in Fallers and Non-Fallers | 3296-3299 |
| <i>McGrath, Denise (University College Dublin); Doheny, Emer* (Intel); Walsh, Lorcan (National University of Ireland Maynooth); McKeown, David J. (University College Dublin); Cunningham, Clodagh (St James' Hospital); Crosby, Lisa (St James's Hospital, Dublin); Kenny, Rose Anne (Trinity College Dublin); Stergiou, Nicholas (Nebraska Biomechanics Core Facility); Caulfield, Brian (UCD); Greene, Barry R. (Intel)</i> | |
| 13:45-14:00 | ThC16.2 |
| Displacement of Centre of Mass During Quiet Standing Assessed Using Accelerometry in Older Fallers and Non-Fallers | 3300-3303 |
| <i>Doheny, Emer* (Intel); McGrath, Denise (University College Dublin); Greene, Barry R. (Intel); Walsh, Lorcan (National University of Ireland Maynooth); McKeown, David J. (University College Dublin); Cunningham, Clodagh (St James' Hospital); Crosby, Lisa (St James's Hospital, Dublin); Kenny, Rose Anne (Trinity College Dublin); Caulfield, Brian (UCD)</i> | |

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| 14:00-14:15 | ThC16.3 |
| Joint Impedance Decreases During Movement Initiation | 3304-3307 |
| <i>Ludvig, Daniel* (Rehabilitation Institute of Chicago); Antos, Stephen A. (Northwestern University); Perreault, Eric (Northwestern University)</i> | |
| 14:15-14:30 | ThC16.4 |
| Muscle Synergies Are Consistent When Pedaling under Different Biomechanical Demands | 3308-3311 |
| <i>De Marchis, Cristiano* (Università degli Studi Roma Tre); Castronovo, Anna Margherita (University of Roma Tre); Bibbo, Daniele (Università degli Studi Roma TRE); Schmid, Maurizio (Roma Tre University); Conforto, Silvia (University Roma TRE)</i> | |
| 14:30-14:45 | ThC16.5 |
| Force Adaptation in Human Walking with Symmetrically Applied Downward Forces on the Pelvis | 3312-3315 |
| <i>Vashista, Vineet (University of Delaware); Agrawal, Neelima (Northwestern University); Shaharudin, Shazlin (University of Delaware); Reisman, Darcy S. (University of Delaware); Agrawal, Sunil* (University of Delaware)</i> | |
| 14:45-15:00 | ThC16.6 |
| Subspace Identification of Hammerstein Systems Using B-Splines | 3316-3319 |
| <i>Jaleleddini, Kian* (McGill University); Westwick, David (University of Calgary); Kearney, Robert Edward (McGill University)</i> | |
| ThC17: 13:30-15:00 Sapphire H | |
| 6.13.1 Modern Assistive Technologies for Rehabilitation and Daily Living (Oral Session) | |
| Chair: Ghovanloo, Maysam (<i>Georgia Inst. of Tech.</i>) | |
| Co-Chair: Mollazadeh, Mohsen (<i>Johns Hopkins Univ.</i>) | |
| 13:30-13:45 | ThC17.1 |
| Dynamic Image Pre-Compensation for Computer Access by Individuals with Ocular Aberrations | 3320-3323 |
| <i>Huang, Jian (Florida International University); Barreto, Armando* (Florida International University); Adjouadi, Malek (Florida International University)</i> | |
| 13:45-14:00 | ThC17.2 |
| The Personal Mobility and Manipulation Appliance (PerMMA): A Robotic Wheelchair with Advanced Mobility and Manipulation | 3324-3327 |
| <i>Wang, Hongwu (University of Pittsburgh); Grindle, Garrett (University of Pittsburgh); Candiotti, Jorge (University of Pittsburgh); Chung, Chengshiu (University of Pittsburgh); Shino, Motoki (the University of Tokyo); Houston, Elaine (University of Pittsburgh); Cooper, Rory* (University of Pittsburgh)</i> | |
| 14:00-14:15 | ThC17.3 |
| Alternative Design of Inductive Pointing Device for Oral Interface for Computers and Wheelchairs | 3328-3331 |
| <i>Lontis, Eugen Romulus* (Aalborg University); Andreasen Struijk, Lotte N. S. (Aalborg University)</i> | |
| 14:15-14:30 | ThC17.4 |
| Reliable Neural Interface: The First Quarter Century of the Neurotrophic Electrode | 3332-3335 |
| <i>Kennedy, Philip* (Neural Signals Inc.)</i> | |
| 14:30-14:45 | ThC17.5 |
| Preventing Lapse in Performance Using a Drowsiness Monitoring and Management System | 3336-3339 |
| <i>Huang, Kuan-Chih (National Chiao-Tung University); Jung, Tzyy-Ping* (University of California San Diego); Chuang, Chun-Hsiang (National Chiao-Tung University); Ko, Li-Wei (National Chiao-Tung University); Lin, Chin-Teng (National Chiao-Tung University)</i> | |
| 14:45-15:00 | ThC17.6 |
| An Investigation into Non-Invasive Physical Activity Recognition using Smartphones | 3340-3343 |
| <i>Kelly, Daniel* (University College Dublin); Caulfield, Brian (UCD)</i> | |

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| ThC19: 13:30-15:00 | Aqua 304 |
| 8.1.1 Modeling and Simulation in Biomechanics: Orthotics (Oral Session) | |
| Chair: Naemura, Kiyoshi (<i>Tokyo Univ. of Tech.</i>) | |
| Co-Chair: Cohen, Tamara L. (<i>Marquette Univ.</i>) | |

13:30-13:45 ThC19.1
Effect of Arching Spine on Deformation of the Ligamentum Flavum During Epidural Needle Insertion 3344-3347
Naemura, Kiyoshi (Tokyo University of Technology)*

13:45-14:00 ThC19.2
Specimen Specific, 3D Modeling of the Elbow – Prediction of Strain in the Medial Collateral Ligament .. 3348-3351
Buford, Jr., William L (The Univ of Texas Medical Branch); Snijders, Joris (Delft University of Technology, Delft, The Netherlands); Patel, Vikas (University of Texas Medical Branch); Curry, Michael (Baylor College of Medicine); Smith, Brian (University of Texas Medical Branch)*

14:00-14:15 ThC19.3
Creep Evaluation of (Orthotic) Cast Materials During Clubfoot Correction 3352-3355
Cohen, Tamara L. (Marquette University); Altiok, Haluk (Shriners Hospitals for Children, Chicago, IL); Tarima, Sergey (Medical College of Wisconsin); Smith, Peter (Shriners Hospital of Chicago); Harris, Gerald (Marquette University)*

14:15-14:30 ThC19.4
A Spherical Parallel Three Degrees-Of-Freedom Robot for Ankle-Foot Neuro-Rehabilitation 3356-3359
Malosio, Matteo (CNR); Negri, Simone Pio (ITIA-CNR); Pedrocchi, Nicola (Institute of Industrial Technology and Automation); Vicentini, Federico (CNR – National Research Council); Caimmi, Marco (ITIA-CNR and Ospedale Valduce); Molinari Tosatti, Lorenzo (CNR-ITIA)*

14:30-14:45 ThC19.5
Preliminary Assessment of the Efficacy of Supplementing Knee Extension Capability in a Lower Limb Exoskeleton with FES 3360-3363
Quintero, Hugo A. (Vanderbilt University); Ha, Kevin H. (Vanderbilt University); Farris, Ryan (Vanderbilt University); Goldfarb, Michael (Vanderbilt University)*

14:45-15:00 ThC19.6
An Optimized Model for Estimation of Muscle Contribution and Human Joint Torques from sEMG Information 3364-3367
R. Bueno, Diana (University of Zaragoza); Montano Gella, Luis (University of Zaragoza)*

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| ThD01: 15:00-16:30 | Indigo Ballroom |
| 1.2.8 Biomedical Simulation Involving Signal Processing Posters (Poster Session) | |

15:00-16:30 ThD01.1
Cole Function and Conductance-Based Parasitic Capacitance Compensation for Cerebral Electrical Bioimpedance Measurements 3368-3371
Atefi, Seyed Reza (Royal Institute of Technology (KTH)); Seoane, Fernando (University of Borås); Buendia, Ruben (Royal Institute of Technology, Stockholm KTH); Lindecrantz, Kaj (Royal Institute of Technology)*

15:00-16:30 ThD01.2
Time-Dependent Effects of Low-Frequency Repetitive Transcranial Magnetic Stimulation of the Supramarginal Gyrus 3372-3375
Torii, Tetsuya (Junshin Gakuen University); Sato, Aya (Junshin Gakuen University); Iwahashi, Masakuni (Junshin Gakuen University); Itoh, Yuji (Junshin Gakuen University); Iramina, Keiji (Kyushu University, Japan)*

15:00-16:30 ThD01.3
An Analog Circuit Implementation of a Huber-Braun Cold Receptor Neuron Model 3376-3379
Hermida, Raul (IMERL, Facultad de Ingenieria, Universidad de la Republica); Patrone, Martin (IFFI, Facultad de Ingenieria, Universidad de la Republica); Pijuan, Martin (IIE, Facultad de Ingenieria, Universidad de la Republica); Monzon, Pablo (IIE, Facultad de Ingenieria, Universidad de la Republica); Oreggioni, Julian (IIE, Facultad de Ingenieria, Universidad de la Republica)*

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| 15:00-16:30 | ThD01.4 |
| Spike-Feature Based Estimation of Electrode Position in Extracellular Neural Recordings | 3380-3383 |
| <i>Thorbergsson, Palmi Thor* (Lund University); Garwicz, Martin (Lund University); Schouenborg, Jens (Lund University); Johansson, Anders (Lund University)</i> | |
| 15:00-16:30 | ThD01.5 |
| Visualization of Orbital Flow by Means of Phase Contrast MRI | 3384-3387 |
| <i>Golzan, S.Mojtaba* (Macquarie University); Avolio, Alberto P (Macquarie University); Magnussen, John (Macquarie University); Graham, Stuart L (Macquarie University)</i> | |
| 15:00-16:30 | ThD01.6 |
| Architecture of a Mixed-mode Electrophysiological Signal Acquisition Interface | 3388-3391 |
| <i>Shen, Ding-Lan* (Fu Jen Catholic University); Chen, Jyun-Min (Fu Jen Catholic University)</i> | |
| 15:00-16:30 | ThD01.7 |
| On the Relationship between Features Extracted from EMG and Force for Constant and Dynamic Protocols | 3392-3395 |
| <i>Andrade, Adriano* (Federal University of Uberlandia); Andrade, Isabelle (Federal University of Uberlandia)</i> | |
| 15:00-16:30 | ThD01.8 |
| Biometric Sample Extraction Using Mahalanobis Distance in Cardioid Based Graph Using Electrocardiogram Signals | 3396-3399 |
| <i>Sidek, Khairul Azami* (RMIT University); Khalil, Ibrahim (RMIT University)</i> | |
| 15:00-16:30 | ThD01.9 |
| Evaluation and Adaptive Attenuation of the Cardiac Vibration Interference in Mechanomyographic Signals | 3400-3403 |
| <i>Sarlabous, Leonardo (Universitat Politècnica de Catalunya (UPC)); Torres, Abel* (Universitat Politècnica de Catalunya); Fiz Fernandez, José Antonio (Navarra Hospital); Morera Prat, Jose (Hospital Universitari Germans Trias i Pujol); Jané, Raimon (Institut de Bioenginyeria de Catalunya (IBEC))</i> | |
| 15:00-16:30 | ThD01.10 |
| ECG Signal Compression Using Compressive Sensing and Wavelet Transform.doc | 3404-3407 |
| <i>Kher, Rahul* (G H Patel College of Engineering & Technology); Mishra, Akanksha (G H Patel College of Engineering & Technology); Thakkar, Falgun (G H Patel College of Engineering & Technology); Modi, Chintan (G H Patel College of Engineering & Technology)</i> | |

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| ThD02: 15:00-16:30 | Indigo Ballroom |
| 1.2.9 Signal Processing in Physiological Systems Posters I (Poster Session) | |

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| 15:00-16:30 | ThD02.1 |
| Estimation of Arterial Baroreflex Sensitivity in Relation to Carotid Artery Stiffness | 3408-3411 |
| <i>Lipponen, Jukka* (University of Eastern Finland); Tarvainen, Mika (University of Eastern Finland); Laitinen, Tomi (Kuopio University Hospital); Karjalainen, Pasi, A (University of Eastern Finland); Vanninen, Joonas (Kuopio University Hospital, Department of Clinical Physiology and Nuclear Medicine); Koponen, Timo (Kuopio University Hospital, Department of Clinical Physiology and Nuclear Medicine); Lyyra-Laitinen, Tiina (Kuopio University Hospital)</i> | |
| 15:00-16:30 | ThD02.2 |
| Cerebral Cortex and Sub-Cortex Lateralization in Cardiovascular Regulation: Correlations of BOLD fMRI and Heart Rate Variability | 3412-3415 |
| <i>Kuoppa, Pekka* (University of Eastern Finland); Niskanen, Eini (University of Kuopio); Karjalainen, Pasi, A (University of Eastern Finland); Tarvainen, Mika (University of Eastern Finland)</i> | |

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| 15:00-16:30 | ThD02.3 |
| Detection of Baroreceptor Activity in Rat Vagal Nerve Recording Using a Multi-Channel Cuff-Electrode and Real-Time Coherent Averaging | 3416-3419 |
| <i>Plachta, Dennis T.T.* (University of Freiburg – IMTEK); Espinosa, Nayeli (Laboratory for Biomedical MicroTechnology Department of Microsystems Engineering University of Freiburg – IMTEK); Gierthmuehlen, Mortimer (Department of Neurosurgery University Freiburg); Cota, Oscar (Laboratory for Biomedical MicroTechnology Department of Microsystems Engineering University of Freiburg – IMTEK); Herrera, Taliana C. (Laboratory for Biomedical MicroTechnology Department of Microsystems Engineering University of Freiburg – IMTEK); Stieglitz, Thomas (University of Freiburg)</i> | |
| 15:00-16:30 | ThD02.4 |
| Association of Autonomic Nervous System and EEG Scalp Potential During Playing 2D Grand Turismo 5 | 3420-3423 |
| <i>Subhani, Ahmad Rauf (Universiti Teknologi PETRONAS); Likun, Xia* (Universiti Teknologi PETRONAS); Aamir, Saeed Malik (Universiti Teknologi PETRONAS)</i> | |
| 15:00-16:30 | ThD02.5 |
| Microgravity Effects on Ventricular Response to Heart Rate Changes | 3424-3427 |
| <i>Bolea, Juan* (Instituto de Investigación en Ingeniería de Aragón (I3A)Universidad de Zaragoza, Zaragoza Spain); Caiani, Enrico (Polytechnic of Milan); Pueyo, Esther (University of Zaragoza); Laguna, Pablo (Zaragoza University and CIBER-BBN); Almeida, Rute (CIBER de Biogeniería, Biomateriales y Nanomedicina)</i> | |
| 15:00-16:30 | ThD02.6 |
| A Combined Heartbeat Detector Based on Individual BCG and IPG Heartbeat Detectors | 3428-3431 |
| <i>Park, Dookun* (Stanford University); Inan, Omer (Stanford University); Giovangrandi, Laurent (Stanford University)</i> | |
| 15:00-16:30 | ThD02.7 |
| Heart Rate Variability Analysis As an Index of Emotion Regulation Processes: Interest of the Analgesia Nociception Index (ANI) | 3432-3435 |
| <i>De Jonckheere, Julien* (CHRU de Lille); Jeanne, Mathieu (CHRU de Lille); Logier, Regis (CHRU de Lille)</i> | |
| 15:00-16:30 | ThD02.8 |
| Analysis of Heart Rate Variability Using Time-Varying Filtering of Heart Transplanted Patients | 3436-3439 |
| <i>Meste, Olivier* (UNSA-CNRS); laouini, ghailen (UNS-CNRS)</i> | |
| 15:00-16:30 | ThD02.9 |
| Denosing of the Second Heart Sound Using Matching Pursuit | 3440-3443 |
| <i>Hedayioglu, Fabio* (Instituto de Telecomunicações); Jafari, Maria (Queen Mary, University of London); Mattos, Sandra (UCMF – Unidade de Cardiologia e Medicina Fetal); Plumbley, Mark (Queen Mary, University of London); Coimbra, Miguel (Instituto de Telecomunicações / Universidade do Porto)</i> | |
| 15:00-16:30 | ThD02.10 |
| Apnea-Hypopnea Index Estimation from Spectral Analysis of Airflow Recordings | 3444-3447 |
| <i>Gutierrez, Gonzalo Cesar (University of Valladolid); Hornero, Roberto (University Of Valladolid); Álvarez, Daniel (University of Valladolid, CIF: Q4718001C); Marcos Martin, Jose Victor (University of Valladolid – Grupo de Ingeniería Biomedica – CIF Q4718001C); Gomez, Carlos* (University of Valladolid, CIF: Q4718001C); del Campo, Félix (Hospital del Río Hortega)</i> | |
| 15:00-16:30 | ThD02.11 |
| Thoraco-Abdominal Asynchrony in Children During Quiet Sleep Using Hilbert Transform | 3448-3451 |
| <i>Immanuel, Sarah Anita* (University of Adelaide); Kohler, Mark (University of South Australia); Pamula, Yvonne (Adelaide Women’s and Children’s Hospital); Kabir, Muammar Muhammad (The University of Adelaide); Saint, David (University of Adelaide); Baumert, Mathias (The University of Adelaide)</i> | |
| 15:00-16:30 | ThD02.12 |
| Sleep-Wake Detection Based on Respiratory Signal Acquired through a Pressure Bed Sensor | 3452-3455 |
| <i>Guerrero-Mora, Guillermina (Universidad Autonoma de San Luis Potosi); Palacios, Elvia (Universidad Autonoma de San Luis Potosi); Bianchi, Anna Maria (Politecnico di Milano); Kortelainen, Juha Matti (VTT); Mendez, Martin Oswaldo (Universidad Autonoma de San Luis Potosi); Arce-Santana, Edgar Roman (Facultad de Ciencias); Gutierrez-Navarro, Omar* (Universidad Autonoma de San Luis Potosi)</i> | |

1.2.10 Signal Processing in Physiological Systems Posters II (Poster Session)

- 15:00-16:30 ThD03.1
Assessment of Photoplethysmogram Signal Quality Using Morphology Integrated with Temporal Information Approach 3456-3459
Sun, Xuxue (SIAT); Yang, Ping (Chinese Academy of Sciences); Zhang, Yuan-Ting (The Chinese University of Hong Kong)*
- 15:00-16:30 ThD03.2
A Noninvasive Temperature Measuring System for Estimating Deep Body Temperature in Bed 3460-3463
Sim, Soo Young (Seoul National University); Lee, Won Kyu (Seoul National University); Baek, Hyun Jae (Seoul National University); Park, Kwang S. (Seoul National University)*
- 15:00-16:30 ThD03.3
A New Method of Saccadic Eye Movement Detection for Optokinetic Nystagmus Analysis 3464-3467
Pander, Tomasz (Silesian University of Technology, Institute of Electronics); Czabanski, Robert (Silesian University of Technology, Institute of Electronics); Przybyla, Tomasz (Silesian University of Technology, Institute of Electronics); Wilczek-Pojda, Dorota (Medical University Of Silesia, Department of Ophthalmology); Wrobel, Janusz (Institute of Medical Technology and Equipment); Horoba, Krzysztof (Institute of Medical Technology and Equipment); Bernys, Marek (Institute of Medical Technology and Equipment, Biomedical Signal Processing Department)*
- 15:00-16:30 ThD03.4
Modeling the Impulse Response between Pairs of EMG Signals to Estimate Conduction Delay Distribution 3468-3471
Hassan, Tahsin (WPI/MathWorks); McIntosh, Kyle (Brock University, Canada); Gabriel, David (Brock University, Canada); Clancy, Edward A. (Worcester Polytechnic Institute)*
- 15:00-16:30 ThD03.5
Simultaneously Extracted Transient and Steady-State Evoked Responses During General Anesthesia: Variability of Different Rates 3472-3475
Castro-Llanos, Alexander (University of Miami); Bohorquez, Jorge (University of Miami); McNeer, Richard (University of Miami); Ozdamar, Ozcan (University of Miami)*
- 15:00-16:30 ThD03.6
Epoch Length and Autoregressive-Order Selection for Electromyography Signals 3476-3479
Itiki, Cinthia (Escola Politecnica of the University of Sao Paulo)*
- 15:00-16:30 ThD03.8
Sleep EMG Analysis Using Sparse Signal Representation and Classification 3480-3483
Shokrollahi, Mehrnaz (Ryerson University); Krishnan, Sridhar (Ryerson University)*
- 15:00-16:30 ThD03.9
Fractal Based Complexity Measure and Variation in Force During Sustained Isometric Muscle Contraction: Effect of Aging 3484-3487
Poosapadi Arjunan, Sridhar (RMIT University); Kant Kumar, Dinesh (RMIT University)*
- 15:00-16:30 ThD03.10
Perfusion and Bone Mineral Density As Function of Vertebral Level at Lumbar Spine 3488-3491
Ma, Heather Ting (Harbin Institute of Technology Shenzhen Graduate School); Lv, Haiyan (Harbin Institute of Technology Shenzhen Graduate School); Griffith, James F (The Chinese University of Hong Kong); Li, Alvin (The Chinese University of Hong Kong); Yeung, David (The Chinese University of Hong Kong); Leung, Jason (The Chinese University of Hong Kong); Leung, Ping-chung (the Chinese University of Hong Kong)*
- 15:00-16:30 ThD03.11
Algorithm for an Implantable Fluorescence Based Glucose Sensor 3492-3495
Wang, Xiaolin (Sensors for Medicine and Science, Inc.); Mdingi, Colleen (Sensors for Medicine and Science, Inc.); DeHennis, Andrew (Sensors for Medicine and Science, Inc.); Colvin, Arthur (Sensors for Medicine and Science, Inc.)*

15:00-16:30 ThD03.12
Cross-Correlation between Head Acceleration and Stabilograms in Humans in Orthostatic Posture 3496-3499
Teixeira, Felipe (Federal University of Rio de Janeiro); Jesus, Igor Ramathur (Federal University of Rio de Janeiro); Mello, Roger Gomes Tavares (Naval School, Brazilian Navy); Nadal, Jurandir (Federal University of Rio de Janeiro)*

ThD04: 15:00-16:30 Indigo Ballroom
1.2.11 Signal Processing in Physiological Systems Posters III (Poster Session)

15:00-16:30 ThD04.1
A Physiologically Motivated ECoG Segmentation Method for Epileptic Seizure Onset Zone Detection ... 3500-3503
Graef, Andreas (Vienna University of Technology); Flamm, Christoph (Vienna University of Technology); Pirker, Susanne (Neurological Department Rosenhügel at General Hospital Hietzing); Deistler, Manfred (Vienna University of Technology); Baumgartner, Christoph (Neurological Department Rosenhügel at General Hospital Hietzing, Vienna, Austria)*

15:00-16:30 ThD04.2
Assisting Autistic Children with Wireless EOG Technology 3504-3506
Rapela, Joaquin (University of California San Diego); Jung, Tzyy-Ping (University of California San Diego); Lin, Tsong-Yan (University of California, Sand Diego)*

15:00-16:30 ThD04.3
Evaluation Study of Compressed Sensing for Neural Spike Recordings 3507-3510
Bulach, Christoph (University of Ulm); Bihl, Ulrich (University of Ulm); Ortmanns, Maurits (University of Ulm)*

15:00-16:30 ThD04.4
Removal of Blink Artifacts in Single Channel EEG 3511-3514
Szibbo, Dyana (NeuroSky); Luo, An (Columbia University); Sullivan, Thomas (Neurosky)*

15:00-16:30 ThD04.5
An Adaptive Strategy of Classification for Detecting Hypoglycemia Using Only Two EEG Channels 3515-3518
Nguyen, Lien B. (University of Technology, Sydney); Nguyen, Anh V. (University of Technology, Sydney); Ling, Steve (University of Technology Sydney); Nguyen, Hung T. (University of Technology, Sydney)*

15:00-16:30 ThD04.6
Characterization of Memory Load in an Arithmetic Task Using Non-Linear Analysis of EEG Signals 3519-3522
Zarjam, Pega (University of New South Wales); Epps, Julien (The University of New South Wales); Lovell, Nigel H. (University of New South Wales); Chen, Fang (National ICT Australia (NICTA))*

15:00-16:30 ThD04.7
Removal of Peak and Spike Noise in EEG Signals Based on the Analytic Signal Magnitude 3523-3526
Melia, Umberto Sergio Pio (Universitat Politècnica de Catalunya); Claria, Francesc (Lleida University); Vallverdu, Montserrat (Universitat Politècnica de Catalunya); Caminal, Pere (Technical University of Catalonia (UPC))*

15:00-16:30 ThD04.8
Investigating Linear Superposition of Multi-Species Neurotransmitter Voltammetric Measurements In-Vitro 3527-3530
Azzopardi, Carl (University of Malta); Azzopardi, Marc Anthony (University of Malta); Muscat, Richard (University of Malta); Camilleri, Kenneth Patrick (University of Malta)*

ThD05: 15:00-16:30 Indigo Ballroom
1.2.12 Signals and Systems (Poster Session)

15:00-16:30 ThD05.1
Novel Cross Correlation Technique Allows Crosstalk Resistant Reflex Detection from Surface EMG 3531-3534
Jensen, Michael Brun (Aalborg University); Frahm, Ken Steffen (Aalborg University); Biurrun Manresa, José Alberto (Aalborg University); Andersen, Ole Kæseler (Aalborg University)*

15:00-16:30 ThD05.2
Optical Transcutaneous Link for Low Power, High Data Rate Telemetry 3535-3538
Liu, Tianyi (University of Ulm); Bihr, Ulrich (University of Ulm); Anis, Syed Muhammad (University of Ulm); Ortmanns, Maurits (University of Ulm)*

15:00-16:30 ThD05.3
An Approach to Controlled Drug Infusion Via Tracking of the Time-Varying Dose-Response 3539-3542
Malagutti, Nicolo (The Australian National University); Dehghani, Arvin (The University of Melbourne); Kennedy, Rodney Andrew (The Australian National University)*

15:00-16:30 ThD05.4
Compact Digital Implementation of a Quadratic Integrate-And-Fire Neuron 3543-3548
Basham, Eric (San Jose State University); Parent, David (San Jose State University)*

15:00-16:30 ThD05.5
Preliminary Results of Mental Workload and Task Engagement Assessment Using Electroencephalogram in a Space Suit 3549-3552
Rabbi, Ahmed Fazle (University of North Dakota); zony, abongwa (University of north dakota); De Leon, Pablo (University of North Dakota); Fazel-Rezai, Reza (University of North Dakota)*

15:00-16:30 ThD05.6
Timing Detection and Seismocardiography Waveform Extraction 3553-3556
Zhang, Jianzhong Charlie (Samsung Telecommunications America); Nguyen, Hoang (Samsung Telecommunications America); Nam, Young-Han (Samsung Telecommunications America)*

ThD06: 15:00-16:30 Indigo Ballroom
6.6.4 Motor Learning, Neural Control, and Neuromuscular Systems Posters I (Poster Session)

15:00-16:30 ThD06.1
User-In-The-Loop Continuous and Proportional Control of a Virtual Prosthesis in a Posture Matching Task 3557-3559
Pulliam, Christopher (Case Western Reserve University); Lambrecht, Joris (Case Western Reserve University); Kirsch, Robert (Case Western Reserve University)*

15:00-16:30 ThD06.2
Aftereffects of Robotic-Assisted Treadmill Walking on the Locomotor Pattern in Humans 3560-3563
Kamibayashi, Kiyotaka (University of Tsukuba); Kawamoto, Hiroaki (University of Tsukuba); Sankai, Yoshiyuki (University of Tsukuba)*

15:00-16:30 ThD06.3
Motivating Arm-Hand Use for Stroke Patients by Serious Games 3564-3567
Delbressine, Frank (Eindhoven University of Technology); Timmermans, Annick A.A. (Adelante and Maastricht University); Beurgens, Luuk (Netherlands); Jong de, Maaik (Eindhoven University); Dam van, Alexander (Eindhoven University of Technology); Janssen, M (Eindhoven University of Technology); Verweij, David (Eindhoven University of Technology); Markopoulos, Panos (Eindhoven University of Technology)*

15:00-16:30 ThD06.4
Truncation Effects on Muscular Fatigue Indexes Based on M Waves Analysis 3568-3571
Yochum, Maxime (Université de Bourgogne); Bakir, Toufik (LE2I UMR CNRS 5158 Université de Bourgogne); Lepers, Romuald (INSERM U887, Université de Bourgogne); Binczak, Stéphane (Université de Bourgogne)*

15:00-16:30 ThD06.5
A Mechanism for Eye Position Effects on Spontaneous Nystagmus 3572-3575
Khojasteh, Elham (University Hospital Zurich); Bockisch, Christopher (Zurich University Hospital); Straumann, Dominik (Zurich University Hospital); Hegemann, Stefan (University hospital Zurich)*

15:00-16:30 ThD06.6
A Simulation Study: Effect of the Inter-Electrode Distance, Electrode Size and Shape in Transcutaneous Electrical Stimulation 3576-3579
Gomez Tames, Jose David (Chiba University); Gonzalez, Jose (Chiba University); Yu, Wenwei (University of Chiba)*

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| 15:00-16:30 | ThD06.7 |
| Examination of Afterhyperpolarization Duration Changes in Motoneurons Innervating Paretic Muscles in Stroke Survivors | 3580-3583 |
| <i>Suresh, Aneesha* (Northwestern University); Hu, Xiaogang (Rehabilitation Institute of Chicago); Powers, Randall (University of Washington); Rymer, William Zev (Northwest. & Rehab Inst of Chicago)</i> | |
| 15:00-16:30 | ThD06.8 |
| Training Complexity Is Not Decisive Factor for Improving Adaptation to Visual Sensory Conflict | 3584-3587 |
| <i>Yang, Yang (Beihang University); Pu, Fang (Beihang University); Li, Shuyu (Beihang University); Li, Yan (Beihang University); Li, Deyu* (Beihang University); Fan, Yubo (Beihang University)</i> | |
| 15:00-16:30 | ThD06.9 |
| Wavelet Transform Coherence Based Investigation of Existence of Relationship between the Cardiovascular and Postural Control Systems During Orthostatic Challenge | 3588-3591 |
| <i>Garg, Amanmeet* (Simon Fraser University); Blaber, Andrew Philip (Simon Fraser University)</i> | |
| 15:00-16:30 | ThD06.10 |
| Electromyographic Study in 5 Muscles During an Isometric Fatiguing Protocol | 3592-3595 |
| <i>Santhomé, Larissa Di Oliveira (University of Brasilia); Peixoto, Luciana Roberta Tenório* (University of Brasilia); Guimarães, Cláudia Mendes (University of Brasilia); da Rocha, Adson F. (University of Brasilia); Soares, Fabiano (University of Brasilia – UnB); Goncalves, Carlos Alberto (University of Brasilia)</i> | |
| 15:00-16:30 | ThD06.11 |
| A Modified Multi-Channel EMG Feature for Upper Limb Motion Pattern Recognition | 3596-3599 |
| <i>Tsai, An-Chih (National Taiwan University); Luh, Jer-Junn (National Taiwan University); Lin, Ta-Te* (National Taiwan University)</i> | |
| 15:00-16:30 | ThD06.12 |
| Audio-Visual Feedback for Electromyographic Control of Vowel Synthesis | 3600-3603 |
| <i>Larson, Eric (University of Washington); Terry, Howard (Boston University); Stepp, Cara* (Boston University)</i> | |
| 15:00-16:30 | ThD06.13 |
| Using Spike-Triggered Averaging to Characterize Motor Unit Twitch Vectors in the First Dorsal Interosseous | 3604-3607 |
| <i>Suresh, Nina* (Rehabilitation Institute of Chicago); Rymer, William Zev (Northwest. & Rehab Inst of Chicago); Heckman, CJ (Feinberg School of Medicine, Northwestern University); Kuo, Arthur (University of Michigan)</i> | |

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| ThD07: 15:00-16:30 | Indigo Ballroom |
| 6.6.5 Motor Learning, Neural Control, and Neuromuscular Systems Posters II (Poster Session) | |

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| 15:00-16:30 | ThD07.1 |
| Modifications of Muscle Synergies and Spinal Maps Due to Absence of Visual Feedback in Patients with Unilateral Vestibular Disease | 3608-3611 |
| <i>Monaco, Vito (Scuola Superiore Sant'Anna, Pisa); Martelli, Dario (The BioRobotics Institute, Scuola Superiore Sant'Anna, Pisa (I).); Nacci, Andrea (Otolaryngology Unit, Ospedale Cisanello, Pisa (I).); Fattori, Bruno (Otolaryngology Unit, Ospedale Cisanello, Pisa (I).); Berrettini, Stefano (Otolaryngology Unit, Ospedale Cisanello, Pisa (I).); Micera, Silvestro* (Scuola Superiore Sant'Anna)</i> | |
| 15:00-16:30 | ThD07.2 |
| Neuromuscular Adaptations During Submaximal Prolonged Cycling | 3612-3615 |
| <i>Castronovo, Anna Margherita* (University of Roma Tre); De Marchis, Cristiano (Università degli Studi Roma Tre); Bibbo, Daniele (Università degli Studi Roma TRE); Conforto, Silvia (University Roma TRE); Schmid, Maurizio (Roma Tre University); d'alessio, Tommaso (University Roma TRE)</i> | |
| 15:00-16:30 | ThD07.3 |
| Na⁺ Channels at Postsynaptic Muscle Membrane Affects Synaptic Transmission at Neuromuscular Junction: A Simulation Study | 3616-3619 |
| <i>Mahmud, Mufti* (University of Padova); Rahman, Mohammed Mostafizur (University of Padova)</i> | |

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| 15:00-16:30 | ThD07.4 |
| Design of a Gait Training Device for Control of Pelvic Obliquity | 3620-3623 |
| <i>Pietrusinski, Maciej (North Eastern University); Severini, Giacomo (Univeristà degli Studi Roma Tre); Cajigas, Iahn (MIT); Mavroidis, Constantinos (Northeastern University); Bonato, Paolo* (Harvard Medical School)</i> | |
| 15:00-16:30 | ThD07.5 |
| Extraction of Muscle Synergies Using Temporal Segmentation of the Record: A Preliminary Analysis ... | 3624-3627 |
| <i>Tropea, Peppino* (Scuola Superiore Sant'Anna); Monaco, Vito (Scuola Superiore Sant'Anna, Pisa); Micera, Silvestro (Scuola Superiore Sant'Anna)</i> | |
| 15:00-16:30 | ThD07.6 |
| Estimation of Excitatory Drive from Sparse Motoneuron Sampling | 3628-3631 |
| <i>Li, Yao* (University of Southern California); Smith, Lauren (Northwestern University); Hargrove, Levi (Rehabilitation Institute of Chicago); Weber, Douglas (University of Pittsburgh); Loeb, Gerald (University of Southern California)</i> | |
| 15:00-16:30 | ThD07.7 |
| Modular Control of Mediolateral Postural Sway | 3632-3635 |
| <i>Torricelli, Diego* (Grupo de Bioingenieria, CSIC); Aleixandre, Manuel (CSIC); Alguacil Diego, Isabela (Rey Juan Carlos University); Cano de la Cuerda, Roberto (Rey Juan Carlos University); Molina Rueda, Francisco (Rey Juan Carlos University); Carratalá Tejada, Maria (Rey Juan Carlos University); Piazza, Stefano (Consejo Superior de Investigaciones Científicas (CSIC)); Pons, Jose Luis (Instituto de Automática Industrial)</i> | |
| 15:00-16:30 | ThD07.8 |
| Relating Plastic Changes of Short Latency Human Soleus Stretch Reflex to Changes in Task Performance Induced by Training | 3636-3639 |
| <i>Kundert, Robinson (ETH Zuerich); Yagi, Tohru* (Tokyo Institute of Technology)</i> | |

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| ThE01: 16:30-18:00 | Sapphire A |
| 1.2.4 Signal Processing in Physiological Systems II (Oral Session) | |
| Chair: Bianchi, Anna Maria (<i>Pol. di Milano</i>) | |
| Co-Chair: Jané, Raimon (<i>Inst. de Bioenginyeria de Catalunya (IBEC)</i>) | |

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| 16:30-16:45 | ThE01.1 |
| Acoustical Flow Estimation in Patients with Obstructive Sleep Apnea During Sleep | 3640-3643 |
| <i>Yadollahi, Azadeh* (University of Toronto); Azarbarzin, Ali (The University of Manitoba); Montazeripouragha, Amanallah (University of Manitoba); Moussavi, Zahra (University of Manitoba)</i> | |
| 16:45-17:00 | ThE01.2 |
| Modulation of Finger Photoplethysmographic Traces During Forced Respiration: Venous Blood in Motion? | 3644-3647 |
| <i>Phillips, Justin* (City University London); belhaj, Alla (Barts and the London); Shafqat, Kamran (City University); Langford, Richard (St Bartholomew's Hospital); Shelley, Kirk H. (Department of Anesthesiology, Yale University); Kyriacou, Panayiotis (City University London)</i> | |
| 17:00-17:15 | ThE01.3 |
| Relationship of Respiratory Sounds to Alterations in the Upper Airway Resistance | 3648-3651 |
| <i>Yadollahi, Azadeh* (University of Toronto); Hisham, Alshaer (Toronto Rehabilitation Inst); Radfar, Hossein (University of Toronto); Bradley, T. Douglas (University of Toronto)</i> | |
| 17:15-17:30 | ThE01.4 |
| Cardiorespiratory Coupling During Sleep in Difficult-To-Control Asthmatic Patients | 3652-3655 |
| <i>Cabiddu, Ramona (Politecnico di Milano); Aletti, Federico* (Politecnico di Milano); Duarte Souza, Valéria (Universidade Nove de Julho); Peres Costa, Ivan (Universidade Nove de Julho); Stirbulov, Roberto (Hospital Santa Casa de Misericórdia de Sao Paulo); Borghi Silva, Audrey (Universidade Federal de Sao Carlos); Bianchi, Anna Maria (Politecnico di Milano); Oliveira, Luis Vicente Franco de (Rehabilitation Sciences Master's Program, Nove de Julho University (UNINOVE)); Cerutti, Sergio (Politecnico di Milano); Malosà Sampaio, Luciana Maria (Universidade Nove de Julho)</i> | |

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| 17:30-17:45 | ThE01.5 |
| A Novel Method to Assist the Detection of the Cyclic Alternating Pattern (CAP) | 3656-3659 |
| <i>Tenorio Orta, José Manuel (Universidad Autónoma de San Luis Potosí); Alba, Alfonso (Universidad Autónoma de San Luis Potosí); Mendez, Martín Oswaldo (Universidad Autónoma de San Luis Potosí); Bianchi, Anna Maria (Politecnico di Milano); Grassi, Andrea (Sleep Disorders Centre, Department of Neurology, University of Parma, Parma, Italy); Arce-Santana, Edgar Roman (Facultad de Ciencias); Chouvarda, Ioanna (Aristotle University); Mariani, Sara (Politecnico di Milano); Rosso, Valentina (Sleep Disorders Centre, Department of Neurology, University of Parma, Parma, Italy); Terzano, Mario Giovanni (Sleep Disorders Centre, Department of Neurology, University of Parma, Parma, Italy); Parrino, Liborio (Sleep Disorders Centre, Department of Neurology, University of Parma, Parma, Italy); Reducindo, Isnardo* (Universidad Autónoma de San Luis Potosí)</i> | |
| 17:45-18:00 | ThE01.6 |
| Sleep-Quality Assessment from Full Night Audio Recordings of Sleep Apnea Patients | 3660-3663 |
| <i>Dafna, Eliran (Ben-Gurion University of the Negev); Tarasiuk, Ariel (Ben-Gurion University); Zigel, Yaniv* (Ben-Gurion University of the Negev)</i> | |
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| ThE02: 16:30-18:00 | Sapphire D |
| 1.3.3 Model-free and Non-linear Interdependence Measures for Neurophysiological and Cardiovascular Time Series Analysis (Oral Session) | |
| Chair: Faes, Luca (<i>Univ. of Trento</i>) | |
| Co-Chair: Porta, Alberto (<i>Univ. degli Studi di Milano</i>) | |
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| 16:30-16:45 | ThE02.1 |
| Cardiovascular and Cardiorespiratory Coupling in Unmedicated Schizophrenic Patients in Comparison to Healthy Subjects | 3664-3667 |
| <i>Schulz, Steffen (University of Applied Sciences Jena); Bär, Karl-Jürgen (Friedrich-Schiller-University of Jena); Voss, Andreas* (University of Applied Sciences Jena)</i> | |
| 16:45-17:00 | ThE02.2 |
| Expanding the Transfer Entropy to Identify Information Subgraphs in Complex Systems | 3668-3671 |
| <i>Stramaglia, Sebastiano* (University of Bari, Italy, and INFN Sezione di Bari, Italy); Wu, Guorong (Faculty of Psychology and Educational Sciences, Department of Data Analysis, Ghent University); Pellicoro, Mario (University of Bari, Italy, and INFN Sezione di Bari, Italy); Marinazzo, Daniele (Faculty of Psychology and Educational Sciences, Department of Data Analysis, Ghent University)</i> | |
| 17:00-17:15 | ThE02.3 |
| Compensating for Instantaneous Signal Mixing in Transfer Entropy Analysis of Neurobiological Time Series | 3672-3675 |
| <i>Faes, Luca* (University of Trento); Erla, Silvia (University of Trento); Nollo, Giandomenico (University of Trento)</i> | |
| 17:15-17:30 | ThE02.4 |
| Revisiting Wiener's Principle of Causality – Interaction-Delay Reconstruction Using Transfer Entropy and Multivariate Analysis on Delay-Weighted Graphs | 3676-3679 |
| <i>Wibral, Michael* (Goethe University); Patricia, Wollstadt (Meg Unit, Brain Imaging Center, Goethe University Frankfurt); Meyer, Ulrich (Algorithm Engineering Group, Institute of Computer Science, Goethe University, Frankfurt); Pampu, Nicolae (Center for Cognitive and Neural Studies (Coneural), Cluj-Napoca); Priesemann, Viola (Dept. Neural Systems and Coding, Max Planck Institute for Brain Research, Frankfurt); Vicente, Raul (Frankfurt Institute for Advanced Studies, Goethe University, Frankfurt)</i> | |
| 17:30-17:45 | ThE02.5 |
| Joint Symbolic Dynamics As a Model-Free Approach to Study Interdependence in Cardio-Respiratory Time Series | 3680-3683 |
| <i>Baumert, Mathias* (The University of Adelaide); Brown, Rachael (University of Western Sydney); Duma, Stephen (University of New South Wales); Broe, G Anthony (University of New South Wales); Kabir, Muammar Muhammad (The University of Adelaide); Macefield, Vaughan (University of Western Sydney)</i> | |
| 17:45-18:00 | ThE02.6 |
| Granger Causality in Cardiovascular Variability Series: Comparison between Model-Based and Model-Free Approaches | 3684-3687 |
| <i>Porta, Alberto* (Universita' degli Studi di Milano); Bassani, Tito (Politecnico di Milano); Bari, Vlasta (University of Milan, Milan, Italy); Guzzetti, Stefano (Department of Emergency, L. Sacco Hospital, Milan, Italy)</i> | |

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| ThE03: 16:30-18:00 | Sapphire E |
| 1.4.4 Biomedical Signal Classification V (Oral Session) | |
| Chair: Babiloni, Fabio (<i>Univ. of Rome</i>) | |
| Co-Chair: Bardakjian, Berj Luther (<i>Univ. of Toronto</i>) | |

16:30-16:45 ThE03.1
Detecting Parkinsons' Symptoms in Uncontrolled Home Environments: A Multiple Instance Learning Approach 3688-3691
Das, Samarjit (Carnegie Mellon University); Amoedo, Breogan (Carnegie Mellon University); Torre, Fernando De la (Carnegie Mellon University); Hodgins, Jessica (Carnegie Mellon University)*

16:45-17:00 ThE03.2
Quantitative Assessment of Magnetic Sensor Signal Processing Algorithms in a Wireless Tongue-Operated Assistive Technology 3692-3695
Ayala-Acevedo, Abner (Georgia Institute of Technology); Ghovanloo, Maysam (Georgia Institute of Technology)*

17:00-17:15 ThE03.3
Spatial Sparsity Based Indoor Localization in Wireless Sensor Network for Assistive Healthcare 3696-3699
Pourhomayoun, Mohammad (Binghamton University); Jin, Zhanpeng (Binghamton University, SUNY); Fowler, Mark (State University of New York)*

17:15-17:30 ThE03.4
Dynamic Minimum Pause Threshold Estimation for Speech Analysis in Studies of Cognitive Function in Ageing 3700-3703
Rochford, Ivan (Trinity College Dublin); Rapcan, Viliam (Trinity College Dublin); D'Arcy, Shona (Trinity College Dublin); Reilly, Richard (Trinity College Dublin)*

17:30-17:45 ThE03.5
Vestibular Spontaneous Response as a Potential Signature for Parkinson's Disease 3704-3707
Dastgheib, Zeinab Alsadat (University of Manitoba); Lithgow, Brian (Alfred Hospital); Moussavi, Zahra (University of Manitoba)*

17:45-18:00 ThE03.6
Objective Child Behavior Measurement with Naturalistic Daylong Audio Recording and Its Application to Autism Identification 3708-3711
Xu, Dongxin (LENA Research Foundation); Gilkerson, Jill (LENA Foundation); Richards, Jeff (LENA Foundation)*

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| ThE04: 16:30-18:00 | Sapphire 412 |
| 2.3.6 Optical Imaging III (Oral Session) | |
| Chair: Chen, Zhongping (<i>Univ. of California, Irvine</i>) | |
| Co-Chair: Jiao, Shuliang (<i>Univ. of Southern California</i>) | |

16:30-16:45 ThE04.1
Quantification of Cy-5 siRNA Signal in the Intra-Vital Multi-Photon Microscopy Images 3712-3715
Chen, Antong (Merck Research Labs); Dogdas, Belma (Merck Research Labs); Mehta, Saurin (Merck Research Labs); Bagchi, Ansuman (Merck Research Labs); Kathleen, Haskell (Merck Research Labs); Ng, Bruce (Merck Research Labs); Keough, Edward (Merck Research Labs); Howell, Bonnie (Merck Research Labs); Meacham, David Adam (Merck Research Labs); Aslamkhan, Amy G. (Merck Research Labs); Davide, Joseph (Merck Research Labs); Stanton, Matthew (Merck Research Labs); Sepp-Lorenzino, Laura (Merck Research Labs); Tao, Weikang (Merck Research Labs)*

16:45-17:00 ThE04.2
Single Camera System for Multi-Wavelength Fruorescent Imaging in the Heart 3716-3719
Yamanaka, Takeshi (The University of Tokyo); Arafune, Tatsuhiko (The University of Tokyo); Shibata, Nitao (Tokyo Metropolitan Health and Medical Treatment Corporation Ohkubo Hospital); Honjo, Haruo (Nagoya University); Kamiya, Kaichiro (Nagoya University); Kodama, Itsuo (Nagoya University); Sakuma, Ichiro (The University of Tokyo)*

17:00-17:15 ThE04.3
Variable Field-Of-View Visible and Near-Infrared Polarization Compound-Eye Endoscope 3720-3723
Kagawa, Keiichiro (Shizuoka University); Shogenji, Rui (Shizuoka University); Tanaka, Eiji (Panasonic Electronic Devices Co., Ltd.); Yamada, Kenji (Osaka University); Kawahito, Shoji (Shizuoka University); Tanida, Jun (Osaka University)*

17:15-17:30 ThE04.4
Analysis of Tight Junction Formation and Integrity 3724-3727
Karakaya, Mahmut (Oak Ridge National Laboratory); Kerekes, Ryan (Oak Ridge National Laboratory); Morrell-Falvey, Jennifer (Oak Ridge National Laboratory); Foster, Carmen M (Oak Ridge National Labs); Retterer, Scott (Oak Ridge National Laboratory)*

17:30-17:45 ThE04.5
Melanoma Screening System Using Hyperspectral Imager Attached to Imaging Fiberscope 3728-3731
Nagaoka, Takashi (Waseda University); Nakamura, Atsushi (Waseda University); Kiyohara, Yoshio (Shizuoka Cancer Center Hospital); Sota, Takayuki (Science & Engineering, Waseda University)*

ThE05: 16:30-18:00 Sapphire I
2.4.3 Computational Modeling and Clinical Applications in Abdominal Imaging I (Oral Session)
Chair: Yoshida, Hiro (*Massachusetts General Hospital / Harvard Medical School*)
Co-Chair: Drechsler, Klaus (*Fraunhofer Inst. for Computer Graphics Res. (IGD)*)

16:30-16:45 ThE05.1
Establishing Spatial Correspondence for the Analysis of Images from Highly Deforming Anatomy 3732-3735
Hawkes, David J (University College London); Mertzaniidou, Thomy (UCL); Hipwell, John (UCL); atkinson, David (UCL); roth, Holger (UCL); Hampshire, Tom (UCL); McClelland, Jamie (UCL)*

16:45-17:00 ThE05.2
Virtual Tagging for Electronic Cleansing in Dual-Energy Fecal-Tagging CT Colonography 3736-3739
Cai, Wenli (Massachusetts General Hospital and Harvard Medical School); Yoshida, Hiro (Massachusetts General Hospital / Harvard Medical School)*

17:00-17:15 ThE05.3
Volumetric Detection of Colorectal Lesions for Noncathartic Dual-Energy Computed Tomographic Colonography 3740-3743
Näppi, Janne Johannes (Massachusetts General Hospital and Harvard Medical School); Kim, Se Hyung (Seoul National University Hospital); Yoshida, Hiro (Massachusetts General Hospital / Harvard Medical School)*

17:15-17:30 ThE05.4
Interventional Planning of Liver Resections: An Overview 3744-3747
Drechsler, Klaus (Fraunhofer Institute for Computer Graphics Research (IGD))*

17:30-17:45 ThE05.5
Towards More Precise, Minimally-Invasive Tumour Treatment under Free Breathing 3748-3751
Preiswerk, Frank (University of Basel); Arnold, Patrik (University of Basel, Switzerland); Fasel, Beat (University of Basel, Switzerland); Cattin, Philippe C. (University of Basel, Switzerland)*

17:45-18:00 ThE05.6
A Semi-Automatic Approach to the Segmentation of Liver Parenchyma from 3D CT Images with Extreme Learning Machine 3752-3755
Huang, Weimin (Institute for Infocomm Research, Agency for Science Technology and Research); Tan, Zu Ming (Nanyang Technological University); Lin, Zhiping (Nanyang Technological University); Huang, Guang-bin (Nanyang Technological University); Zhou, Jiayin (Institute for Infocomm Research); Chui, Chee Kong (National University of Singapore); Su, Yi (Institute of High Performance Computing); Chang, Stephen KY (National University of Singapore)*

ThE08: 16:30-18:00

Sapphire 400

3.4.6 Physiological Monitoring III (Oral Session)

Chair: Soussou, Walid (*Quantum Applied Science & Res. Inc. (QUASAR)*)

Co-Chair: Bragos, Ramon (*Tech. Univ. of Catalonia (UPC)*)

16:30-16:45

ThE08.1

Analysis of the Voltage Response to Identify Macromolecule Quantities in an Electrolyte 3756-3759

Duo, Duojinshen (UNSW); Matteucci, Paul Brendan (University of New South Wales); Byrnes-Preston, Philip (The University of New South Wales); Suaning, Gregg (The University of New South Wales)*

16:45-17:00

ThE08.2

Integrated Device for the Measurement of Systemic and Local Oxygen Transport During Physical Exercise 3760-3763

Pollonini, Luca (University of Houston); re, rebecca (Politecnico di Milano); Simpson, Richard J. (University of Houston); Dacso, Clifford C (Baylor College of Medicine)*

17:00-17:15

ThE08.3

Parametric Study of Antennas for Long Range Doppler Radar Heart Rate Detection 3764-3767

Baboli, Mehran (University of Hawaii at Manoa); Hafner, Noah (University of Hawaii); Lubecke, Victor (University of Hawaii Manoa)*

17:15-17:30

ThE08.4

Adaptive Affective Response Identification for Hearing Threshold Detection 3768-3771

Doyle, Thomas E. (McMaster University)*

17:30-17:45

ThE08.5

Preliminary Analysis of Physiological Changes of Nursing Students During Training 3772-3775

Milosevic, Mladen (University of Alabama in Huntsville); Jovanov, Emil (University of Alabama in Huntsville); Frith, Karen H (University of Alabama in Huntsville); Vincent, Julie (University of Alabama in Huntsville); Zaluzec, Eric (University of Alabama in Huntsville)*

17:45-18:00

ThE08.6

Age-Dependent Pupillary Light Reflex Parameters in Children 3776-3779

Daluwatte, Chathuri Lakshika (University of Missouri, Columbia); Miles, Judith (Thompson Center for Autism & Neurodevelopment Disorders, University of Missouri, Columbia); Christ, Shawn (Department of Psychological Sciences, University of Missouri); Beversdorf, David (Department of Radiology, Department of Neurology, Department of Psychological Sciences, and Thompson Center for Autism & Neurode); Lofgreen, Andrew (University of Missouri, Columbia); Berliner, Nathan (University of Missouri, Columbia); Yao, Gang (University of Missouri)*

ThE09: 16:30-18:00

Sapphire 411

9.3.6 Innovative Technologies for Inexpensive and Non-Invasive Cardiovascular Monitoring in the Home Using Ballistocardiography and Seismocardiography: Part 1 – Measurement Challenges and Standardization (Oral Session)

Chair: Inan, Omer (*Stanford Univ.*)

Co-Chair: Saldivar, Enrique (*West Wireless Health Inst.*)

16:30-16:45

ThE09.1

Preliminary Results from BCG and ECG Measurements in the Heart Failure Clinic 3780-3783

Giovangrandi, Laurent (Stanford University); Inan, Omer (Stanford University); Banerjee, Dipanjan (Stanford University); Kovacs, Gregory T.A. (Stanford University)*

16:45-17:00

ThE09.2

Unobtrusive Online Monitoring of Sleep at Home 3784-3788

Paalasmaa, Joonas (Beddit.com Ltd); Waris, Mikko (Beddit.com Ltd); Toivonen, Hannu (University of Helsinki); Leppäkorpi, Lasse (Beddit.com Ltd); Partinen, Markku (Vitalmed Research Center, Helsinki University Central Hospital)*

17:00-17:15

ThE09.3

HRV Analysis and Blood Pressure Monitoring on Weighing Scale Using BCG 3789-3792

Shin, Jae Hyuk (Seoul National University); Park, Kwang S. (Seoul National University)*

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| 17:15-17:30 | ThE09.4 |
| Seismocardiography While Sleeping at High Altitude | 3793-3796 |
| <i>Castiglioni, Paolo (Fondazione Don Carlo Gnocchi ONLUS); Meriggi, Paolo (Fondazione Don Gnocchi); Rizzo, Francesco (Fondazione Don C. Gnocchi ONLUS); Vaini, Emanuele (Polo Tecnologico, Fondazione Don Carlo Gnocchi); Faini, Andrea (Università degli Studi Milano-Bicocca); Parati, Gianfranco (Università degli Studi di Milano-Bicocca); Di Rienzo, Marco* (Fondazione Don Carlo Gnocchi)</i> | |
| 17:30-17:45 | ThE09.5 |
| Seismocardiographic Adjustment of Diastolic Timed Vibrations | 3797-3800 |
| <i>Tavakolian, Kouhyar* (Simon Fraser University); Khosrow-khavar, Farzad (Simon Fraser University); Marzencki, Marcin (Simon Fraser University); Kajbafzadeh, Behrad (Simon Fraser University); Kaminska, Bozena (Simon Fraser University); Menon, Carlo (Simon Fraser University)</i> | |
| 17:45-18:00 | ThE09.6 |
| Myocardial Contractility: A Seismocardiography Approach | 3801-3804 |
| <i>Tavakolian, Kouhyar (Simon Fraser University); Portacio, Gonzalo* (Heart Force Medical Inc.); Ngai, Brandon (Heart Force Medical Inc.); Jahns, Graeme (Heart Force Medical Inc.); Blaber, Andrew Philip (Simon Fraser University)</i> | |
| ThE13: 16:30-18:00 | Aqua 306B |
| 5.9.1 Autonomic Nervous System/Heart Rate Variability (Oral Session) | |
| Chair: Sunagawa, Kenji (<i>Kyushu Univ.</i>) | |
| Co-Chair: Ansermino, J. Mark (<i>British Columbia's Children's Hospital</i>) | |
| 16:30-16:45 | ThE13.1 |
| Autonomic-Cardiorespiratory Regulation: A Physiology-Based Mathematical Model | 3805-3808 |
| <i>Ataee, Pedram* (University of British Columbia); Belingard, Loic (University of British Columbia); Dumont, Guy (University of British Columbia); Ahmadi Noubari, Hossain (University of Tehran); Boyce, W. Thomas (College for Interdisciplinary Studies and Faculty of Medicine, University of British Columbia)</i> | |
| 16:45-17:00 | ThE13.2 |
| Consideration on Parameter Determination of a New Model Describing Dynamic Vagal Heart Rate Control in Rats | 3809-3812 |
| <i>Kawada, Toru* (Nat. Cerebral and Cardiovascular Center Res Inst); Uemura, Kazunori (National Cardio. Center Research Inst); Shimizu, Shuji (National Cerebral and Cardiovascular Center Research Institute); Kamiya, Atsunori (National Cardiovascular Center Research Institute); Turner, Michael (National Cerebral and Cardiovascular Center, Japan); Mizuno, Masaki (University of Texas Southwestern Medical Center); Sugimachi, Masaru (Nat'l Cardio Center Research Inst); Sunagawa, Kenji (Kyushu University)</i> | |
| 17:00-17:15 | ThE13.3 |
| Real-Time Cardiorespiratory Coherence Detects Antinociception During General Anesthesia | 3813-3816 |
| <i>Brouse, Chris J.* (University of British Columbia); Karlen, Walter (UBC); Dumont, Guy (University of British Columbia); Myers, Dorothy (British Columbia's Children's Hospital); Cooke, Erin (British Columbia's Children's Hospital); Stinson, Jonathan (British Columbia's Children's Hospital); Lim, Joanne (British Columbia Children's Hospital); Ansermino, J. Mark (British Columbia's Children's Hospital)</i> | |
| 17:15-17:30 | ThE13.4 |
| Sleep-Wake and Circadian-Dependent Variation of Cardiorespiratory Coherence | 3817-3820 |
| <i>Boudreau, Philippe* (McGill University); Brouse, Chris J. (University of British Columbia); Dumont, Guy (University of British Columbia); Boivin, Diane (McGill University)</i> | |
| 17:30-17:45 | ThE13.5 |
| Respiratory Induced Heart Rate and Blood Pressure Variability During Mechanical Ventilation in Critically Ill and Brain Death Patients | 3821-3824 |
| <i>Jurak, Pavel* (Inst of Scientific Instruments Academy); Zvonicek, Vaclav (St Anne's University Hospital, Brno,); Leinveber, Pavel (St. Anne's University Hospital); Halamek, Josef (Institute of Scientific Instruments); Vondra, Vlastimil (Institute of Scientific Instruments AS CR)</i> | |
| 17:45-18:00 | ThE13.6 |
| Heart Rate Variability and Renal Organ Damage in Hypertensive Patients | 3825-3828 |
| <i>Melillo, Paolo* (University of Bologna); De Luca, Nicola (University of Naples Federico II); Pecchia, Leandro (University of Nottingham)</i> | |

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| 16:30-16:45 | Detection of Anticipatory Brain Potentials During Car Driving <i>Khalliardali, Zahra* (Ecole Polytechnique Federale de Lausanne (EPFL)); Chavarriaga, Ricardo (Ecole Polytechnique Federale de Lausanne); Gheorghe, Lucian (Nissan Motor Co., Japan); Millán, José del R. (Swiss Federal Institute of Technology, Lausanne)</i> | ThE15.1 3829-3832 |
| 16:45-17:00 | Poor Performance in SSVEP BCIs: Are Worse Subjects Just Slower? <i>Guger, Christoph* (g.tec medical engineering GmbH); Allison, Brendan (TUG); Hintermueller, Christoph (g.tec medical engineering GmbH); Prueckl, Robert (g.tec medical engineering GmbH); Großwindhager, Bernhard (g.tec medical engineering GmbH); Kapeller, Christoph (g.tec medical engineering GmbH); Edlinger, Günter (g.tec medical engineering GmbH)</i> | ThE15.2 3833-3836 |
| 17:00-17:15 | Motion Visual Stimulus for SSVEP-Based BCI System <i>Punsawad, Yunyong (Mahidol Univ); Wongsawat, Yodchanan* (Mahidol University)</i> | ThE15.3 3837-3840 |
| 17:15-17:30 | A P300-Based EEG-BCI for Spatial Navigation Control <i>Curtin, Adrian* (Drexel University); Ayaz, Hasan (Drexel University); Liu, Yichuan (Drexel University); Shewokis, Patricia A (Drexel University); Onaral, Banu (Drexel University)</i> | ThE15.4 3841-3844 |
| 17:30-17:45 | A Subjective Assessment of a P300 BCI System for Lower-Limb Rehabilitation Purposes <i>Duvinage, Matthieu* (University of Mons); Castermans, Thierry (University of Mons); Petieau, Mathieu (Université Libre de Bruxelles); Seetharaman, Karthik (Université Libre de Bruxelles); HOELLINGER, Thomas (CNRS); Cheron, Guy (Université Libre de Bruxelles); Dutoit, Thierry (Faculté polytechnique de Mons)</i> | ThE15.5 3845-3849 |
| 17:45-18:00 | Detection of Attention Shift for Asynchronous P300-Based BCI <i>Liu, Yichuan* (Drexel University); Ayaz, Hasan (Drexel University); Curtin, Adrian (Drexel University); Shewokis, Patricia A (Drexel University); Onaral, Banu (Drexel University)</i> | ThE15.6 3850-3853 |

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| 16:30-16:45 | The Effects of Locomotor Training with a Robotic-Gait Orthosis (Lokomat) on Neuromuscular Properties in Persons with Chronic SCI <i>Mirbagheri, Mehdi* (Northwestern University/RIC); Niu, Xun (Northwestern University); Kindig, Matthew (Rehabilitation Institute of Chicago); Varoqui, Deborah (Rehabilitation Institute of Chicago; Northwestern University)</i> | ThE16.1 3854-3857 |
| 16:45-17:00 | The Effect of Robot-Assisted Locomotor Training on Walking Speed <i>Niu, Xun* (Northwestern University); Varoqui, Deborah (Rehabilitation Institute of Chicago; Northwestern University); Kindig, Matthew (Rehabilitation Institute of Chicago); Mirbagheri, Mehdi (Northwestern University/RIC)</i> | ThE16.2 3858-3861 |
| 17:00-17:15 | Effect of Sensory Inputs on the Motor Evoked Potentials in the Wrist Flexor Muscle During the Robotic Passive Stepping in Humans <i>Kitamura, Taku* (Shibaura institute of Technology); Nakajima, Tsuyoshi (Research Institute of National Rehabilitation Center for Persons with Disabilities); Yamamoto, Shin-ichiroh (Shibaura Institute of Technology); Nakazawa, Kimitaka (The University of Tokyo)</i> | ThE16.3 3862-3865 |

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| 17:15-17:30 | ThE16.4 |
| The Horizontal Angular Vestibulo-Ocular Reflex: A Non-Linear Mechanism for Context-Dependent Responses | 3866-3869 |
| <i>Ranjbaran, Mina* (McGill University); Galiana, Henrietta L. (McGill University)</i> | |
| 17:30-17:45 | ThE16.5 |
| Experimental Observations on the Human Arm Motion Planning Strategy under an Elbow Joint Constraint | 3870-3873 |
| <i>Moon, Hyosang* (Texas A&M University); Robson, Nina Patarinsky (Texas A&M University); Langari, Reza (Texas A&M University); Buchanan, John (Texas A&M University)</i> | |
| 17:45-18:00 | ThE16.6 |
| The Role of Propriospinal Neuronal Network in Transmitting the Alternating Muscular Activities of Flexor and Extensor in Parkinsonian Tremor | 3874-3877 |
| <i>Hao, Manzhao* (School of Biomedical Engineering, Shanghai Jiao Tong University); He, Xin (Shanghai Jiao Tong University); Lan, Ning (Shanghai Jiao Tong University)</i> | |
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| ThE17: 16:30-18:00 | Sapphire H |
| 6.1.2 Implantable Systems (Oral Session) | |
| Chair: Bozkurt, Alper (North Carolina State Univ.) | |
| Co-Chair: Kelly, Shawn (Carnegie Mellon Univ.) | |
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| 16:30-16:45 | ThE17.1 |
| Distributed Clock Gating for Power Reduction of a Programmable Waveform Generator for Neural Stimulation | 3878-3881 |
| <i>Noorsal, Emilia* (Universiti Teknologi Mara); Sooksood, Kriangkrai (King Mongkut's Institute of Technology Ladkrabang); Bihl, Ulrich (University of Ulm); Becker, Joachim (Ulm University); Ortmanns, Maurits (University of Ulm)</i> | |
| 16:45-17:00 | ThE17.2 |
| Flexible Multi-Electrode Array with Integrated Bendable CMOS-Chip for Implantable Systems | 3882-3885 |
| <i>Winkin, Nadine* (RWTH Aachen University); Mokwa, Wilfried (RWTH Aachen University)</i> | |
| 17:00-17:15 | ThE17.3 |
| Hermetic Electronic Packaging of an Implantable Brain-Machine-Interface with Transcutaneous Optical Data Communication | 3886-3889 |
| <i>Schuetzler, Martin* (University of Freiburg); Kohler, Fabian (University of Freiburg); Ordonez, Juan Sebastian (University of Freiburg); Stieglitz, Thomas (University of Freiburg)</i> | |
| 17:15-17:30 | ThE17.4 |
| Fabrication and Successful In-Vivo Implantation of a Flexible Neural Implant with a Hybrid Polyimide-Silicon Design | 3890-3893 |
| <i>Andrei, Alexandru* (IMEC); Tutunjyan, Nina (IMEC); Verbinnen, Greet (IMEC); Van Put, Steven (INTEC); krylychkina, Olga (IMEC); Eberle, Wolfgang (imec); Musa, Silke (IMEC)</i> | |
| 17:30-17:45 | ThE17.5 |
| Virtual Electrode Stimulation in a Multi-Channel Stimulation System | 3894-3898 |
| <i>Hoang, Linh (University of California, Santa Cruz); Yang, Zhi* (National University of Singapore); Liu, Wentai (University of California, Santa Cruz)</i> | |
| 17:45-18:00 | ThE17.6 |
| On the Cause and Control of Residual Voltage Generated by Electrical Stimulation of Neural Tissue | 3899-3902 |
| <i>Krishnan, Ashwati* (Carnegie Mellon University); Kelly, Shawn (Carnegie Mellon University)</i> | |

ThE19: 16:30-18:00 Aqua 304
8.3.1 Rehabilitation Robotics (Oral Session)
Chair: Patton, James (*Jim*) (*Rehab Inst. of Chicago & U. of Illinois at Chicago*)

16:30-16:45 ThE19.1
A Robotic Interface to Train Grip Strength, Grip Coordination and Finger Extension Following Stroke 3903-3906
*Kazemi, Hamed** (*McGill University*); *Kearney, Robert Edward* (*McGill University*);
Milner, Ted (*McGill University*)

16:45-17:00 ThE19.2
Error Amplification to Promote Motor Learning and Motivation in Therapy Robotics 3907-3910
*Shirzad, Navid** (*Department of Mechanical Engineering, University of British Columbia*);
Van der Loos, H. F. Machiel (*University of British Columbia*)

17:00-17:15 ThE19.3
Robot-Assisted Guitar Hero for Finger Rehabilitation after Stroke 3911-3917
*Taheri, Hossein** (*University of Idaho*); *Rowe, Justin* (*University of California at Irvine*);
Gardner, David (*University of Idaho*); *Chan, Vicky* (*University of California in Irvine*);
Reinkensmeyer, David J. (*University of California*); *Wolbrecht, Eric* (*University of Idaho*)

17:15-17:30 ThE19.4
Control of Robot Assistant for Rehabilitation of Upper Extremities 3918-3921
*Kostic, Milos** (*School of Electrical Engineering, University of Belgrade*);
Popovic, Mirjana (*Aalborg University*); *Popovic, Dejan* (*Aalborg University*)

17:30-17:45 ThE19.5
Robot-Aided Rehabilitation Task Design for Inner Shoulder Muscles 3922-3925
Pei, Yanling (*Nagoya University*); *Kim, Youngwoo** (*Nagoya University*); *Obinata, Goro* (*Nagoya University*);
Genda, Eiichi (*Rosai Rehabilitation Engineering Center*); *Stefanov, Dimitar* (*Coventry University*)

17:45-18:00 ThE19.6
Reducing Muscle Effort in Walking through Powered Exoskeletons 3926-3929
*Lenzi, Tommaso** (*Scuola Superiore Sant'Anna*); *Zanotto, Damiano* (*University of Delaware*);
Stegall, Paul (*University of Delaware*); *Carrozza, Maria Chiara* (*Scuola Superiore Sant'Anna*);
Agrawal, Sunil (*University of Delaware*)

Friday, 31 August 2012

FrA01: 08:00-09:30 Sapphire A
1.2.5 Signal Processing in Physiological Systems III (Oral Session)
Chair: Signorini, Maria G. (*Pol. di Milano*)
Co-Chair: Mukkamala, Ramakrishna (*Michigan State Univ.*)

08:00-08:15 FrA01.1
Utilization of Temporal Information for Intracranial Pressure Development Trend Forecasting in Traumatic Brain Injury 3930-3934
Feng, Mengling (*Institute for Infocomm Research*); *Zhang, Zhuo** (*A*STAR*); *Guan, Cuntai* (*Institute for Infocomm Research*); *King, Nicolas Kon Kam* (*National Neuroscience Institute Singapore*); *Pang, Boon Chuan* (*National Neuroscience Institute*); *Ang, Beng Ti* (*National Neuroscience Institute*); *Hardoon, David Roi* (*SAS*)

08:15-08:30 FrA01.2
Subpeak Regional Analysis of Intracranial Pressure Waveform Morphology Based on Cerebrospinal Fluid Hydrodynamics in the Cerebral Aqueduct and Prepontine Cistern 3935-3938
*Hamilton, Robert** (*University of California, Los Angeles*); *Baldwin, Kevin* (*University of California, Los Angeles*);
Vespa, Paul (*University of California, Los Angeles*); *Bergsneider, Marvin* (*University of California, Los Angeles*);
Hu, Xiao (*University of California, Los Angeles*)

08:30-08:45 FrA01.3
Single Pulse Analysis of Intracranial Pressure for a Hydrocephalus Implant 3939-3942
*Elixmann, Inga Margrit** (Helmholtz-Institute for Biomedical Engineering, RWTH Aachen); *Hansinger, Jens* (Chair for Medical Information Technology, Helmholtz-Institute for Biomedical Engineering, RWTH Aachen); *Goffin, Christine* (Chair of Medical Engineering, Helmholtz-Institute for Biomedical Engineering, RWTH Aachen); *Antes, Sebastian* (Saarland University, Medical School); *Radermacher, Klaus* (RWTH Aachen University, Chair of Medical Engineering); *Leonhardt, Steffen* (RWTH Aachen University)

08:45-09:00 FrA01.4
Predictive Modeling of Cardiovascular Complications in Incident Hemodialysis Patients 3943-3946
Ion Titapiccolo, Jasmine (Politecnico di Milano); *Ferrario, Manuela* (Politecnico di Milano); *Barbieri, Carlo* (Fresenius Medical Care); *Marcelli, Daniele* (Fresenius Medical Care); *Mari, Flavio* (Fresenius Medical Care); *Gatti, Emanuele* (Fresenius Medical Care Deutschland GmbH); *Liu, Baolin* (University of Shanghai for Science & Technology); *smyth, padhraic* (University of California, Irvine); *Signorini, Maria G.** (Politecnico di Milano)

09:00-09:15 FrA01.5
A New Algorithm for Detection of Heart and Respiration Rate with UWB Signals 3947-3950
*Baboli, Mehran** (University of Hawaii at Manoa); *Lubecke, Victor* (University of Hawaii Manoa)

09:15-09:30 FrA01.6
Multi-Gaussian Fitting for the Assessment of Left Ventricular Ejection Time from the Photoplethysmogram 3951-3954
Couceiro, Ricardo (University of Coimbra); *de Carvalho, Paulo** (University of Coimbra – NIF: 501617582); *Paiva, Rui Pedro* (University of Coimbra); *Henriques, Jorge* (University of Coimbra – NIF 501617582); *Antunes, Manuel* (University of Coimbra); *Quintal, Isabel* (Centro Hospitalar de Coimbra); *Muehlsteff, Jens* (Philips)

FrA03: 08:00-09:30 Sapphire E
1.4.5 Biomedical Signal Classification VI (Oral Session)
Chair: Moussavi, Zahra (Univ. of Manitoba)
Co-Chair: Schalkoff, Robert (Clemson Univ.)

08:00-08:15 FrA03.1
A Bayes Optimal Matrix-Variate LDA for Extraction of Spatio-Spectral Features from EEG Signals 3955-3958
*Mahanta, Mohammad Shahin** (University of Toronto); *S. Aghaei, Amirhossein* (University of Toronto); *Plataniotis, Konstantinos* (University of Toronto)

08:15-08:30 FrA03.2
Morphology-Based Wavelet Features and Multiple Mother Wavelet Strategy for Spike Classification in EEG Signals 3959-3962
*Schalkoff, Robert** (Clemson University); *Zhou, Jing* (Clemson University); *Dean, Brian* (Clemson University); *Halford, Jonathan* (Medical University of South Carolina)

08:30-08:45 FrA03.3
What Does Clean EEG Look Like? 3963-3966
*Daly, Ian** (TU Graz); *Pichiorri, Floriana* (Fondazione Santa Lucia, IRCCS, Rome, Italy); *Faller, Josef* (Graz University of Technology); *Kaiser, Vera* (Graz University of Technology); *Kreiling, Alex* (Graz University of Technology); *Scherer, Reinhold* (Graz University of Technology); *Müller-Putz, Gernot* (Graz University of Technology)

08:45-09:00 FrA03.4
Detection of Event-Related Desynchronization During Attempted and Imagined Movements in Tetraplegics for Brain Switch Control 3967-3969
*Blokland, Yvonne** (Radboud University Nijmegen Medical Centre); *Vlek, Rutger* (Donders Institute for Brain, Cognition and Behaviour); *Karaman, Betül* (Radboud University Nijmegen Medical Centre); *Ózin, Fatma* (Radboud University Nijmegen Medical Centre); *Thijssen, Dick* (Radboud University Nijmegen Medical Centre); *Eijsvogels, Thijs* (Radboud University Nijmegen Medical Centre); *Colier, Willy* (Artinis Medical Systems B.V.); *Floor-Westerdijk, Marianne* (Artinis Medical Systems B.V.); *Bruhn, Jörgen* (Radboud University Nijmegen Medical Centre); *Farquhar, Jason* (Radboud University)

09:00-09:15 FrA03.5
Locating the STN-DBS Electrodes and Resolving Their Subsequent Networks Using Coherent Source Analysis on EEG 3970-3973
Muthuraman, Muthuraman (Christian Albrechts University); Paschen, Steffen (Department of Neurology); Helge, Hellriegel (Department of Neurology); Sergiu, Groppa (Department of Neurology); Gunther, Deuschl (Department of Neurology); Jan, Raethjen (Department of Neurology)*

FrA05: 08:00-09:30 Sapphire I
2.4.4 Computational Modeling and Clinical Applications in Abdominal Imaging II (Oral Session)
Chair: Yoshida, Hiro (*Massachusetts General Hospital / Harvard Medical School*)
Co-Chair: Drechsler, Klaus (*Fraunhofer Inst. for Computer Graphics Res. (IGD)*)

08:00-08:15 FrA05.1
Computational Modeling for Assessment of IBD: To Be or Not to Be? 3974-3977
Vos, Frans (TU Delft); Tielbeek, Jeroen (AMC Amsterdam); Naziroglu, Robiel (TU Delft); Li, Zhang (TU Delft); Schueffler, peter (ETH Zurich); mahapatra, dwarikanath (ETH Zurich); Wiebel, Alexander (Zuse Institute Berlin); lavini, cristina (AMC Amsterdam); Buhmann, Joachim (ETH Zurich); Hege, Hans-Christian (Zuse-Institut Berlin (ZIB)); Stoker, Jaap (AMC Amsterdam); van Vliet, Lucas (TU Delft)*

08:15-08:30 FrA05.2
Segmentation of Urinary Bladder in CT Urography 3978-3981
Hadjiiski, Lubomir (University of Michigan); Chan, Heang-Ping (University of Michigan); Caoili, Elaine (University of Michigan); Cohan, Richard (University of Michigan)*

08:30-08:45 FrA05.3
Centerline Calculation for Extracting Abdominal Aorta in 3-D MRI Images 3982-3985
Babin, Danilo (Ghent University)*

08:45-09:00 FrA05.4
Multi-Organ Segmentation in Abdominal CT Images 3986-3989
Okada, Toshiyuki (Osaka University Graduate School of Medicine); Linguraru, Marius George (Children's National Medical Center); Hori, Masatoshi (Osaka University Graduate School of Medicine); Suzuki, Yuki (Osaka University Graduate School of Medicine); Summers, Ronald (National Institutes of Health); Tomiyama, Noriyuki (Osaka University Graduate School of Medicine); Sato, Yoshinobu (Osaka University Graduate School of Medicine)*

09:00-09:15 FrA05.5
Multi-Object Active Shape Model Construction for Abdomen Segmentation: Preliminary Results 3990-3993
Gollmer, Sebastian T. (University of Luebeck); Simon, Martin (University Medical Center Schleswig-Holstein); Bischof, Arpad (IMAGE Information Systems Ltd.); Barkhausen, Joerg (University Medical Center Schleswig-Holstein); Buzug, Thorsten M. (University of Luebeck)*

09:15-09:30 FrA05.6
Scalable, High-performance 3D Imaging Software Platform: System Architecture and Application to Virtual Colonoscopy 3994-3997
Yoshida, Hiro (Massachusetts General Hospital / Harvard Medical School); Wu, Yin (Massachusetts General Hospital)*

FrA06: 08:00-09:30 Sapphire M
2.7.4 Optical Image Segmentation (Oral Session)
Chair: Zhao, Weizhao (*Univ. of Miami*)

08:00-08:15 FrA06.1
Segmentation of Zebrafish Embryonic Images Using a Geometric Atlas Deformation 3998-4001
Zacharia, Eleni (University of Houston); Bondesson, Maria (University of Houston); Gustafsson, Jan-Åke (Department of Biology and Biochemistry, University of Houston); Kakadiaris, Ioannis (University of Houston)*

08:15-08:30 FrA06.2
An Incremental Approach to Pigmented Skin Lesion Segmentation with Classification Refinements in Uncertain Regions 4002-4005
Xiong, Wei (Institute for Infocomm Research, A-STAR)*

08:30-08:45 FrA06.3
Active Segmentation of 3D Axonal Images 4006-4009
*Muralidhar, Gautam** (The University of Texas at Austin); *Gopinath, Ajay* (The University of Texas at Austin);
Bovik, Alan (The University of Texas at Austin); *Ben-Yakar, Adela* (The University of Texas at Austin)

08:45-09:00 FrA06.4
Segmentation of Small Bowel Tumor Tissue in Capsule Endoscopy Images by Using the MAP Algorithm 4010-4013
*Lima, Carlos Manuel Gregorio Santos** (University of Minho); *Vieira, Pedro* (Universidade do Minho);
Ramos, Jaime (Hospital dos Capuchos); *Barbosa, Daniel* (Katholieke Universiteit Leuven);
Roupar, Dalila (Katholieke Universiteit Leuven); *Silva, Carlos Alberto Batista* (Universidade do Minho);
Correia, Higino (University of Minho)

09:00-09:15 FrA06.5
Mucosal Region Detection and 3D Reconstruction in Wireless Capsule Endoscopy Videos Using Active Contours 4014-4017
*Prasath, V. B. Surya** (University of Missouri-Columbia); *Figueiredo, Isabel N.* (University of Coimbra);
Figueiredo, Pedro N (University of Coimbra); *Palaniappan, Kannappan* (University of Missouri-Columbia)

FrA07: 08:00-09:30 Sapphire 410
3.1.1 Novel Sensing Technologies (Oral Session)
Chair: Kim, Sung June (Seoul National Univ.)
Co-Chair: Lee, Sanghoon (Tohoku Univ.)

08:00-08:15 FrA07.1
An On-Chip Chemiresistive Polyaniline Nanowire-Based Ph Sensor with Self-Calibration Capability 4018-4021
Song, Edward (Louisiana State University); *Choi, Jin-Woo** (Louisiana State University)

08:15-08:30 FrA07.2
A Mobile NMR System with Full Spectroscopy Capability 4022-4025
*Ma, Chao** (University of Illinois at Urbana-Champaign);
Liang, Zhi-Pei (University of Illinois at Urbana-Champaign)

08:30-08:45 FrA07.3
Dual Mode Microwave Tool for Dielectric Analysis and Thermal Ablation Treatment of Organic Tissue .. 4026-4029
*Puentes, Margarita** (Technische Universität Darmstadt); *Bashir, Fahed* (Technische Universität Darmstadt);
Schuessler, Martin (TU Darmstadt); *Jakoby, Rolf* (TU Darmstadt)

08:45-09:00 FrA07.4
Finite Element Lifetime Prediction of a Miniature Adjustable Orthopedic Device 4030-4033
*Almouahed, Shaban** (Institut Télécom – Télécom Bretagne); *Hamitouche, Chafiaâ* (Télécommunications
Bretagne); *Stindel, Eric* (Université de Bretagne Occidentale); *Roux, Christian* (TELECOM Bretagne – INSERM)

09:00-09:15 FrA07.5
Smelling Heart Failure from Human Skin Odor with an Electronic Nose 4034-4037
*Voss, Andreas** (University of Applied Sciences Jena); *Witt, Katharina* (University of Applied Sciences Jena,
Dept. Medical Engineering and BioTechnology); *Fischer, Claudia* (University of Applied Sciences Jena, Dept.
Medical Engineering and BioTechnology); *Reulecke, Sina* (University of Applied Sciences Jena, Dept. Medical
Engineering and BioTechnology); *Poitz, Wolf* (University of Applied Sciences Jena, Dept. Medical Engineering
and BioTechnology); *Kechagias, Vasileios* (Friedrich Schiller University Jena, Clinic of Internal Medicine I);
Surber, Ralf (Friedrich Schiller University Jena, Clinic of Internal Medicine I); *Figulla, Hans R.* (Friedrich-
Schiller-University, Jena)

FrA08: 08:00-09:30 Sapphire 411
3.1.1 Wearable Sensors and Systems I (Oral Session)
Chair: Young, Darrin (Univ. of Utah)
Co-Chair: Ghovanloo, Maysam (Georgia Inst. of Tech.)

08:00-08:15 FrA08.1
Skin-Contact Sensor for Automatic Fall Detection 4038-4041
*Narasimhan, Ravi** (Vital Connect, Inc.)

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| 08:15-08:30 | FrA08.2 |
| Wireless Slips and Falls Prediction System | 4042-4045 |
| <i>Krenzel, Devon (Kansas State University); Warren, Steve* (Kansas State University); Li, Kejia (Kansas State University); Natarajan, Balasubramaniam (Kansas State University); Singh, Gurdip (Kansas State University)</i> | |
| 08:30-08:45 | FrA08.3 |
| Wearable Wireless Sensor Platform for Studying Autonomic Activity and Social Behavior in Non-Human Primates | 4046-4049 |
| <i>Fletcher, Richard Ribon* (Massachusetts Institute of Technology); Amemori, Ken-ichi (Massachusetts Institute of Technology); Goodwin, Matthew (Northeastern University); Graybiel, Ann Martin (MIT)</i> | |
| 08:45-09:00 | FrA08.4 |
| Identification of Cigarette Smoke Inhalations from Wearable Sensor Data Using a Support Vector Machine Classifier | 4050-4053 |
| <i>Lopez-Meyer, Paulo (The University of Alabama); Tiffany, Stephen (State University of New York at Buffalo); Sazonov, Edward* (University of Alabama)</i> | |
| 09:00-09:15 | FrA08.5 |
| Tongue-Operated Assistive Technology with Access to Common Smartphone Applications Via Bluetooth Link | 4054-4057 |
| <i>Kim, Jeonghee* (Georgia Institute of Technology); Park, Hangu (Georgia Tech); Ghovanloo, Maysam (Georgia Institute of Technology)</i> | |
| 09:15-09:30 | FrA08.6 |
| On Localizing a Capsule Endoscope Using Magnetic Sensors | 4058-4062 |
| <i>Moussakhani, Babak* (Norwegian University of Science and Technology); Ramstad, Tor (Department of Electronics and Telecommunications, NTNU); Flåm, John Torjus (Department of Electronics and Telecommunications, NTNU); Balasingham, Ilango (Intervention Center, Oslo University Hospital)</i> | |
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| FrA13: 08:00-09:30 | Aqua 306B |
| 5.4.1 Cardiac Imaging (Oral Session) | |
| Chair: Sands, Gregory (<i>The Univ. of Auckland</i>) | |
| 08:00-08:15 | FrA13.1 |
| A Framework for Myoarchitecture Analysis of High Resolution Cardiac MRI and Comparison with Diffusion Tensor MRI | 4063-4066 |
| <i>Gilbert, Stephen Henry* (University of Leeds); Sands, Gregory (The University of Auckland); LeGrice, Ian (University); Smail, Bruce (University of Auckland); Bernus, Olivier (University of Leeds); Trew, Mark L. (University of Auckland)</i> | |
| 08:15-08:30 | FrA13.2 |
| Left-Ventricular Shape Analysis for Predicting Sudden Cardiac Death Risk | 4067-4070 |
| <i>Vadakkumpadan, Fijoy* (Johns Hopkins University); Trayanova, Natalia (Johns Hopkins University); Younes, Laurent (Johns Hopkins University); Wu, Katherine (Johns Hopkins Medical Institutions)</i> | |
| 08:30-08:45 | FrA13.3 |
| An Active Contour Based Method for Analyzing Cardiac Quiescence from Echocardiography | 4071-4074 |
| <i>Wick, Carson* (Georgia Institute of Technology); McClellan, James (Georgia Institute of Technology); Ravichandran, Lakshminarayan (Emory University, School of Medicine); Tridandapani, Srini (Emory University)</i> | |
| 08:45-09:00 | FrA13.4 |
| Impact of Temporal Resolution on the LV Myocardial Regional Strain Assessment on Real-Time 3D Ultrasound | 4075-4078 |
| <i>Lorsakul, Auranuch* (Columbia University); Duan, Qi (NIH); Russo, Cesare (Columbia University Medical Center); Angelini, Elsa (Ecole Nat. Supérieure des Telecom); Homma, Shunichi (Columbia University); Laine, Andrew (Columbia University)</i> | |
| 09:00-09:15 | FrA13.5 |
| Quantifying Tissue Heterogeneity Using Quadtree Decomposition | 4079-4082 |
| <i>Subramaniam, Karthik* (University of Auckland); Hoffman, Eric (University of Iowa); Tawhai, Merryn (The University of Auckland)</i> | |

09:15-09:30 FrA13.6
3D Cardiac Motion Reconstruction from CT Data and Tagged MRI 4083-4086
Wang, Xiaoxu (Shenzhen Institute of Advance Technology); Mihalef, Viorel (Siemens Corporate Research); Qian, Zhen (Piedmont Heart Insitute); Voros, Szilard (Piedmont Heart Institute); Metaxas, Dimitris (Rutgers University)*

FrA15: 08:00-09:30 Sapphire P
6.2.4 Brain-Machine Interface – IV (Oral Session)
Chair: Sanchez, Justin C. (*Univ. of Miami*)
Co-Chair: Lin, Chin-Teng (*National Chiao-Tung Univ.*)

08:00-08:15 FrA15.1
Compensating for Delays in Brain-Machine Interfaces by Decoding Intended Future Movement 4087-4090
Willet, Francis (University of Chicago); Suminski, Aaron (University of Chicago); Fagg, Andrew (University of Oklahoma); Hatsopoulos, Nicholas (University of Chicago)*

08:15-08:30 FrA15.2
Decoding Hand Trajectories from Micro-Electrocorticography in Human Patients 4091-4094
Kellis, Spencer (California Institute of Technology); Hanrahan, Sara (University of Utah); Davis, Tyler (University of Utah); House, Paul (University of Utah); Brown, Richard (University of Utah); Greger, Bradley (University of Utah)*

08:30-08:45 FrA15.3
Filling a Glass of Water: Continuously Decoding the Speed of 3D Hand Movements from EEG Signals .. 4095-4098
Heger, Dominic (Karlsruhe Institute of Technology, Cognitive Systems Lab); Jäkel, Rainer (Karlsruhe Institute of Technology, Humanoids and Intelligence Systems Lab); Putze, Felix (Karlsruhe Institute of Technology); Lösch, Martin (Karlsruhe Institute of Technology, Humanoids and Intelligence Systems Lab); Schultz, Tanja (Karlsruhe Institute of Technology, Cognitive Systems Lab)*

08:45-09:00 FrA15.4
Continuous Decoding of Intention to Move in Severely Affected Chronic Stroke Patients from Contralesional Hemisphere Brain Oscillations 4099-4103
Antelis, Javier M. (University of Zaragoza); Montesano, Luis (Universidad de Zaragoza); Ramos Murguialday, Ander (Fatronik Tecnalía Germany); Birbaumer, Niels (Eberhard-Karls-University); Minguéz, Javier (Zaragoza University)*

09:00-09:15 FrA15.5
Electrocorticographic Decoding of Ipsilateral Reach in the Setting of Contralateral Arm Weakness from a Cortical Lesion 4104-4107
Hotson, Guy (Johns Hopkins University); Fifer, Matthew (Johns Hopkins University); Acharya, Soumyadipta (Johns Hopkins University); Anderson, William S. (Department of Neurosurgery, Brigham and Women’s Hospital, Boston, MA); Thakor, Nitish (Johns Hopkins University); Crone, Nathan E. (Johns Hopkins University, School of Medicine)*

09:15-09:30 FrA15.6
Brain-Machine Interface Control of a Robot Arm Using Actor-Critic Reinforcement Learning 4108-4111
Pohlmeyer, Eric A. (University of Miami); Mahmoudi, Babak (University of Miami); Geng, Shijia (University of Miami); Prins, Noeline (University of Miami); Sanchez, Justin C. (University of Miami)*

FrA16: 08:00-09:30 Sapphire L
6.11.2 Stroke (Oral Session)
Chair: Suresh, Nina (*Rehabilitation Inst. of Chicago*)

08:00-08:15 FrA16.1
EEG-Based Brain-Computer Interface to Support Post-Stroke Motor Rehabilitation of the Upper Limb 4112-4115
Cincotti, Febo (Fondazione Santa Lucia IRCCS); Pichiorri, Floriana (Fondazione Santa Lucia, IRCCS, Rome, Italy); Aricò, Pietro (Fondazione Santa Lucia); Aloise, Fabio (Fondazione Santa Lucia IRCCS); Leotta, Francesco (Sapienza University of Rome); De Vico Fallani, Fabrizio (Universita’ Sapienza); Millán, José del R. (Swiss Federal Institute of Technology, Lausanne); Molinari, Marco (Fondazione Santa Lucia, Rome, Italy); Mattia, Donatella (Fondazione Santa Lucia IRCCS)*

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| 08:15-08:30 | FrA16.2 |
| Using Surface Electromyography to Assess Impaired Motor Unit Control in Paretic Muscle Post Stroke | 4116-4119 |
| <i>Hu, Xiaogang (Rehabilitation Institute of Chicago); Suresh, Aneesha (Northwestern University); Li, Xiaoyan (Rehabilitation Institute of Chicago); Rymer, William Zev (Northwest. & Rehab Inst of Chicago); Suresh, Nina* (Rehabilitation Institute of Chicago)</i> | |
| 08:30-08:45 | FrA16.3 |
| Correlations between Statistical Models of Robotically Collected Kinematics and Clinical Measures of Upper Extremity Function | 4120-4123 |
| <i>Rohafza, Maryam (New Jersey Institute of Technology); Fluet, Gerard* (UMDNJ); Qiu, Qinyin (NJIT); Adamovich, Sergei (New Jersey Institute of Technology)</i> | |
| 08:45-09:00 | FrA16.4 |
| Omitting the Intra Session Calibration in EEG-Based Brain Computer Interface Used for Stroke Rehabilitation | 4124-4127 |
| <i>Arvaneh, Mahnaz* (Institute for Infocomm Research); Guan, Cuntai (Institute for Infocomm Research); Ang, Kai Keng (Institute for Infocomm Research); Quek, Chai (Nanyang Technological University)</i> | |
| 09:00-09:15 | FrA16.5 |
| Transcranial Direct Current Stimulation and EEG-Based Motor Imagery BCI for Upper Limb Stroke Rehabilitation | 4128-4131 |
| <i>Ang, Kai Keng* (Institute for Infocomm Research); Guan, Cuntai (Institute for Infocomm Research); Phua, Koksoon (Institute for Infocomm Research); Wang, Chuanchu (Institute for Infocomm Research); Teh, Irvin (A*STAR-NUS Clinical Imaging Research Centre); Chen, Chang Wu (National University Health System); Chew, Effie (National University Health System)</i> | |
| 09:15-09:30 | FrA16.6 |
| Reorganization of Functional Brain Networks During the Recovery of Stroke: A Functional MRI Study .. | 4132-4135 |
| <i>Cheng, Lin (Shanghai Jiao Tong University); Wu, Zhiyuan (Rui Jin Hospital, Shanghai Jiao Tong University School of Medicine); Fu, Yi (Rui Jin Hospital, Shanghai Jiao Tong University School of Medicine.); Miao, Fei (Rui Jin Hospital, Shanghai Jiao Tong University School of Medicine); Sun, Junfeng* (Shanghai Jiao Tong University); Tong, Shanbao (Shanghai Jiao Tong University)</i> | |
| FrA17: 08:00-09:30 | |
| 6.5.1 Brain Stimulation II (Oral Session) | |
| Chair: Gross, Robert (<i>Emory Univ.</i>) | |
| Co-Chair: Parra, Lucas C. (<i>City Coll. of New York</i>) | |
| 08:00-08:15 | FrA17.1 |
| Quantification of Uncertainties in Brain Tissue Conductivity in a Heterogeneous Model of Deep Brain Stimulation Using a Non-Intrusive Projection Approach | 4136-4139 |
| <i>Schmidt, Christian* (University of Rostock); van Rienen, Ursula (University of Rostock)</i> | |
| 08:15-08:30 | FrA17.2 |
| A Neural Network-Based Design of an On-Off Adaptive Control for Deep Brain Stimulation in Movement Disorders | 4140-4143 |
| <i>Shukla, Pitamber* (University of Illinois at Chicago); Basu, Ishita (University of Illinois at Chicago); Graupe, Daniel (University of Illinois at Chicago); Tuninetti, Daniela (University of Illinois at Chicago); Slavin, Konstantin (University of Illinois at Chicago)</i> | |
| 08:30-08:45 | FrA17.3 |
| Analyzing Neuronal Activation with Macroelectrode vs. Microelectrode Array Stimulation | 4144-4147 |
| <i>Arcot Desai, Sharanya* (Georgia Institute of Technology); Gutekunst, Claire-Anne (Emory University); Potter, Steve (Georgia Institute of Technology); Gross, Robert (Emory University)</i> | |
| 08:45-09:00 | FrA17.4 |
| Contribution of Dielectric Dispersions to Voltage Waveforms Arising from Electrical Stimulation | 4148-4151 |
| <i>Grant, Peadar* (University College Dublin); Lowery, Madeleine (University College Dublin)</i> | |

09:00-09:15 FrA17.5
Theoretical Investigation of Transcranial Alternating Current Stimulation 4152-4155
*Lopes, Susana (Imperial College London); Davies, Nicholas (Imperial College London);
Toumazou, Christofer (Imperial College London); Grossman, Nir* (Imperial College London)*

09:15-09:30 FrA17.6
Theoretical Investigation of Transcranial Alternating Current Stimulation Using Realistic Head Model ... 4156-4159
Grossman, Nir (Imperial College London); Samaras, Theodoros (Aristotle University of Thessaloniki);
Manoli, Zoi (Aristotle University of Thessaloniki)*

FrA19: 08:00-09:30 Aqua 304
8.2.1 Robotics: Prosthetics I (Oral Session)
Chair: Perez Gracia, Alba (*Idaho State Univ.*)
Co-Chair: Micera, Silvestro (*Scuola Superiore Sant'Anna*)

08:00-08:15 FrA19.1
Prediction of Distal Arm Joint Angles from EMG and Shoulder Orientation for Prosthesis Control 4160-4163
Akhtar, Aadeel (University of Illinois at Urbana-Champaign); Hargrove, Levi (Rehabilitation Institute of
Chicago); Bretl, Timothy (University of Illinois at Urbana-Champaign)*

08:15-08:30 FrA19.2
A Preliminary Investigation of Powered Prostheses for Improved Walking Biomechanics in Bilateral Transfemoral Amputees 4164-4167
Lawson, Brian (Vanderbilt University); Huff, Amanda (Vanderbilt University);
Goldfarb, Michael (Vanderbilt University)*

08:30-08:45 FrA19.3
A Running Controller for a Powered Transfemoral Prosthesis 4168-4171
Huff, Amanda (Vanderbilt University); Lawson, Brian (Vanderbilt University);
Goldfarb, Michael (Vanderbilt University)*

08:45-09:00 FrA19.4
Preliminary Functional Assessment of a Multigrasp Myoelectric Prosthesis 4172-4175
Dalley, Skyleer (Vanderbilt University); Bennett, Daniel (Vanderbilt University);
Goldfarb, Michael (Vanderbilt University)*

09:00-09:15 FrA19.5
Design of an Exoskeleton As a Finger-Joint Angular Sensor 4176-4180
*Yihun, Yimesker (Idaho State University); Rahman, Md Shamim N (Idaho State University);
Perez Gracia, Alba* (Idaho State University)*

09:15-09:30 FrA19.6
Prosthesis-User-In-The-Loop: A User-Specific Biomechanical Modeling and Simulation Environment ... 4181-4184
Wojtusich, Janis Nikolas Harald (Technische Universität Darmstadt); Beckerle, Philipp (Technische Universität
Darmstadt, Institute for Mechatronic Systems in Mechanical Engineering); Christ, Oliver (Technische Universität
Darmstadt); Wolff, Kerstin (Technische Universität Darmstadt, Work and Engineering Psychology Research
Group); von Stryk, Oskar (Technische Universität Darmstadt); Rinderknecht, Stephan (TU Darmstadt, Institute
for Mechatronic Systems in Mechanical Engineering); Vogt, Joachim (TU Darmstadt)*

FrB01: 09:30-11:00 Indigo Ballroom
1.3.4 Nonlinear Analysis and Dynamics of Biomedical Signals I (Poster Session)

09:30-11:00 FrB01.1
Recurrence Quantification Analysis As a Tool for Complex Fractionated Atrial Electrogram Discrimination 4185-4188
Navoret, Nicolas (University of Burgundy); Jacquir, Sabir (Laboratoire LE2I UMR CNRS 6306,
Université de Bourgogne); Laurent, Gabriel (LE2I UMR CNRS 5158, Université de Bourgogne, France);
Binczak, Stéphane (Université de Bourgogne)*

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| 09:30-11:00 | FrB01.2 |
| Heart Rate Variability in Children with Cyanotic and Acyanotic Congenital Heart Disease: Analysis by Spectral and Non Linear Indices | 4189-4192 |
| <i>Aletti, Federico* (Politecnico di Milano); Ferrario, Manuela (Politecnico di Milano); Bertacini Alma de Jesus, Taiana (Universidade Nove de Julho); Stirbulov, Roberto (Hospital Santa Casa de Misericórdia de Sao Paulo); Borghi Silva, Audrey (Universidade Federal de Sao Carlos); Cerutti, Sergio (Politecnico di Milano); Malosà Sampaio, Luciana Maria (Universidade Nove de Julho)</i> | |
| 09:30-11:00 | FrB01.3 |
| Beat-To-Beat Spatial and Temporal Analysis for QRS-T Morphology | 4193-4195 |
| <i>Hasan, Muhammad Asraful* (The University of Adelaide); Abbott, Derek (The University of Adelaide); Baumert, Mathias (The University of Adelaide)</i> | |
| 09:30-11:00 | FrB01.4 |
| Using Recurrence Network Approach to Quantify Nonlinear Dynamics of Skin Blood Flow in Response to Loading Pressure | 4196-4199 |
| <i>Liao, Fuyuan (University of Oklahoma Health Sciences Center); Jan, Yih-Kuen* (University of Oklahoma Health Sciences Center)</i> | |
| 09:30-11:00 | FrB01.5 |
| Coronary Arterial Stiffness is Related With a Loss of Fractal Complexity in the Aortic Pressure | 4200-4203 |
| <i>Cyberknop, Leandro Javier* (Universidad Tecnológica Nacional); Legnani, Walter (Universidad Tecnológica Nacional); Pessana, Franco Martin (Favaloro University); Crottogini, Alberto (Favaloro University); Armentano, Ricardo Luis (Favaloro University)</i> | |
| 09:30-11:00 | FrB01.6 |
| Automatic Diagnosis of ADHD Based on Multichannel Nonlinear Analysis of Actimetry Registries | 4204-4207 |
| <i>Casaseca-de-la-Higuera, Pablo* (Universidad de Valladolid); Martín-Martínez, Diego (University of Valladolid); Alberola-López, Susana (Laboratorio de Procesado de Imagen (LPI). Universidad de Valladolid); Andrés-de-Llano, Jesús María (University of Valladolid); López-Villalobos, José Antonio (Laboratorio de Procesado de Imagen (LPI). Universidad de Valladolid); Garmendia-Leiza, José Ramón (University of Valladolid); Alberola-López, Carlos (Universidad de Valladolid)</i> | |
| 09:30-11:00 | FrB01.7 |
| Non-Linear Analysis of Stabilograms with Alcoholic Intake | 4208-4211 |
| <i>Takada, Hiroki* (Graduate School of Engineering, University of Fukui); Shimizu, Yuuki (Aichi Medical University); Matsuura, Yasuyuki (University of Fukui); Shiomi, Tomoki (Nagoya University); Miyao, Masaru (Nagoya University)</i> | |
| 09:30-11:00 | FrB01.8 |
| Identification of Nonlinear fMRI Models Using Auxiliary Particle Filter and Kernel Smoothing Method | 4212-4216 |
| <i>Hettiarachchi, Imali Thanuja* (Deakin University); Mohamed, Shady (Deakin University); Nahavandi, Saeid (Deakin University)</i> | |
| 09:30-11:00 | FrB01.9 |
| Influence of Delay Time on Regularity Estimation for Voice Pathology Detection | 4217-4220 |
| <i>Gómez-García, Jorge Andrés (Universidad Nacional de Colombia Sede Manizales); Godino-Llorente, Juan Ignacio (Universidad Politécnica de Madrid); Castellanos-Dominguez, Germán* (Universidad Nacional de Colombia)</i> | |
| 09:30-11:00 | FrB01.10 |
| Identification and Quantification of Mixed Air Pollutants Based on Homotopy Method for Gas Sensor Array | 4221-4224 |
| <i>Yang, Yuning* (Michigan State University); Mason, Andrew (Michigan State University)</i> | |
| 09:30-11:00 | FrB01.11 |
| Characterization of Detrended Fluctuation Analysis in the Context of Glycemic Time Series | 4225-4228 |
| <i>Cirugeda-Roldan, Eva María (Politechnic University of Alcoy); Cuesta-Frau, David* (Politechnic University of Valencia)</i> | |

09:30-11:00 FrB01.12
Complex Networks: Application to Pathology Detection in Voice Signals 4229-4232
Hurtado Jaramillo, Juan Sebastián (Universidad Tecnológica de Pereira); Guarín, Diego Luis (McGill University); Orozco, Alvaro (Universidad Tecnológica de Pereira)*

FrB02: 09:30-11:00 Indigo Ballroom
1.3.5 Nonlinear Analysis and Dynamics of Biomedical Signals II (Poster Session)

09:30-11:00 FrB02.1
Comparative Study between Sample Entropy and Detrended Fluctuation Analysis Performance on EEG Records under Data Loss 4233-4236
Cirugeda-Roldán, Eva María (Politechnic University of Alcoy); Cuesta-Frau, David (Politechnic University of Valencia)*

09:30-11:00 FrB02.2
EMG-Based Detection of Muscle Fatigue During Low-Level Isometric Contraction by Recurrence Quantification Analysis and Monopolar Configuration 4237-4241
Ito, Kenichi (Niigata Institute of Technology); Hotta, Yu (Niigata Institute of Technology)*

FrB03: 09:30-11:00 Indigo Ballroom
1.4.7 Biomedical Signal Classification Poster I (Poster Session)

09:30-11:00 FrB03.1
Automatic Detection of REM Sleep in Subjects without Atonia 4242-4245
Kempfner, Jacob (Technical University of Denmark); Jennum, Poul (Danish Centre for Sleep Medicine); Nikolic, Miki (Department of Clinical Neurophysiology, Glostrup University Hospital); Christensen, Julie Anja Engelhard (Technical University of Denmark); Sorensen, Helge B D (Technical University of Denmark)*

09:30-11:00 FrB03.2
A Comparison between Recording Sites of Snoring Sounds in Relation to Upper Airway Obstruction ... 4246-4249
Azarbarzin, Ali (The University of Manitoba); Moussavi, Zahra (University of Manitoba)*

09:30-11:00 FrB03.3
Validation of a Novel Automatic Sleep Spindle Detector with High Performance During Sleep in Middle Aged Subjects 4250-4253
Wendt, Sabrina Lyngbye (Technical University of Denmark); Christensen, Julie Anja Engelhard (Technical University of Denmark); Kempfner, Jacob (Technical University of Denmark); Leonthin, Helle (Danish Centre for Sleep Medicine); Jennum, Poul (Danish Centre for Sleep Medicine); Sorensen, Helge B D (Technical University of Denmark)*

09:30-11:00 FrB03.4
Online Estimation of Lower and Upper Bounds for Heart Sound Boundaries in Chest Sound Using Convex-Hull Algorithm 4254-4257
Çağlar, Fatih (Erzincan University); Ozbek, I. Yucel (Ataturk University)*

09:30-11:00 FrB03.5
Lung Water Detection Using Acoustic Techniques 4258-4261
*Yang, Feng (Institute of High Performance Computing, A*Star, Singapore); Ser, Wee* (Nanyang Technological University); Yu, Jufeng (Nanyang Technological University); Foo, David Chee-Guan (Tan Tock Seng Hospital); Yeo, Poh Shuan Daniel (Tan Tock Seng Hospital); Chia, Pow-Li (Tan Tock Seng Hospital); Wong, Jennifer (Tan Tock Seng Hospital)*

09:30-11:00 FrB03.6
Modified Classification of Normal Lung Sounds applying Quantile Vectors 4262-4265
Mayorga Ortiz, Pedro (Instituto Tecnológico de Mexicali and CSULB); Druzgalski, Christopher (CSULB); González-Arriaga, Oscar Hugo (Instituto Tecnológico de Mexicali); Lopez-Schraidt, Hernán Silverio (ITM)*

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| 09:30-11:00 | FrB03.7 |
| Diagnosis of Alzheimer's Disease from EEG by Means of Synchrony Measures in Optimized Frequency Bands | 4266-4270 |
| <i>Gallego-Jutglà, Esteve (University of Vic); Elgendí, Mohamed* (Nanyang Technological University); Vialatte, Francois (ESPCI ParisTech); Solé-Casals, Jordi (University of Vic); Cichocki, Andrzej (BSI RIKEN); Latchoumane, Charles (KAIST); Jeong, Jaeseung (KAIST); Dauwels, Justin (MIT)</i> | |
| 09:30-11:00 | FrB03.8 |
| Time Sparsification of EEG Signals in Motor-Imagery Based Brain Computer Interfaces | 4271-4274 |
| <i>Higashi, Hiroshi* (Tokyo University of Agriculture and Technology); Tanaka, Toshihisa (Tokyo University of Agriculture and Technology)</i> | |
| 09:30-11:00 | FrB03.9 |
| Sparse Linear Regression with Elastic Net Regularization for Brain-Computer Interfaces | 4275-4278 |
| <i>Kelly, John* (Carnegie Mellon University); Degenhart, Alan (University of Pittsburgh); Siewiorek, Daniel (Carnegie Mellon University); Smailagic, Asim (Carnegie Mellon University); Wang, Wei (University of Pittsburgh)</i> | |
| 09:30-11:00 | FrB03.10 |
| EEG-Based Detection of Awakening from Isoflurane Anesthesia in Rats | 4279-4282 |
| <i>Kortelainen, Jukka* (University of Oulu); Väyrynen, Eero (University of Oulu); Jia, Xiaofeng (Johns Hopkins University School of Medicine); Seppänen, Tapio (University of Oulu); Thakor, Nitish (Johns Hopkins University)</i> | |
| 09:30-11:00 | FrB03.11 |
| Pulse Arrival Time As Surrogate for Systolic Blood Pressure Changes During Impending Neurally Mediated Syncope | 4283-4286 |
| <i>Muehlsteff, Jens* (Philips); Couceiro, Ricardo (University of Coimbra); de Carvalho, Paulo (University of Coimbra – NIF: 501617582); Meyer, Christian (Heinrich-Heine-University Hospital); Ritz, Anita (Heinrich-Heine-University Düsseldorf); Drexel, Thomas (Heinrich-Heine-University Düsseldorf); Eickholt, Christian (University Hospital Duesseldorf); Kelm, Malte (University Hospital Duesseldorf)</i> | |
| 09:30-11:00 | FrB03.12 |
| RR-QT Interval Trend Covariability for Sudden Cardiac Death Risk Stratification | 4287-4290 |
| <i>Nishibe, Toshihiro (Hosei University); Sato, Kei (Hosei University); Yoshino, Kunihiro (Hosei University); Seki, Ryota (Hosei University); Yana, Kazuo* (Hosei University); Ono, Takuya (Nippon Medical School)</i> | |
| FrB04: 09:30-11:00 Indigo Ballroom | |
| 1.4.8 Biomedical Signal Classification Poster II (Poster Session) | |
| 09:30-11:00 | FrB04.1 |
| Sequential Markov Chain Monte Carlo Filter with Simultaneous Model Selection for Electrocardiogram Signal Modeling | 4291-4294 |
| <i>Edla, Shwetha* (Arizona State University); Kovvali, Narayan (Arizona State University); Papandreou-Suppappola, Antonia (Arizona State University)</i> | |
| 09:30-11:00 | FrB04.2 |
| Improvement of ECG Signal Quality Measurement Using Correlation and Diversity-Based Approaches | 4295-4298 |
| <i>Martinez T., Francisco Javier* (Universidad Nacional de Colombia sede Manizales); Castellanos-Dominguez, Germán (Universidad Nacional de Colombia)</i> | |
| 09:30-11:00 | FrB04.3 |
| Multiscale Sample Entropy Based on Discrete Wavelet Transform for Clinical Heart Rate Variability Recognition | 4299-4302 |
| <i>Lee, Ming-Yuan (National Chung Cheng University); Yu, Sung-Nien* (National Chung Cheng University)</i> | |
| 09:30-11:00 | FrB04.4 |
| Mitral Valve Prolapse Detection Using Landmark Extraction from Echocardiography Sequences | 4303-4306 |
| <i>Siyah Mansoor, Meysam (Tehran University of Medical Science); Ahmadian, Alireza (Tehran University of Medical Sciences); Gorgian Mohammadi, Amrollah (Tehran University of Medical Sciences (TUMS)); Farnia, Parastoo* (Tehran University of medical sciences)</i> | |

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| 09:30-11:00 | FrB04.5 |
| Classification of Cardiosynchronous Waveforms by Projection to a Legendre Polynomial Sub-Space ... | 4307-4310 |
| <i>Jaech, Aaron* (Carnegie Mellon University); Blue, Rebecca (Orlando Health); Friedman, Robert (Noninvasive Medical Technologies, Inc); O Griofa, Marc (University of Limerick); Savvides, Marios (Carnegie Mellon University); Bhagavatula, Vijayakumar (Department of Electrical and Computer Engineering, Carnegie Mellon University)</i> | |
| 09:30-11:00 | FrB04.6 |
| Biometric Identification of Cardiosynchronous Waveforms Utilizing Person Specific Continuous and Discrete Wavelet Transform Features | 4311-4314 |
| <i>Bhagavatula, Chandrasekhar* (Carnegie Mellon University); Vegnugopalan, Shreyas (Carnegie Mellon University); Blue, Rebecca (Orlando Health); Friedman, Robert (Noninvasive Medical Technologies, Inc); O Griofa, Marc (University of Limerick); Savvides, Marios (Carnegie Mellon University); Bhagavatula, Vijayakumar (Department of Electrical and Computer Engineering, Carnegie Mellon University)</i> | |
| 09:30-11:00 | FrB04.7 |
| Severity Estimation of Finger-Tapping Caused by Parkinson's Disease by Using Linear Discriminant Regression Analysis | 4315-4318 |
| <i>Sano, Yuko* (Hitachi Co. Ltd.); Kandori, Akihiko (Hitachi Ltd.); Miyoshi, Toshinori (Central Research Laboratory, Hitachi Co. Ltd.); Tsuji, Toshio (Hiroshima University); Shima, Keisuke (Hiroshima University); Yokoe, Masaru (Osaka University); Sakoda, Saburo (Toneyama National Hospital)</i> | |
| 09:30-11:00 | FrB04.8 |
| Myoelectric Control Performance Provided by Generic Electrode Grid When Used with Targeted Muscle Reinnervation Patients | 4319-4323 |
| <i>Tkach, Dennis (Rehabilitation Institute of Chicago); Young, Aaron (Northwestern University); Smith, Lauren (Northwestern University); Hargrove, Levi* (Rehabilitation Institute of Chicago)</i> | |
| 09:30-11:00 | FrB04.9 |
| Reducing Classification Accuracy Degradation of Pattern Recognition Based Myoelectric Control Caused by Electrode Shift Using a High Density Electrode Array | 4324-4327 |
| <i>Boschmann, Alexander* (University of Paderborn); Platzner, Marco (University of Paderborn)</i> | |
| 09:30-11:00 | FrB04.10 |
| Performance Evaluation of an Artificial Neural Network Automatic Spindle Detection System | 4328-4331 |
| <i>Ventouras, Errikos (Technological Educational Institution of Athens); Economou, Nicholas-Tiberio (Medical School, University of Athens); Kritikou, Iliá* (Penn State University & Medical School, University of Crete); Tsekou, Hara (Medical School, University of Athens); Paparrigopoulos, Thomas (Medical School, University of Athens); Ktonas, Periklis (University of Athens)</i> | |
| 09:30-11:00 | FrB04.11 |
| A Comparison of Direct and Pattern Recognition Control for a Two Degree of Freedom above Elbow Virtual Prosthesis | 4332-4335 |
| <i>Toledo Peral, Cinthya* (Centro de Investigación y de Estudios Avanzados del IPN); Simon, Ann (Rehabilitation Institute of Chicago); Muñoz, Roberto (Centro de Investigación y de Estudios Avanzados del IPN); Vera, Arturo (Centro de Investigación y de Estudios Avanzados del IPN); Leija, Lorenzo (Centro de Investigación y de Estudios Avanzados del Instituto Politecnico Nacional); Hargrove, Levi (Rehabilitation Institute of Chicago)</i> | |
| 09:30-11:00 | FrB04.12 |
| Determination of Neural State Classification Metrics from the Power Spectrum of Human ECoG* | 4336-4340 |
| <i>Kelsey, Matthew (Washington University School of Medicine); Politte, David (Washington University School of Medicine); Verner, Ryan (Department of Biomedical Engineering, Washington University in St. Louis); Zempel, John (Departments of Neurology and Pediatrics, Washington University School of Medicine); Nolan, Tracy (Washington University School of Medicine); Babajani-Feremi, Abbas (Department of Anatomy and Neurobiology, Washington University School of Medicine); Prior, Fred (Washington University School of Medicine); Larson-Prior, Linda* (Washington University in St. Louis)</i> | |
| 09:30-11:00 | FrB04.13 |
| Multi-Patient Learning Increases Accuracy for Subthalamic Nucleus Identification in Deep Brain Stimulation | 4341-4344 |
| <i>Vargas Cardona, Hernán Darío (Universidad Tecnológica de Pereira); Orozco, Alvaro (Universidad Tecnológica de Pereira); Álvarez, Mauricio A.* (Universidad Tecnológica de Pereira)</i> | |

FrB05: 09:30-11:00

Indigo Ballroom

1.4.9 Biomedical Signal Classification Poster III (Poster Session)

09:30-11:00

FrB05.1

Using Piezoelectric Films for Classification of Upper Arm Motions: A Preliminary Report 4345-4348

Suzuki, Hiroyuki (Chiba University); Soma, Hirokazu (Chiba University); Gonzalez, Jose (Chiba University); Yu, Wenwei (University of Chiba)*

09:30-11:00

FrB05.2

Performance of Respiratory Pattern Parameters in Classifiers for Predict Weaning Process 4349-4352

Chaparro, Javier (Escuela Colombiana de Ingeniería Julio Garavito); Giraldo, Beatriz (Universitat Politècnica de Catalunya); Caminal, Pere (Technical University of Catalonia (UPC)); Benito, Salvador (Hospital de la Santa Creu i Sant Pau)*

09:30-11:00

FrB05.3

Classification of Posture and Activities by Using Decision Trees 4353-4356

Zhang, Ting (The University of Alabama); Tang, Wenlong (The University of Alabama); Sazonov, Edward (University of Alabama)*

09:30-11:00

FrB05.4

Detrending Knee Joint Vibration Signals with a Cascade Moving Average Filter 4357-4360

Wu, Yunfeng (Xiamen University); Cai, Suxian (Xiamen University); Xiang, Ning (Xiamen University); Zhong, Zhangting (Xiamen University); He, Jia (Xiamen University); Xu, Fang (Xiamen University)*

FrB06: 09:30-11:00

Indigo Ballroom

2.6.1 Image Reconstruction (Poster Session)

09:30-11:00

FrB06.1

Automatic 3D Reconstruction of Quasi-Planar Stereo Scanning Electron Microscopy (SEM) Images 4361-4364

Roy, Sébastien (University of Montréal); Meunier, Jean (Université de Montréal); Marian, Anca (Maisonneuve-Rosemont Hospital Research Center); Vidal, François (Institut National de la Recherche Scientifique); Brunette, Isabelle (University of Montréal); Costantino, Santiago (Maisonneuve-Rosemont Hospital Research Center)*

09:30-11:00

FrB06.2

Saliency-Guided Compressive Fluorescence Microscopy 4365-4368

Schwartz, Shimon (University of Waterloo); Wong, Alexander (University of Waterloo); Clausi, David Anthony (University of Waterloo)*

09:30-11:00

FrB06.3

Hermite Kernels for Slice Interpolation in Medical Images 4369-4373

Delibasis, Konstantinos (University of Central Greece); Kechriniotis, Aristides (Technological Institute of Lamia); Assimakis, Nicholas (Technological Educational Institute of Lamia); Tassani, Simone (Institute of Communication and Computer Systems); Matsopoulos, George K (Inst of Comm & Computer Systems)*

09:30-11:00

FrB06.4

Fast Parallel Algorithm for CT Image Reconstruction 4374-4377

Flores, Liubov Alexandrovna (Universidad Politécnica de Valencia); Vidal, Vicente (Universidad Politécnica de Valencia); Mayo, Patricia (Universidad Politécnica de Valencia); Rodenas, Francisco (Universidad Politécnica de Valencia); Verdú, Gumersindo (Polytechnic University of Valencia)*

FrB07: 09:30-11:00

Indigo Ballroom

2.6.3 Image Improvement Posters I (Poster Session)

09:30-11:00

FrB07.1

Hair Detection in Dermoscopic Images Using Percolation 4378-4381

Silveira, Margarida (Instituto Superior Técnico (NIF: 509830072)); Afonso, Ana (Instituto Superior Técnico)*

09:30-11:00 FrB07.2
Medical Image Restoration with Different Types of Noise 4382-4385
Sánchez, M. Guadalupe (Instituto Tecnológico de Ciudad Guzmán); Vidal, Vicente (Universidad Politécnica de Valencia); Verdú, Gumersindo (Polytechnic University of Valencia); Mayo, Patricia (Universidad Politecnica de Valencia); Rodenas, Francisco (Universidad Politecnica de Valencia)*

09:30-11:00 FrB07.3
Ultrasonic Tissue Characterization of the Upper Trapezius Muscle in Patients with Myofascial Pain Syndrome 4386-4389
Turo, Diego (George Mason University); Otto, Paul (George Mason University); Shah, Jay (National Institutes of Health Clinical Center); Heimur, Juliana (National Institutes of Health); Gebreab, Tadesse (National Institutes of Health Clinical Center); Armstrong, Katherine (George Mason University); Gerber, Lynn (George Mason University); Sikdar, Siddhartha (George Mason University)*

09:30-11:00 FrB07.4
On the Performance of Improved ICP Algorithms for Registration of Intra-Ultrasound with Pre-MR Images; a Phantom Study 4390-4393
Farnia, Parastoo (Tehran University of medical sciences); Ahmadian, Alireza (Tehran University of Medical Sciences); Sedighpoor, Mahdi (tehran univercity of medical science); khoshnevisan, alireza (tehran University of medical science.iran); Siyah Mansoor, Meysam (Tehran University of Medical Science)*

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| FrB08: 09:30-11:00 | Indigo Ballroom |
| 2.8.2 Image Classification Posters I (Poster Session) | |

09:30-11:00 FrB08.1
Combining Multiple Feature Representations and AdaBoost Ensemble Learning for Reducing False-Positive Detections in Computer-Aided Detection of Masses on Mammograms 4394-4397
Choi, Jae Young (Korea Advanced Institute of Science and Technology (KAIST))*

09:30-11:00 FrB08.2
Body Surface Area Measurement and Soft Clustering for PASI Area Assessment 4398-4401
Ahmad Fadzil, Mohamad Hani (Universiti Teknologi Petronas); Prakasa, Esa (Universiti Teknologi PETRONAS); Nugroho, Hermawan (Universiti Teknologi PETRONAS); M. Affandi, Azura (Hospital Kuala Lumpur); Hussein, Suraiya Hani (General Hospital Kuala Lumpur)*

09:30-11:00 FrB08.3
On the Role of Texture and Color in the Classification of Dermoscopy Images 4402-4405
Marques, Jorge (Instituto Superior Tecnico); Barata, Catarina (Instituto Superior Tecnico – 501 507 930); Mendonça, Teresa (Faculdade de Ciencias, Universidade do Porto)*

09:30-11:00 FrB08.4
Scale Normalization of Histopathological Images for Batch Invariant Cancer Diagnostic Models 4406-4409
Kothari, Sonal (Georgia Institute of Technology); Phan, John H. (Georgia Institute of Technology); Wang, May D. (Georgia Tech and Emory University)*

09:30-11:00 FrB08.5
A Wavelet-Based Approach for a Continuous Analysis of Phonovibrograms 4410-4413
Unger, Jakob (University of Applied Science Trier); Meyer, Tobias (University of Applied Science Trier); Doellinger, Michael (University Hospital Erlangen); Hecker, Dietmar J. (Saarland University); Schick, Bernhard (Klinik und Poliklinik für HNO, Universität des Saarlandes); Lohscheller, Joerg (University of Applied Science Trier)*

09:30-11:00 FrB08.6
Advanced Characterization of Microscopic Kidney Biopsies Utilizing Image Analysis Techniques 4414-4417
Goudas, Theodosios (University of Central Greece); Doukas, Charalampos (University of the Aegean); Chatziioannou, Aristotelis (National Hellenic Research Foundation); Maglogiannis, Ilias (University of Central Greece)*

09:30-11:00 FrB08.7
Cancer Cells Detection and Pathology Quantification Utilizing Image Analysis Techniques 4418-4421
Goudas, Theodosios (University of Central Greece); Maglogiannis, Ilias (University of Central Greece)*

09:30-11:00 FrB08.8
A New Roc Analysis Method Considering the Correlation between Neighboring Pixels 4422-4425
Liu, Xin (University of California San Francisco); Yetik, Imam Samil (Illinois Institute of Technology)*

FrB09: 09:30-11:00 Indigo Ballroom
2.8.4 Image Feature Extraction Posters I (Poster Session)

09:30-11:00 FrB09.1
Symmetry and Appearance Based Automated Detection of Salient Anatomical Regions in Ultrasound 4426-4428
Patwardhan, Kedar (GE Global Research)*

09:30-11:00 FrB09.2
Automated Extraction of Nested Sulcus Features from Human Brain MRI Data 4429-4433
Bao, Forrest Sheng (Texas Tech University); Giard, Joachim (Université catholique de Louvain); Tourville, Jason (Boston University); Klein, Arno (Columbia University)*

09:30-11:00 FrB09.3
Automatic Pterygium Detection on Cornea Images to Enhance Computer-Aided Cortical Cataract Grading System 4434-4437
Gao, Xinting (Institute for Infocomm Research); Wong, Damon (Institute for Infocomm Research); Aryaputera, Aloysius Wishnu (National University of Singapore); Sun, Ying (National University of Singapore); Cheng, Ching-Yu (Singapore Eye Research Institute); Cheung, Carol (Singapore Eye Research Institute); Wong, Tien Yin (National University of Singapore)*

09:30-11:00 FrB09.4
Geometric Correction of Deformed Chromosomes for Automatic Karyotyping 4438-4441
Khan, Shadab (Dartmouth College); DSouza, Alisha (Dartmouth College); Sanches, J. Miguel (IST(NIF:501507930)); Ventura, Rodrigo (Instituto Superior Técnico)*

09:30-11:00 FrB09.5
Quantification of the Bone Healing Process Using Information of B-Mode Ultrasound Image 4442-4445
Al-Nashash, Hasan (American University of Sharjah); Mir, Hasan (American University of Sharjah); Al-Marzouqi, Shaikha (AUS); Al-Kendi, shaikha (AUS); Khalaf, Kinda (KUSTAR)*

09:30-11:00 FrB09.6
Ovarian Tumor Characterization and Classification: A Class of GyneScan Systems 4446-4449
Acharya, Rajendra (NgeeAnn Polytechnic); S, Viniitha Sree (Global Biomedical Technologies Inc., Roseville, CA, USA); saba, luca (Policlinico Universitario); Guerriero, Stefano (Department of Obstetrics and Gynecology, University of Cagliari, Ospedale San Giovanni di Dio, Via Ospedale 46, 09124 Cagliari, I); Suri, Jasjit (Biomedical Technologies)*

09:30-11:00 FrB09.7
A Shape Constrained Parametric Active Contour Model for Breast Contour Detection 4450-4453
Lee, Juhun (The University of Texas at Austin); Muralidhar, Gautam (The University of Texas at Austin); Reece, Gregory (The University of Texas MD Anderson Cancer Center); Markey, Mia (The University of Texas at Austin)*

09:30-11:00 FrB09.8
Using Spatio-Temporal Interest Points (STIP) for Myoclonic Jerk Detection in Nocturnal Video 4454-4457
Cuppens, Kris (Katholieke Hogeschool Kempen); Chen, Chih-Wei (Stanford University); Wong, Kevin Bing-Yung (Stanford University); Van de Vel, Anouk (University Hospital of Antwerp); Lagae, Lieven (University Hospital of Leuven); Ceulemans, Berten (University Hospital of Antwerp); Tuytelaars, Tinne (ESAT-PSI, KU Leuven); Van Huffel, Sabine (Katholieke Universiteit Leuven); Vanrumste, Bart (Katholieke Universiteit Leuven); Aghajan, Hamid (Stanford University)*

09:30-11:00 FrB09.9
Extracting Morphological High-Level Intuitive Features (HLIF) for Enhancing Skin Lesion Classification 4458-4461
Amelard, Robert (University of Waterloo); Wong, Alexander (University of Waterloo); Clausi, David Anthony (University of Waterloo)*

09:30-11:00 FrB09.10
Automated Measurement of Pediatric Cranial Bone Thickness and Density from Clinical Computed Tomography 4462-4465
Smith, Kirk (Washington University in St. Louis); Politte, David (Washington University School of Medicine); Reiker, Gregory (Washington University School of Medicine); Nolan, Tracy (Washington University School of Medicine); Hildebolt, Charles (Washington University School of Medicine); Mattson, Chelsea (University of Oregon); Tucker, Don (University of Oregon); Prior, Fred (Washington University School of Medicine); Turovets, Sergei (University of Oregon); Larson-Prior, Linda (Washington University in St. Louis)*

FrB10: 09:30-11:00 Indigo Ballroom
3.4.1 Integrated Sensors and Systems (Poster Session)

09:30-11:00 FrB10.1
Architecture Design of the Multi-Functional Wavelet-Based ECG Microprocessor for Realtime Detection of Abnormal Cardiac Events 4466-4469
Cheng, Li-Fang (National Taiwan University); Chen, Tung-Chien (National Taiwan University); Chen, Liang-Gee (NTU)*

09:30-11:00 FrB10.2
Design and Measurements of Low Power Multichannel Chip for Recording and Stimulation of Neural Activity 4470-4474
Kmon, Piotr (AGH University of Science and Technology); Grybos, Pawel (AGH University of Science and Technology); Zoladz, Miroslaw (AGH University of Science and Technology); Szczygiel, Robert (AGH University of Science and Technology); OTFINOWSKI, Piotr (AGH University of Science and Technology); KLECZEK, Rafal (AGH University of Science and Technology); Rauza, Jacek (AGH University)*

09:30-11:00 FrB10.3
Integrative Technology-Based Approach of Microelectromechanical Systems (MEMS) for Biosensing Applications 4475-4478
NICU, Liviu (LAAS-CNRS); Alava, Thomas (LAAS-CNRS); Leichle, Thierry (LAAS-CNRS); Saya, Daisuke (LAAS-CNRS); Pourciel, Jean-Bernard (LAAS-CNRS); Mathieu, Fabrice (LAAS-CNRS); SOYER, Caroline (IEMN-CNRS); Remiens, Denis (IEMN-CNRS); Ayela, Cédric (IMS-CNRS); Haupt, Karsten (UTC)*

09:30-11:00 FrB10.4
Pulse Laser Assisted Optical Tweezers for Biomedical Applications 4479-4481
Sugiura, Tadao (Nara Institute of Science and Technology); Maeda, Saki (Nara Institute of Science and Technology); Honda, Ayae (Housei University)*

09:30-11:00 FrB10.5
A Method for Stable Electrical Connection of a Multi-Channeled Polyimide Electrode with PCB 4482-4484
Baek, Dong-Hyun (Korea University); Jung, Ha-Chul (Korea University); Kim, Seon Min (Korea University); Im, Chang-Hwan (Yonsei University); Pak, James Jungho (Korea University); Lee, Sang Hoon (College of Health science, Korea University)*

09:30-11:00 FrB10.6
Low Power and High Accuracy Spike Sorting Microprocessor with On-Line Interpolation and Re-Alignment in 90nm CMOS Process 4485-4488
Chen, Tung-Chien (National Taiwan University); Ma, Tsung-Chuan (National Taiwan University, GIEE); Chen, Yun Yu (National Taiwan University); Chen, Liang-Gee (NTU)*

FrB11: 09:30-11:00 Indigo Ballroom
3.6.2 Wearable Technology I (Poster Session)

09:30-11:00 FrB11.2
Posture Estimation for a Canine Machine Interface Based Training System 4489-4492
Brugarolas, Rita (North Carolina State University); Roberts, David (North Carolina State University); Sherman, Barbara (North Carolina State University); Bozkurt, Alper (North Carolina State University)*

09:30-11:00 FrB11.3
Motion Capture System Using Wiimote Motion Sensors 4493-4496
Harbert, Simeon (Ga Tech Research Institute); Zuerndorfer, Jay (GTRI); Jaiswal, Tushar (Georgia Tech Research Institute); Harley, Linda Rosemary (Georgia Tech Research Institute)*

09:30-11:00 FrB11.4
Signal Agnostic Compressive Sensing for Body Area Networks: Comparison of Signal Reconstructions 4497-4500
Casson, Alexander James (Imperial College London); Rodriguez-Villegas, Esther (Imperial College London)*

09:30-11:00 FrB11.5
Low-Power System-On-Chip Implementation for Respiratory Rate Detection and Transmission 4501-4504
Padasdao, Bryson (University of Hawaii at Manoa); Yee, Roxanne (UHM); Boric-Lubecke, Olga (University of Hawaii Manoa)*

09:30-11:00 FrB11.6
Evaluation of the ShapeTape for Studying Biomechanics in the Workplace 4505-4508
Harley, Linda Rosemary (Georgia Tech Research Institute); Grullon, Sergio (Consulting); Harbert, Simeon (Ga Tech Research Institute); Holmes, Jonathan Frank (Georgia Tech Research Institute); Britton, Doug (Ga Tech Research Institute)*

FrB12: 09:30-11:00 Indigo Ballroom
3.6.3 Wearable Technology III (Poster Session)

09:30-11:00 FrB12.1
Comparing Adaptive Algorithms to Measure Temporal Gait Parameters using Lower Body Mounted Inertial Sensors 4509-4512
Patterson, Matt (University College Dublin); Caulfield, Brian (UCD)*

09:30-11:00 FrB12.2
Towards the Prevention of Pressure Ulcers with a Wearable Patient Posture Monitor Based on Adaptive Accelerometer Alignment 4513-4516
Dhillon, Marshal (Sotera Wireless); McCombie, Scott (Sotera Wireless, Inc.); McCombie, Devin (Sotera Wireless, Inc.)*

09:30-11:00 FrB12.3
Application of Near-Field Intra-Body Communication and Spread Spectrum Technique to Vital-Sign Monitor 4517-4520
Kobayashi, Takumi (Tokyo City University); Shimatani, Yuichi (Tokyo City University); Kyoso, Masaki (Tokyo City University)*

09:30-11:00 FrB12.4
Enhancing Clinical Measures of Postural Stability with Wearable Sensors 4521-4524
Deshmukh, Priyanka (Simon Fraser University); Russell, Colin (Simon Fraser University); Lucarino, Lisa (Simon Fraser University); Robinovitch, Stephen (Simon Fraser University)*

09:30-11:00 FrB12.5
Activity Monitoring and Motion Classification of the Lizard *Chamaeleo Jacksonii* Using Multiple Doppler Radars 4525-4528
Lee, Scott (University of Hawaii at Manoa); Singh, Aditya (University of Hawaii at Manoa); Butler, Marguerite (University of Hawaii at Manoa); Lubecke, Victor (University of Hawaii Manoa)*

FrB13: 09:30-11:00 Indigo Ballroom
3.7.2 Wearable Technology II (Poster Session)

09:30-11:00 FrB13.1
On the Correlation between Motion Data Captured from Low-Cost Gaming Controllers and High Precision Encoders 4529-4532
Purkayastha, Sagar Neel (Rice University); Byrne, Michael D (Rice University); O'Malley, Marcia K. (Rice University)*

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| 09:30-11:00 | FrB13.2 |
| Effect of Frequency, Body Parts and Surrounding on the On-Body Propagation Channel Around the Torso | 4533-4536 |
| <i>Chandra, Rohit* (Lund University); Johansson, Anders (Lund University)</i> | |
| 09:30-11:00 | FrB13.3 |
| A Wireless Trigger for Synchronization of Wearable Sensors to External Systems During Recording of Human Gait | 4537-4540 |
| <i>Kugler, Patrick* (University of Erlangen-Nuremberg); Schlarb, Heiko (Adidas AG); Blinn, Jörg (FH Kaiserslautern – University of Applied Sciences); Picard, Antoni (FH Kaiserslautern – University of Applied Sciences); Eskofier, Bjoern M (University of Erlangen-Nuremberg)</i> | |
| 09:30-11:00 | FrB13.4 |
| Wearable Mental-Health Monitoring Platform with Independent Component Analysis and Nonlinear Chaotic Analysis | 4541-4544 |
| <i>Roh, Taehwan* (KAIST); Bong, Kyeongryeol (KAIST); Hong, Sunjoo (KAIST); Cho, Hyunwoo (KAIST); Yoo, Hoi-Jun (KAIST)</i> | |
| 09:30-11:00 | FrB13.5 |
| 3D Localization of Circular Feature in 2D Image and Application to Food Volume Estimation | 4545-4548 |
| <i>Jia, Wenyan (University of Pittsburgh); Yue, Yaofeng (University of Pittsburgh); Fernstrom, John D. (University of Pittsburgh); Zhang, Zhengnan (University of Pittsburgh); Yang, Yongquan (Ocean University of China); Sun, Mingui* (University of Pittsburgh)</i> | |
| 09:30-11:00 | FrB13.6 |
| Arm Movement Effect on Balance | 4549-4552 |
| <i>Shafeie, Mohsen (Ryerson University); Manifar, Sara (Ryerson University); Milosevic, Matija (Ryerson University); Valter McConville, Kristiina M.* (Ryerson University)</i> | |

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| FrB14: 09:30-11:00 | Indigo Ballroom |
| 6.7.1 Virtual Reality in Rehabilitation (Poster Session) | |

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| 09:30-11:00 | FrB14.1 |
| Investigation of the Treadport for Gait Rehabilitation of Spinal Cord Injury | 4553-4558 |
| <i>Hejrati, Babak* (University of Utah); Hull, Dale (Neuroworx); Black, Jan (Neuroworx); Abbott, Jake J. (ETH Zurich); Hollerbach, John (University of Utah)</i> | |
| 09:30-11:00 | FrB14.2 |
| Resting State Functional Connectivity and Task-Related Effective Connectivity Changes after Upper Extremity Rehabilitation: A Pilot Study | 4559-4562 |
| <i>Saleh, Soha (New Jersey Institute of Technology (NJIT)); Adamovich, Sergei* (New Jersey Institute of Technology); Tunik, Eugene (University of Medicine and Dentistry of New Jersey (UMDNJ))</i> | |
| 09:30-11:00 | FrB14.3 |
| Classification of Hand Preshaping in Persons with Stroke Using Linear Discriminant Analysis | 4563-4566 |
| <i>Puthenveetil, Saumya* (New Jersey Institute of Technology); Fluet, Gerard (UMDNJ); Qiu, Qinyin (NJIT); Adamovich, Sergei (New Jersey Institute of Technology)</i> | |
| 09:30-11:00 | FrB14.4 |
| Development of a Closed-Loop Feedback System for Real-Time Control of a High-Dimensional Brain Machine Interface | 4567-4570 |
| <i>Putrino, David* (New York University); Wong, Yan Tat (New York University); Vigerl, Mariana (NYU); Pesaran, Bijan (New York University)</i> | |
| 09:30-11:00 | FrB14.5 |
| Development of Games for Assessment and Training in Post-Stroke Arm Telerehabilitation | 4571-4574 |
| <i>Rodriguez-de-Pablo, Cristina (TECNALIA); Perry, Joel C. (TECNALIA); Cavallaro, Francesca Irene (TECNALIA); Zabaleta, Haritz* (TECNALIA); Keller, Thierry (Tecnalia Research & Innovation)</i> | |

6.9.3 Brain Physiology and Modeling (Poster Session)

- 09:30-11:00 FrB15.1
Axon Terminal Polarization Induced by Weak Uniform DC Electric Fields: A Modeling Study 4575-4578
Arlotti, Mattia (University of Bologna); Rahman, Asif (The City College of The City University of New York); Minhas, Preet (The City College of The City University of New York); Bikson, Marom (The City College of New York)*
- 09:30-11:00 FrB15.2
A Dual Mode FPGA Design for the Hippocampal Prosthesis 4579-4582
Li, Will X. Y. (City University of Hong Kong); Chan, Rosa H. M. (City University of Hong Kong); Song, Dong (University of Southern California); Berger, Theodore (University of Southern California); Cheung, Ray C. C. (City University of Hong Kong)*
- 09:30-11:00 FrB15.3
Modelling Eye-Head Coordination without Pre-Planning – A Reflex-Based Approach 4583-4586
Haji Abolhassani, Iman (McGill University); Guitton, Daniel (Department of Neurology and Neurosurgery of the Montreal Neurological Institute); Galiana, Henrietta L. (McGill University)*
- 09:30-11:00 FrB15.4
Granger Causality Analysis of Functional Connectivity of Spiking Neurons in Orofacial Motor Cortex During Chewing and Swallowing 4587-4590
Takahashi, Kazutaka (University of Chicago); Pesce, Lorenzo (University of Chicago); Iriarte-Diaz, Jose (University of Chicago); Kim, Sanggyun (University of California at San Diego); Coleman, Todd (UCSD); Hatsopoulos, Nicholas (University of Chicago); Ross, Callum (University of Chicago)*
- 09:30-11:00 FrB15.5
“Stim-eLab”: A Simulation Tool to Enhance Education of Bioelectrical Mechanisms of Electrical Stimulation 4591-4594
Mohagheghi-Nejad, Mohammad Reza (University of Isfahan); Mahnam, Amin (University of Isfahan)*
- 09:30-11:00 FrB15.6
Towards a Large-Scale Biologically Realistic Model of the Hippocampus 4595-4598
Hendrickson, Phillip (University of Southern California); Yu, Gene (University of Southern California); Robinson, Brian (University of Southern California); Song, Dong (University of Southern California); Berger, Theodore (University of Southern California)*

6.10.3 Neural Signal Processing (Poster Session)

- 09:30-11:00 FrB16.1
Feasibility of Recording High Frequency Oscillations with Tripolar Concentric Ring Electrodes During Pentylentetrazole-Induced Seizures in Rats 4599-4602
Makeyev, Oleksandr (University of Rhode Island); Liu, Xiang (University of Rhode Island); Wang, Liling (University of Rhode Island); Zhu, Zhenghan (University of Rhode Island); Taveras, Aristides (University of Rhode Island); Troiano, Derek (University of Rhode Island); Medvedev, Andrei (Georgetown University); Besio, W. G. (University of Rhode Island)*
- 09:30-11:00 FrB16.2
Computing the Trajectory Mutual Information between a Point Process and an Analog Stochastic Process 4603-4606
Pasha, Syed Ahmed (University of Sydney); Solo, Victor (University of New South Wales)*
- 09:30-11:00 FrB16.3
DataHigh: Graphical User Interface for Visualizing and Interacting with High-Dimensional Neural Activity 4607-4610
Cowley, Benjamin (Carnegie Mellon University); Kaufman, Matthew (Stanford University); Churchland, Mark (Columbia University); Ryu, Stephen (Stanford University); Shenoy, Krishna V. (Stanford University); Yu, Byron M. (Carnegie Mellon University)*

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| 09:30-11:00 | FrB16.4 |
| Spline and Wavelet-Based Models of Neural Activity in Response to Natural Visual Stimulation | 4611-4614 |
| <i>Gerhard, Felipe* (Ecole Polytechnique Federale de Lausanne); Szegletes, Luca (Budapest University of Technology and Economics)</i> | |
| 09:30-11:00 | FrB16.5 |
| Quantification of Listening Effort Correlates in the Oscillatory EEG Activity: A Feasibility Study | 4615-4618 |
| <i>Bernarding, Corinna (Saarland University Hospital); Strauss, Daniel J.* (Saarland University, Medical Faculty); Hannemann, Ronny (Siemens Audiologische Technik); Corona-Strauss, Farah I. (Saarland University Hospital)</i> | |
| 09:30-11:00 | FrB16.6 |
| Analysis of Extrinsic and Intrinsic Factors Affecting Event Related Desynchronization Production | 4619-4622 |
| <i>Takata, Yohei (Tokyo University of Agriculture and Technology); Kondo, Toshiyuki* (Tokyo University of Agriculture and Technology); Saeki, Midori (Tokyo University of Agriculture and Technology); Izawa, Jun (Advanced Telecommunications Research International); Takeda, Kotaro (National Hospital Organization Murayama Medical Center); Otaka, Yohei (Keio University); Ito, Koji (Tokyo Institute of Technology)</i> | |
| 09:30-11:00 | FrB16.7 |
| Robust Movement Direction Decoders from Local Field Potentials Using Spatio-Temporal Qualitative Patterns | 4623-4626 |
| <i>Tadipatri, Vijay Aditya* (University of Texas, Austin); Tewfik, Ahmed (University of Minnesota); Ashe, James (University of Minnesota); Pellizzer, Giuseppe (VA Medical Center)</i> | |
| 09:30-11:00 | FrB16.8 |
| Optimal Stimulus Current Waveshape for a Hodgkin-Huxley Model Neuron | 4627-4630 |
| <i>Tahayori, Bahman* (University of Melbourne); Dokos, Socrates (University of New South Wales)</i> | |
| 09:30-11:00 | FrB16.9 |
| Decoding Our Sense of Touch: Multiple Regression Analysis of Monkey Fingertip Afferent Mechanoreceptor Population Responses | 4631-4634 |
| <i>Fu, Joanne (The University of New South Wales); Birznieks, Ingvars (The University of Western Sydney); Goodwin, Antony (University of Melbourne); Khamis, Heba (University of Sydney); Redmond, Stephen James* (University of New South Wales)</i> | |
| 09:30-11:00 | FrB16.10 |
| Upper Alpha Neurofeedback Training Over the Motor Cortex Increases SMR Desynchronization in Motor Tasks | 4635-4638 |
| <i>López-Larraz, Eduardo* (University of Zaragoza); Escolano, Carlos (University of Zaragoza); Minguez, Javier (Zaragoza University)</i> | |
| 09:30-11:00 | FrB16.11 |
| Estimation of Force Direction from Functional Near-Infrared Spectroscopy Signals Using Sparse Logistic Regression | 4639-4642 |
| <i>Sato, Takanori (Nagaoka University of Technology); Muto, Yasuyuki (Nagaoka University of Technology); Nambu, Isao (Nagaoka University of Technology); Wada, Yasuhiro* (Nagaoka University of Technology)</i> | |
| 09:30-11:00 | FrB16.12 |
| Double-Blind Single-Session Neurofeedback Training in Upper-Alpha for Cognitive Enhancement of Healthy Subjects | 4643-4647 |
| <i>Escolano, Carlos* (University of Zaragoza); Bárbara Oliván Blázquez, Bárbara (Department of Psychology and Sociology, University of Zaragoza); Yolanda López del Hoyo, Yolanda (Department of Psychology and Sociology, University of Zaragoza); Javier García Campayo, Javier (Department of Psychiatry and Miguel Servet University Hospital, University of Zaragoza); Minguez, Javier (Zaragoza University)</i> | |
| FrB17: 09:30-11:00 | Indigo Ballroom |
| 6.11.3 Neurological Disorders (Poster Session) | |
| 09:30-11:00 | FrB17.1 |
| Towards an Intelligent System for Clinical Guidance on Wheelchair Tilt and Recline Usage | 4648-4651 |
| <i>Fu, Jicheng* (University of Central Oklahoma); Wiechmann, Paul (University of Central Oklahoma); Jan, Yih-Kuen (University of Oklahoma Health Sciences Center); Jones, Maria (University of Oklahoma Health Sciences Center)</i> | |

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| 09:30-11:00 | FrB17.2 |
| Optimization of Magnetic Neurostimulation Waveforms for Minimum Power Loss | 4652-4655 |
| <i>Goetz, Stefan* (TU Muenchen); Truong, Nam Cong (TU München); Gerhofer, Manuel G. (TU München); Peterchev, Angel V (Duke University); Herzog, Hans-Georg (TU Muenchen); Weyh, Thomas (TU Muenchen)</i> | |
| 09:30-11:00 | FrB17.3 |
| The Effect of Visual Cues on the Number and Duration of Freezing Episodes in Parkinson's Patients | 4656-4659 |
| <i>Velik, Rosemarie (Carinthian Tech Research); Hoffmann, Ulrich* (Tecnia Research & Innovation); Zabaleta, Haritz (TECNALIA); Marti Massi, Jose Felix (Neurology Department, Hospital Donostia); Keller, Thierry (Tecnia Research & Innovation)</i> | |
| 09:30-11:00 | FrB17.4 |
| Impact of Obstructive Sleep Apnea on Sleep-Wake Stage Ratio | 4660-4663 |
| <i>Ng, Andrew Keong* (Institute for Infocomm Research (I2R), Agency for Science, Technology and Research (A*STAR)); Guan, Cuntai (Institute for Infocomm Research)</i> | |
| 09:30-11:00 | FrB17.5 |
| Consistency of Sleep Restoration Gain (SRG) as a Measure for Assessing Sleep Quality | 4664-4667 |
| <i>Badreldin, Islam* (Cairo University); Morsy, Ahmed (Cairo University)</i> | |
| 09:30-11:00 | FrB17.6 |
| Indication of Abnormal Peripheral Sensory Processing of Rotational Stimulation in ADHD | 4668-4671 |
| <i>Lithgow, Brian John* (Alfred Hospital); Grossman, Irina (Monash University)</i> | |
| 09:30-11:00 | FrB17.7 |
| The Auditory P300-Based Ssbci: A Door to Minimally Conscious Patients? | 4672-4675 |
| <i>Müller-Putz, Gernot* (Graz University of Technology); Klobassa, Daniela (Graz University of Technology, Institute for Knowledge Discovery, BCI-Lab); Pokorny, Christoph (Graz University of Technology); Pichler, Gerald (Albert Schweitzer Klinik); Erlbeck, Helena (University of Würzburg); Real, Ruben (University of Würzburg); Kuebler, Andrea (Univ. Würzburg); Risetti, Monica (Fondazione Santa Lucia, Rome); Mattia, Donatella (Fondazione Santa Lucia IRCCS)</i> | |
| 09:30-11:00 | FrB17.8 |
| Aging Curve of Neuromotor Function by Pronation and Supination of Forearms Using Three-Dimensional Wireless Acceleration and Angular Velocity Sensors | 4676-4679 |
| <i>Kaneko, Miki* (Kyushu University); Okui, Hiroshi (Kyushu University); Hirakawa, Go (Network application engineering laboratories LTD.); Ishinishi, Hiroshi (Network application engineering laboratories LTD.); Katayama, Yoshinori (Kyushu University); Iramina, Keiji (Kyushu University, Japan)</i> | |
| 09:30-11:00 | FrB17.9 |
| Effect of Hypothermia on the Thalamocortical Function in the Rat Model | 4680-4683 |
| <i>Maybhatte, Anil* (Johns Hopkins University); Chen, Cheng (Johns Hopkins University, Biomedical Engg.); Thakor, Nitish (Johns Hopkins University); Jia, Xiaofeng (Johns Hopkins University School of Medicine)</i> | |
| 09:30-11:00 | FrB17.10 |
| A Network Analysis of the Dynamics of Seizure | 4684-4687 |
| <i>Burns, Samuel* (Johns Hopkins University); Sarma, Sridevi V. (Johns Hopkins University); Anderson, William S. (Department of Neurosurgery, Brigham and Women's Hospital, Boston, MA); Crone, Nathan E. (Johns Hopkins University, School of Medicine); Sritharan, Duluxan (Johns Hopkins University); Bergey, Gregory (Johns Hopkins University); Jouny, Christophe (Johns Hopkins University)</i> | |
| 09:30-11:00 | FrB17.11 |
| Seizure Detection On/Off System Using Rats' ECoG | 4688-4691 |
| <i>Park, Yun-Sang (University of Minnesota); Netoff, Tay (University of Minnesota); Yang, Xiaofeng (University of Minnesota); Parhi, Keshab* (University of Minnesota)</i> | |
| 09:30-11:00 | FrB17.12 |
| Assessing Traumatic Brain Injuries Using EEG Power Spectral Analysis and Instantaneous Phase | 4692-4695 |
| <i>Napoli, Alessandro* (Temple University); Barbe, Mary (Temple University); Darvish, Kurosh (Temple University); Obeid, Iyad (Temple University)</i> | |

09:30-11:00 FrB17.13
Study on Differentiation Factors for Main Disease Identification of Intermittent Claudication 4696-4699
Watanabe, Tetsuyou (Kanazawa University); Yoneyama, Takeshi (Kanazawa University); Toribatake, Yasumitsu (Koseiren takaoka Hospital); Hayashi, Hiroyuki (Koseiren takaoka Hospital); Yokogawa, Noriaki (Koseiren takaoka Hospital)*

09:30-11:00 FrB17.14
Circuit Topology and Control Principle for a First Magnetic Stimulator with Fully Controllable Waveform 4700-4703
Goetz, Stefan (TU Muenchen); Pfaeffl, Michael (TU München); Huber, Jonas (TU München); Singer, Matthias (TU München); Marquardt, Rainer (Universität der Bundeswehr); Weyh, Thomas (TU Muenchen)*

09:30-11:00 FrB17.15
Measuring MERCI: Exploring Data Mining Techniques for Examining the Neurologic Outcomes of Stroke Patients Undergoing Endovascular Therapy at Erlanger Southeast Stroke Center 4704-4707
Matthew, McNabb (University of Tennessee Chattanooga); Cao, Yu (College of Engineering and Computer Science, The University of Tennessee at Chattanooga); Thomas, Devlin (Erlanger Southeast Regional Stroke Center, the University of Tennessee: College of Medicine Chattanooga (UTCOMC)); Baxter, Blaise (Erlanger Southeast Regional Stroke Center, the University of Tennessee: College of Medicine Chattanooga); Thornton, Albert (Troy University)*

FrB18: 09:30-11:00 Indigo Ballroom
6.12.2 Brain Functional Imaging (Poster Session)

09:30-11:00 FrB18.1
Time-Varying Functional Connectivity for Understanding the Neural Basis of Behavioral Microsleeps ... 4708-4711
Toppi, Jlenia (University of Rome "Sapienza"); Astolfi, Laura (University of Rome Sapienza); Poudel, Govinda (University of Otago); Babiloni, Fabio (University of Rome); Macchiusi, Lucia (Dept. Physiology and Pharmacology University of Rome Sapienza); Mattia, Donatella (Fondazione Santa Lucia IRCCS); Salinari, Serenella (La Sapienza University); Jones, Richard D. (New Zealand Brain Research Institute)*

09:30-11:00 FrB18.2
EEG-Informed fMRI Analysis During a Hand Grip Task 4712-4715
Sclocco, Roberta (Polytechnic University of Milan); Tana, Maria Gabriella (Università degli Studi "G. d'Annunzio" di Chieti-Pescara); Visani, Elisa (Fondazione IRCCS Istituto Neurologico C. Besta, via Celoria 11, Milano, Italy); Gilioli, Isabella (Fondazione IRCCS Istituto Neurologico C. Besta, via Celoria 11, Milano, Italy); Panzica, Ferruccio (Fondazione IRCCS Istituto Neurologico C. Besta Milano, Italy); Franceschetti, Silvana (Fondazione IRCCS Istituto Neurologico C. Besta, via Celoria 11, Milano, Italy); Cerutti, Sergio (Politecnico di Milano); Bianchi, Anna Maria (Politecnico di Milano)*

09:30-11:00 FrB18.3
Prefrontal Cortical Activation During Arithmetic Processing Differentiated by Cultures: A Preliminary fNIRS Study 4716-4719
YU, Juanhong (Institute for Infocomm Research, Agency for Science, Technology and Research (ASTAR)); Pan, Yaozhang (Institute for Infocomm Research, Agency for Science, Technology and Research (ASTAR)); Ang, Kai Keng (Institute for Infocomm Research); Guan, Cuntai (Institute for Infocomm Research); Leamy, Darren John (NUI Maynooth)*

09:30-11:00 FrB18.4
Automatic Detection of Burst Synchrony in Preterm Infants 4720-4723
Zwanenburg, Alex (Maximá Medical Center); Meijer, Eduard Johannes (Máxima Medical Center, Department of Medical Physics); Jennekens, Ward (Máxima Medical Center); van Pul, Carola (Maxima Medical Center); Andriessen, Peter (Máxima Medical Center)*

09:30-11:00 FrB18.5
Tangram Solved? Prefrontal Cortex Activation Analysis During Geometric Problem Solving 4724-4727
Ayaz, Hasan (Drexel University); Shewokis, Patricia A (Drexel University); Izzetoglu, Meltem (Drexel University); Çakır, Murat Perit (Middle East Technical University); Onaral, Banu (Drexel University)*

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| 09:30-11:00 | | FrB18.6 |
| Differences in Hemodynamic Activations between Motor Imagery and Upper Limb FES with NIRS | 4728-4731 | |
| <i>Schuerholz, Markus* (University of Tuebingen); Rana, Mohit (Institute for Medical Psychology and Behavioural Neurobiology, Eberhard Karls University); Robinson, Neethu (School of Computer Engineering, Nanyang Technological University, Singapore 639798, and Institute for Infocomm Research, Agency); Ramos Murguialday, Ander (Fatronik Tecnalia Germany); Cho, Woosang (University of Tubingen); Rohm, Martin (Heidelberg University Hospital); Rupp, Rüdiger (Heidelberg University Hospital); Birbaumer, Niels (Eberhard-Karls-University); Sitaram, Ranganatha (Institute for Medical Psychology and Behavioural Neurobiology, Eberhard Karls University, 72074 Tübingen)</i> | | |
| 09:30-11:00 | | FrB18.7 |
| Cortical Potential Imaging of Somatosensory Evoked Potential Induced by Mechanical Stimulation | 4732-4735 | |
| <i>Hori, Junichi* (Niigata University)</i> | | |
| 09:30-11:00 | | FrB18.8 |
| Application of Wavelet Based Denoising Techniques to Rtms Evoked Potentials | 4736-4739 | |
| <i>Chrapka, Philip (McMaster University); de Bruin, Hubert* (McMaster University)</i> | | |
| 09:30-11:00 | | FrB18.9 |
| EEG Frontal Asymmetry Related to Pleasantness of Music Perception in Healthy Children and Cochlear Implanted Users | 4740-4743 | |
| <i>Vecchiato, Giovanni (University of Rome Sapienza); Colosimo, Alfredo (University of Rome "Sapienza"); Maglione, Anton Giulio (University of Rome Sapienza); Marsella, Pasquale (IRCCS Ospedal Bambin Gesù); Scorpecci, Alessandro (Ospedale Pediatrico "Bambino Gesù" – IRCCS); Malerba, Paolo (Cochlear); Babiloni, Fabio* (University of Rome)</i> | | |
| 09:30-11:00 | | FrB18.10 |
| Common Spatial Pattern Patches: Online Evaluation on BCI-Naive Users | 4744-4747 | |
| <i>Sannelli, Claudia* (Berlin Institute of Technology); Vidaurre, Carmen (Berlin Institute of Technology); Müller, Klaus-Robert (Berlin Institute of Technology); Blankertz, Benjamin (Berlin Institute of Technology)</i> | | |
| 09:30-11:00 | | FrB18.11 |
| Kinect-Based Detection of Self-Paced Hand Movements: Enhancing Functional Brain Mapping Paradigms | 4748-4751 | |
| <i>Scherer, Reinhold* (Graz University of Technology); Wagner, Johanna (Graz Universitz of Technolgy); Moitzi, Günter (Graz University of Technology); Müller-Putz, Gernot (Graz University of Technology)</i> | | |
| 09:30-11:00 | | FrB18.12 |
| Cortical Activity and Functional Hyperconnectivity by Simultaneous EEG Recordings from Interacting Couples of Professional Pilots | 4752-4755 | |
| <i>Astolfi, Laura* (University of Rome Sapienza); Toppi, Jlenia (University of Rome "Sapienza")</i> | | |
| FrB19: 09:30-11:00 | | Indigo Ballroom |
| 6.13.5 Human Performance (Poster Session) | | |
| 09:30-11:00 | | FrB19.1 |
| Measuring Cognition Delay Caused by Gaze Movement Toward Direction of Depth | 4756-4759 | |
| <i>Bhuiyan, Shoaib* (Suzuka University of Medical Science); Takagi, Kenji (Aichi Prefectural University); Kawanaka, Haruki (Aichi Prefectural University); Oguri, Koji (Aichi Prefectural University)</i> | | |
| 09:30-11:00 | | FrB19.2 |
| A Navigation System for the Visually Impaired an Intelligent White Cane | 4760-4763 | |
| <i>Fukasawa, Jin* (Tokai University); Magatani, Kazushige (Tokai Univ.)</i> | | |
| 09:30-11:00 | | FrB19.3 |
| Are There Differences in Muscle Activity, Subjective Discomfort, and Typing Performance between Virtual and Conventional Keyboards? | 4764-4767 | |
| <i>Kim, Jeong Ho* (University of Washington); Johnson, Peter (University of Washington); Aulck, Lovenoor (University of Washington)</i> | | |

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| 09:30-11:00 | FrB19.4 |
| Brain Dynamics of Mathematical Problem Solving* | 4768-4771 |
| <i>Lin, Chun-Ling (National Chiao-Tung University, Taiwan); Jung, Melody (Canyon Crest Academy); Wu, Ying Choon (University of California); She, Hsiao-Ching* (National Chiao Tung University)</i> | |
| 09:30-11:00 | FrB19.5 |
| Effect of Inclined Support Surface on Postural Strategy During Anterior-Posterior Platform Translations | 4772-4775 |
| <i>Ishizawa, Masanori* (Shibaura Institute of Technology); Yamamoto, Shin-ichiroh (Shibaura Institute of Technology)</i> | |
| 09:30-11:00 | FrB19.6 |
| Effects of 2D/3D Visual Feedback and Visuomotor Collocation on Motor Performance in a Virtual Peg Insertion Test | 4776-4779 |
| <i>Fluet, Marie-Christine* (ETHZ, Rehabilitation Engineering Lab); Lambercy, Olivier (ETHZ); Gassert, Roger (ETH Zurich)</i> | |
| 09:30-11:00 | FrB19.7 |
| A Re-Examination of the Time Constant of the Oculomotor Neural Integrator in Human | 4780-4783 |
| <i>Khojasteh, Elham* (University Hospital Zurich); Bockisch, Christopher (Zurich University Hospital); Straumann, Dominik (Zurich University Hospital); Hegemann, Stefan (University hospital Zurich)</i> | |
| 09:30-11:00 | FrB19.8 |
| Feature Extraction for Psychophysiological Load Assessment in Unconstrained Scenarios | 4784-4787 |
| <i>Plácido da Silva, Hugo* (IST – Instituto Superior Técnico); Fred, Ana (IT – Instituto de Telecomunicações); Eusébio, Susana (Faculdade de Medicina de Lisboa); Torrado, Marco (Faculdade de Medicina de Lisboa); Ouakinin, Silvia (Faculdade de Medicina de Lisboa)</i> | |
| 09:30-11:00 | FrB19.9 |
| Upper Extremity Biomechanical Model for Evaluation of Pediatric Joint Demands During Wheelchair Mobility | 4788-4791 |
| <i>Paul, Alyssa* (Marquette University); Slavens, Brooke (Marquette University); Graf, Adam (Shriners Hospital for Children); Krzak, Joe (Shriners Hospital of Chicago); Vogel, Lawrence (Shriners Hospital for Children-Chicago); Harris, Gerald (Marquette University)</i> | |
| 09:30-11:00 | FrB19.10 |
| Towards an Online Detection of Workload in Industrial Work Environments | 4792-4795 |
| <i>Schultze-Kraft, Matthias* (Berlin Institute of Technology); Gugler, Manfred (Charité Berlin); Curio, Gabriel (Charité – University Medicine Berlin); Blankertz, Benjamin (Berlin Institute of Technology)</i> | |
| 09:30-11:00 | FrB19.11 |
| Real-Time Index for Predicting Successful Golf Putting Motion Using Multichannel EEG | 4796-4799 |
| <i>Muangjaroen, Piyachat* (Mahidol University); Wongsawat, Y. (Mahidol University)</i> | |
| 09:30-11:00 | FrB19.12 |
| Characteristic Activities of Lower Limbs with Body Weight Support Ratio | 4800-4803 |
| <i>Kuno, Hiroaki* (Okayama University of Science); Yamamoto, Naosuke (Kyushu institute of Technology); Kurokawa, Naoya (Okayama University of Science); Yamamoto, Toshiyasu (Okayama University of Science); Tagawa, Yoshihiko (Kyushu Institute of Technology)</i> | |
| 09:30-11:00 | FrB19.13 |
| Evaluation of Vision-Based Head-Trackers for Assistive Devices | 4804-4807 |
| <i>Guness, Shivanand Prabhoolall* (University of Kent); Deravi, Farzin (University of Kent); Sirlantzis, Konstantinos (University of Kent); Pepper, Matthew (University of Kent); Sakel, Mohamed (East Kent University Hospitals Trust)</i> | |
| 09:30-11:00 | FrB19.14 |
| The Effect of Aging on Brain Temporal Perception Using Virtual Reality Neurocognitive (VRN) Experiments | 4808-4811 |
| <i>Garcia Campuzano, Mari Tere* (University of Manitoba); Moussavi, Zahra (University of Manitoba)</i> | |

09:30-11:00 FrB19.15
Design of a Virtual Reality Navigational (VRN) Experiment for Assessment of Egocentric Spatial Cognition 4812-4815
Byagowi, Ahmad (University of Manitoba); Moussavi, Zahra (University of Manitoba)*

FrB20: 09:30-11:00 Indigo Ballroom
8.9.2 Human Movement Analysis II (Poster Session)

09:30-11:00 FrB20.1
Simulation of Human Walking with Powered Orthosis for Designing Practical Assistive Device 4816-4819
Uchiyama, Yoshiho (Nagoya University); Nagai, Chikara (Nagoya University); Obinata, Goro (Nagoya University)*

09:30-11:00 FrB20.2
Torque and Power Outputs on Skilled and Unskilled Users During Manual Wheelchair Propulsion 4820-4822
Hwang, Seonhong (Yonsei University); Kim, Seunghyeon (Yonsei University); Kim, Youngho (Yonsei University)*

09:30-11:00 FrB20.3
Simulation of Tremor on 3-Dimensional Musculoskeletal Model of Wrist Joint and Experimental Verification 4823-4826
Zhang, Dingguo (Shanghai Jiao Tong University); Hayashibe, Mitsuhiro (INRIA); Yao, Peng (Shanghai Jiao Tong University)*

09:30-11:00 FrB20.4
Parameter Estimation of the Huxley Cross-Bridge Muscle Model in Humans 4827-4830
Vardy, Alistair Neil (Delft University of Technology); de Vlugt, Erwin (Delft University of Technology); van der helm, Frans (Delft University of Technology)*

09:30-11:00 FrB20.5
Contribution of Arm Swing to Dynamic Stability Based on the Nonlinear Time Series Analysis Method 4831-4834
Hu, Fei (Shanghai Jiaotong University); Gu, Dong-Yun (Shanghai Ninth People's Hospital Affiliated to Shanghai Jiaotong University School of Medicine); Chen, Jin-Ling (Shanghai Jiaotong University); WU, YU (Shanghai Jiaotong University); An, Bin-Chen (Shanghai Ninth People's Hospital); Dai, Kerong (Shanghai Second Medical University)*

09:30-11:00 FrB20.6
Analyzing Gait Pathologies Using a Depth Camera 4835-4838
NGUYEN, HOANG ANH (University of Montreal); Auvinet, Edouard (Université de Montréal); Meunier, Jean (Université de Montreal)*

09:30-11:00 FrB20.7
Markerless Identification of Key Events in Gait Cycle Using Image Flow 4839-4842
Vishnoi, Nalini (George Mason University); Duric, Zoran (George Mason University); Gerber, Lynn (George Mason University)*

09:30-11:00 FrB20.8
Three Dimensional Visualization of the Statically Equivalent Serial Chain from Kinect Recording 4843-4846
Gonzalez, Alejandro (LIRMM); Hayashibe, Mitsuhiro (INRIA); Fraisse, Philippe (University of Montpellier 2, France)*

09:30-11:00 FrB20.9
4D Human Body Posture Estimation Based on a Motion Capture System and a Multi-Rigid Link Model .. 4847-4850
Yoshikawa, Naoya (Osaka University); Suzuki, Yasuyuki (Osaka University); Ozaki, Wataru (Osaka University); Yamamoto, Tomohisa (Osaka University); Nomura, Taishin (Osaka University)*

09:30-11:00 FrB20.10
Real-Time Measurement of Rectus Femoris Muscle Kinematics During Drop Jump Using Ultrasound Imaging: A Preliminary Study 4851-4854
Eranki, Avinash (George Mason University); Cortes, Nelson (George Mason University); Greguric Ferencek, Zrinka (George Mason University); J Kim, John (Northern Virginia Orthopedic Specialists); Sikdar, Siddhartha (George Mason University)*

09:30-11:00 FrB20.11
Analysis of Biomechanical Data to Determine the Degree of User Participation During Robotic-Assisted Gait Rehabilitation 4855-4858
Collantes, Ivan (CSIC); Asin, Guillermo (CSIC); Pons, Jose Luis (Instituto de Automática Industrial); Moreno, Juan C. (CSIC)*

09:30-11:00 FrB20.12
Development of an Evaluation System for Foot Arch Types in the Elderly Using Foot Pressure Distribution Data 4859-4862
Imaizumi, Kazuya (Tokyo Healthcare University); Iwakami, Yumi (Tokyo Healthcare University); Yamashita, Kazuhiko (Tokyo Healthcare University); Hiejima, Yoshimitsu (Tokyo Healthcare University)*

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| FrB21: 09:30-11:00 | Indigo Ballroom |
| 8.9.3 Biomechanical Modeling (Poster Session) | |

09:30-11:00 FrB21.1
3D Volumetric Muscle Modeling for Real-Time Deformation Analysis with FEM 4863-4866
Berranen, Mohamed Yacine (CNRS); Guiraud, David (INRIA); gilles, benjamin (CNRS, INRIA, University of Montpellier 2, LIRMM); Hayashibe, Mitsuhiro (INRIA)*

09:30-11:00 FrB21.2
A Novel Objective Function for Predicting Reasonable Muscle Forces in Subject-Specific Model 4867-4870
Son, Jongsang (Yonsei University); Kim, Youngho (Yonsei University)*

09:30-11:00 FrB21.3
Investigation of the Role of Crimps in Collagen Fibers on Internal Stress in Tendon with a Microstructurally Based Finite Element Model 4871-4874
Shim, Vickie (University of Auckland, New Zealand); Fernandez, Justin (The University of Auckland); Besier, Thor (University of Auckland); Hunter, Peter (University of Auckland)*

09:30-11:00 FrB21.4
Development and Testing of Patient-Specific Knee Replacements 4875-4878
Van Den Heever, Dawie (Stellenbosch University); Scheffer, Cornie (Stellenbosch University); Erasmus, P. J. (Stellenbosch Medi-clinic); Dillon, Edwin (Stellenbosch Medi-clinic)*

09:30-11:00 FrB21.5
Relationship between Ankle Stiffness Structure and Muscle Activation 4879-4882
Lee, Hyunglae (Massachusetts Institute of Technology); Wang, Shuo (Massachusetts Institute of Technology); Hogan, Neville (Massachusetts Institute of Technology)*

09:30-11:00 FrB21.6
Validation of a Subject Specific 3-Actuator Torque-Driven Model in Human Vertical Jumping 4883-4886
Cimadoro, Giuseppe (University of Milan (University of Burgundy internship)); Yeadon, Fred (Loughborough University); Van Hoecke, Jacques (University of Burgundy); Alberti, Giampiero (University of Milan, Department of Sport, Nutrition and Health Sciences); Babault, Nicolas (University of Burgundy, Cognition, Action et Plasticité Sensorimotrice Laboratory); Minetti, Alberto Enrico (University of Milan, Department of Human Physiology, Physio-Mechanics Laboratory)*

09:30-11:00 FrB21.7
Development and in Vitro Evaluation of an Artificial Spinal Disc Loading Cell 4887-4890
Kyriacou, Panayiotis (City University London)*

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| FrC01: 13:30-15:00 | Sapphire A |
| 1.2.6 Signal Processing in Physiological Systems IV (Oral Session) | |
| Chair: Mukkamala, Ramakrishna (<i>Michigan State Univ.</i>) | |
| Co-Chair: Jané, Raimon (<i>Inst. de Bioenginyeria de Catalunya (IBEC)</i>) | |

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| 13:30-13:45 | FrC01.1 |
| A Robust Classification Scheme for Detection of Food Intake through Non-Invasive Monitoring of Chewing | 4891-4894 |
| <i>Fontana, Juan M. (University of Alabama); Sazonov, Edward* (University of Alabama)</i> | |

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| 13:45-14:00 | FrC01.2 |
| Consistency and Validity of Self-Reporting Scores in Stress Measurement Surveys | 4895-4898 |
| <i>Masood, Khalid* (Texas A&M University at Qatar); Ahmed, Beena (Texas A&M University at Qatar); Gutierrez-Osuna, Ricardo (Texas A&M University); Choi, Jongyoon (Texas A&M University)</i> | |

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| 14:00-14:15 | FrC01.3 |
| A Linear, Time-Invariant Model for Cancerous and Normal Breast Tissue | 4899-4902 |
| <i>Habibi, Mohammad* (Minnesota State University, Mankato); Diep, Eric (Minnesota State University, Mankato)</i> | |

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| 14:15-14:30 | FrC01.4 |
| Source Analysis of Median Nerve Stimulated Somatosensory Evoked Potentials and Fields Using Simultaneously Measured EEG and MEG Signals | 4903-4906 |
| <i>Mideksa, Kidist Gebremariam (University of Kiel); Helge, Hellriegel (Department of Neurology); Hogenboom, Nienke (University of Duesseldorf); Krause, Holger (University of Duesseldorf); Schnitzler, Alfons (University of Duesseldorf); Gunther, Deuschl (Department of Neurology); Jan, Raethjen (Department of Neurology); Heute, Ulrich (University of Kiel); Muthuraman, Muthuraman* (Christian Albrechts University)</i> | |

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| 14:30-14:45 | FrC01.5 |
| Role of Vestibular Sensor on Body Sway Control: Coherence between Head Acceleration and Stabilogram | 4907-4910 |
| <i>Teixeira, Felipe (Federal University of Rio de Janeiro); Jesus, Igor Ramathur (Federal University of Rio de Janeiro); Mello, Roger Gomes Tavares (Naval School, Brazilian Navy); Nadal, Jurandir* (Federal University of Rio de Janeiro)</i> | |

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| 14:45-15:00 | FrC01.6 |
| Using NIRS As a Predictor for EEG-Based BCI Performance | 4911-4914 |
| <i>Fazli, Siamac* (Berlin Institute of Technology); Mehnert, Jan (Berlin Neuroimaging Center); Steinbrink, Jens (Berlin Neuroimaging Center, University Hospital Charite); Blankertz, Benjamin (Berlin Institute of Technology)</i> | |

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| FrC03: 13:30-15:00 | Sapphire E |
| 1.7.1 Support Vector Machine (SVM) Applied to Biosignal Classification (Oral Session) | |
| Chair: Parhi, Keshab (<i>Univ. of Minnesota</i>) | |
| Co-Chair: Cole, Bryan (<i>Draeger Medical Systems</i>) | |

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| 13:30-13:45 | FrC03.1 |
| Temporal Evolution of Seizure Burden for Automated Neonatal EEG Classification | 4915-4918 |
| <i>Temko, Andriy (University College Cork); Stevenson, Nathan (University of Queensland); Marnane, Liam* (University College Cork); Boylan, Geraldine (University College Cork); Lightbody, Gordon (University College Cork)</i> | |

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| 13:45-14:00 | FrC03.2 |
| Dynamic Time Warping Based Neonatal Seizure Detection System | 4919-4922 |
| <i>Ahmed, Rehan* (University College Cork); Temko, Andriy (University College Cork); Marnane, Liam (University College Cork); Boylan, Geraldine (University College Cork); Lightbody, Gordon (University College Cork)</i> | |

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| 14:00-14:15 | FrC03.3 |
| Selection of Abnormal Neural Oscillation Patterns Associated with Sentence-level Language Disorder in Schizophrenia | 4923-4926 |
| <i>Xu, Tingting (University of Minnesota, Twin Cities); Stephane, Massoud (Minneapolis VA Medical Center); Parhi, Keshab* (University of Minnesota)</i> | |

14:15-14:30 FrC03.4
Dynamic SVM Detection of Tremor and Dyskinesia During Unscripted and Unconstrained Activities 4927-4930
*Cole, Bryan (Draeger Medical Systems); Ozdemir, Pinar (Boston University);
Nawab, Syed Hamid* (Boston University)*

14:30-14:45 FrC03.5
On the Challenge of Classifying 52 Hand Movements from Surface Electromyography 4931-4937
Kuzborskij, Ilja (Idiap Research Institute); Gijssberts, Arjan (Idiap Research Institute);
Caputo, Barbara (Idiap Research Institute)*

14:45-15:00 FrC03.6
Obstructive Sleep Apnea Detection Using SVM-Based Classification of ECG Signal Features 4938-4941
*Almazaydeh, Laiali (University of Bridgeport); Elleithy, Khaled (University of Bridgeport);
Faezipour, Miad* (University of Bridgeport)*

FrC04: 13:30-15:00 Sapphire I
2.3.1 Retinal Image Analysis I (Oral Session)
Chair: Ruggeri, Alfredo (*Univ. of Padua*)
Co-Chair: Wong, Damon (*Inst. for Infocomm Res.*)

13:30-13:45 FrC04.1
Patch-Based Automatic Retinal Vessel Segmentation in Global and Local Structural Context 4942-4945
Cao, Shearin Shuoying (Imperial College London); Bharath, Anil (Imperial College London);
Parker, Kim (Imperial College London); Ng, Jeffrey (Imperial College London)*

13:45-14:00 FrC04.2
Detection of Neovascularization in the Optic Disc Using an AM-FM Representation, Granulometry, and Vessel Segmentation 4946-4949
Agurto Rios, Carla Paola (University of New Mexico); Yu, Honggang (VisionQuest Biomedical LLC); Murray, Victor (University of New Mexico); Pattichis, Marios (University of New Mexico); Bauman, Wendall (The Retinal Institute of South Texas); Barriga, Simon (VisionQuest Biomedical LLC); Soliz, Peter (VisionQuest Biomedical LLC)*

14:00-14:15 FrC04.3
Automatic Detection of the Macula in Retinal Fundus Images Using Seeded Mode Tracking Approach 4950-4953
Wong, Damon (Institute for Infocomm Research); Liu, Jiang (Institute for Infocomm Research, A STAR);
Tan, Ngan Meng (A*STAR, Institute for Infocomm Research); Yin, Fengshou (Institute for Infocomm Research);
Cheng, Xiangang (Institute for Infocomm Research); Cheng, Ching-Yu (Singapore Eye Research Institute);
Cheung, Chui Ming Gemmy (SNEC); Wong, Tien Yin (National University of Singapore)*

14:15-14:30 FrC04.4
Automatic Localization of Retinal Landmarks 4954-4957
Cheng, Xiangang (Institute for Infocomm Research); Wong, Damon (Institute for Infocomm Research);
Liu, Jiang (Institute for Infocomm Research, A STAR); Lee, Beng Hai (Institute for Infocomm Research);
Tan, Ngan Meng (A*STAR, Institute for Infocomm Research); Zhang, Jieli (Nanyang Technological University);
Cheng, Ching-Yu (Singapore Eye Research Institute); Cheung, Chui Ming Gemmy (SNEC); Wong, Tien Yin (National University of Singapore)*

14:30-14:45 FrC04.5
Image-Level Tortuosity Estimation in Wide-Field Retinal Images from Infants with Retinopathy of Prematurity 4958-4961
*Poletti, Enea (University of Padova); Grisan, Enrico (University of Padova);
Ruggeri, Alfredo* (University of Padova)*

14:45-15:00 FrC04.6
Motion-Based Video Retrieval with Application to Computer-Assisted Retinal Surgery 4962-4965
*Droueche, Zakarya (TELECOM Bretagne); Lamard, Mathieu (Université de Bretagne Occidentale);
Cazuguel, Guy* (Institut Mines-Telecom/Telecom Bretagne); Quellec, Gwenole (Inserm);
Roux, Christian (TELECOM Bretagne – INSERM); Cochener, Béatrice (CHU Morvan)*

2.8.5 CT Cardiac and Thoracic Imaging (Oral Session)**Chair:** Kimura, Yuichi (*National Inst. of Radiological Sciences*)13:30-13:45 FrC06.1**Regional Cardiac Function Assessment in 4d Ct: Comparison between Squeez and Ejection Fraction**

4966-4969

*Pourmorteza, Amir** (*Johns Hopkins University School of Medicine*); *Schuleri, Karl* (*Johns Hopkins University*); *Herzka, Daniel* (*Johns Hopkins University School of Medicine*); *Lardo, Albert* (*Johns Hopkins University*); *McVeigh, Elliot* (*Johns Hopkins University*)13:45-14:00 FrC06.2**Automatic Image-Based Retrospective Gating of Interventional Cardiac X-Ray Images**

4970-4973

*Panayiotou, Maria** (*King's college London*); *King, Andy* (*King's College London*); *Ma, YingLiang* (*King's College London*); *Rinaldi, Aldo* (*King's College London*); *Gill, Jaswinder* (*St. Thomas Hospital*); *Cooklin, Michael* (*St Thomas Hospital*); *O'Neill, Mark* (*St Thomas Hospital*); *Rhode, Kawal* (*King's College London*)14:00-14:15 FrC06.3**PET-CT Based Automated Lung Nodule Detection**

4974-4977

*Zsoter, Norbert** (*Mediso Medical Imaging Systems Ltd.*); *Bandi, Peter* (*Mediso Medical Imaging Systems Ltd.*); *Szabo, Gergely* (*Mediso Medical Imaging Systems*); *Toth, Zoltan* (*ScanoMed Ltd.*); *Bundschuh, Ralph* (*University Clinic Wuerzburg*); *Dinges, Julia* (*Dept of Nuclear Medicine, Klinikum rechts der Isar der TUM, Munich*); *Papp, Laszlo* (*Mediso Medical Imaging Systems Ltd.*)14:15-14:30 FrC06.4**Detecting Tuberculosis in Radiographs Using Combined Lung Masks**

4978-4981

*Jaeger, Stefan** (*National Institutes of Health*); *Karargyris, Alexandros* (*National Library of Medicine*); *Antani, Sameer* (*National Library of Medicine*); *Thoma, George* (*National Library of Medicine, NIH*)14:30-14:45 FrC06.5**Optimal Cutoff Threshold for Calcium Quantification in Isotropic CT Calcium Scans by Validating against Registered Intravascular Ultrasound with Radiofrequency Backscatter**

4982-4985

*Dhungel, Abinashi** (*Piedmont Heart Institute, Georgia State University*); *Qian, Zhen* (*Piedmont Heart Insitute*); *Vazquez, Gustavo* (*Piedmont Heart Institute*); *Rinehart, Sarah* (*Piedmont Heart Institute*); *Weeks, Michael* (*Georgia State University*); *Voros, Szilard* (*Piedmont Heart Institute*)14:45-15:00 FrC06.6**Effects of Aging on Thoracic Aorta Size and Shape: A Non-Contrast CT Study**

4986-4989

Craiem, Damian (*Favaloro University*); *Casciaro, Mariano Ezequiel* (*Universidad Favaloro*); *Graf, Sebastián** (*Favaloro University*); *Chironi, Gilles* (*Hôpital Européen Georges Pompidou*); *Simon, Alain* (*Hôpital Européen Georges Pompidou*); *Armentano, Ricardo Luis* (*Favaloro University*)**3.2.1 BioSensors** (Oral Session)**Chair:** Dokmeci, Mehmet R. (*Brigham and Women's Hospital/Harvard Medical School*)**Co-Chair:** Wang, Joseph (*UCSD*)13:30-13:45 FrC07.1**CMOS Biosensor System for On-Chip Cell Culture with Read-Out Circuitry and Microfluidic Packaging**

4990-4993

*Welch, David** (*Arizona State University*); *Blain Christen, Jennifer* (*Arizona State University*)13:45-14:00 FrC07.2**A Low Noise, Non-Contact Capacitive Cardiac Sensor**

4994-4997

*Peng, GuoChen** (*University of Rochester*); *Bocko, Mark* (*University of Rochester*)14:00-14:15 FrC07.3**Tunable and Label-Free Bacteria Alignment Using Standing Surface Acoustic Waves**

4998-5001

*Toru, Sylvain** (*CNRS -UMR 5005 – Laboratoire Ampère*); *Frenea-Robin, Marie* (*UMR CNRS 5005*); *HADDOUR, Naoufel* (*Laboratoire Ampère*); *BURET, François* (*CNRS UMR 5005 Laboratoire Ampère – Ecole Centrale de Lyon -Université de Lyon*)

14:15-14:30 FrC07.4
Detecting Particles Flowing through Interdigitated 3D Microelectrodes 5002-5005
Bianchi, Elena (École Polytechnique Fédérale de Lausanne); Rollo, Enrica (Swiss Federal Institute of Technology Lausanne); Kilchenmann, Samuel (Swiss Federal Institute of Technology Lausanne); Bellati, Francesco (Politecnico di Milano); Guiducci, Carlotta (Swiss Federal Institute of Technology Lausanne)*

FrC08: 13:30-15:00 Sapphire 411
3.6.1 Wearable Sensors and Systems II (Oral Session)
Chair: Bonato, Paolo (*Harvard Medical School*)
Co-Chair: Lubecke, Victor (*Univ. of Hawaii Manoa*)

13:30-13:45 FrC08.1
A Microwave Powered Injectable Neurostimulator 5006-5009
Towe, Bruce (Arizona State University); Larson, Patrick (Arizona State University); Gulick, Daniel (Arizona State University)*

13:45-14:00 FrC08.2
A Novel Sensorized Shoe System to Classify Gait Severity in Children with Cerebral Palsy 5010-5013
Mancinelli, Chiara (Harvard Medical School); Patel, Shyamal (Harvard Medical School); Deming, Lynn (Harvard Medical School); Nimec, Donna (Harvard Medical School); Jeffrey, Chu (Simbex); Jonathan, Beckwith (Simbex); Greenwald, Richard (Simbex); Bonato, Paolo (Harvard Medical School)*

14:00-14:15 FrC08.3
Wireless Pilot Monitoring System for Extreme Race Conditions 5014-5017
Pino, Esteban J (Universidad de Concepcion); Arias, Diego E (University of Concepcion); Melin, Pedro (University of Concepcion); Aqueveque, Pablo (University of Concepcion); Curtis, Dorothy (Massachusetts Institute of Technology)*

14:15-14:30 FrC08.4
Development of Gait Segmentation Methods for Wearable Foot Pressure Sensors 5018-5021
Crea, Simona (Scuola Superiore Sant'Anna); De Rossi, Stefano Marco Maria (Scuola Superiore Sant'Anna); Donati, Marco (Scuola Superiore Sant'Anna); Reberšek, Peter (University of Ljubljana); Novak, Domen (University of Ljubljana); Vitiello, Nicola (Scuola Superiore Sant'Anna); Lenzi, Tommaso (Scuola Superiore Sant'Anna); Podobnik, Janez (University of Ljubljana); Munih, Marko (University of Ljubljana); Carrozza, Maria Chiara (Scuola Superiore Sant'Anna)*

14:30-14:45 FrC08.5
A Clip-free Eyeglasses-based Wearable Monitoring Device for Measuring Photoplethysmographic Signals 5022-5025
Zheng, Yali (The Chinese University of Hong Kong); Leung, Hin Kwong (The Chinese University of Hong Kong); Sy, Ming (The Chinese University of Hong Kong); Zhang, Yuan-Ting (The Chinese University of Hong Kong); Poon, Carmen CY (The Chinese University of Hong Kong)*

14:45-15:00 FrC08.6
A System-On-Chip and Paper-Based Inkjet Printed Electrodes for a Hybrid Wearable Bio-Sensing System 5026-5029
Xie, Li (Royal Institute of Technology (KTH)); Yang, Geng (Royal Institute of Technology(KTH) Sweden); Mäntysalo, Matti (Tampere University); Jonsson, Fredrik (KTH); Zheng, Li-Rong (KTH)*

FrC09: 13:30-15:00 Sapphire 400
9.3.5 Innovative Technologies for Inexpensive and Non-Invasive Cardiovascular Monitoring in the Home Using Ballistocardiography and Seismocardiography: Part 2 – Clinically-Relevant Findings (Oral Session)
Chair: Inan, Omer (*Stanford Univ.*)
Co-Chair: Saldivar, Enrique (*West Wireless Health Inst.*)

13:30-13:45 FrC09.1
An Ear-Worn Continuous Ballistocardiogram (BCG) Sensor for Cardiovascular Monitoring 5030-5033
He, David Da (Massachusetts Institute of Technology); Winokur, Eric S. (Massachusetts Institute of Technology); Sodini, Charles G. (Massachusetts Institute of Technology)*

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| 13:45-14:00 | | FrC09.2 |
| On Time Interval Measurements Using BCG | | 5034-5037 |
| <i>Casanella, Ramon* (Universitat Politècnica de Catalunya); Gomez-Clapers, Joan (Universitat Politècnica de Catalunya); Pallas-Areny, Ramon (Universitat Politècnica de Catalunya)</i> | | |
| 14:00-14:15 | | FrC09.3 |
| Recent Advances in Cardiovascular Monitoring Using Ballistocardiography | | 5038-5041 |
| <i>Inan, Omer* (Stanford University)</i> | | |
| 14:15-14:30 | | FrC09.4 |
| Multi-Channel Optical Sensor-Array for Measuring Ballistocardiograms and Respiratory Activity in Bed | | 5042-5045 |
| <i>Brueser, Christoph* (RWTH Aachen University); Kerekes, Anna (RWTH Aachen University, MedIT, Helmholtz-Institute); Winter, Stefan (Philips Research Europe); Leonhardt, Steffen (RWTH Aachen University)</i> | | |
| 14:30-14:45 | | FrC09.5 |
| Three Dimensional Ballisto and Seismo-Cardiography: HIJ Wave Amplitudes Are Poorly Correlated to Maximal Systolic Force Vector | | 5046-5049 |
| <i>Migeotte, Pierre-François* (Royal Military Academy); De Ridder, Sven (Royal Military Academy of Belgium); Tank, Jens (Hannover Medical School); Pattyn, Nathalie (Royal Military Academy, Brussels, Belgium); Funtova, Irina I. (IMBP Moscow, Russia); Baeovsky, Roman M. (IMBP Moscow, Russia); Neyt, Xavier (Royal Military Academy); Prisk, Gordon Kim (University of California, San Diego)</i> | | |
| 14:45-15:00 | | FrC09.6 |
| 24h Seismocardiogram Monitoring in Ambulant Subjects | | 5050-5053 |
| <i>Di Rienzo, Marco* (Fondazione Don Carlo Gnocchi); Meriggi, Paolo (Fondazione Don Gnocchi); Vaini, Emanuele (Polo Tecnologico, Fondazione Don Carlo Gnocchi); Castiglioni, Paolo (Fondazione Don Carlo Gnocchi ONLUS); Rizzo, Francesco (Fondazione Don C. Gnocchi ONLUS)</i> | | |
| FrC11: 13:30-15:00 | | Cobolt 520 |
| 11.1.1 Novel Approaches to BME Education (Oral Session) | | |
| Chair: Zhao, Weizhao (<i>Univ. of Miami</i>) | | |
| Co-Chair: Douglas, Tania S (<i>Univ. of Cape Town</i>) | | |
| 13:30-13:45 | | FrC11.1 |
| Drivers and Restrainers of Relevance in Graduate BME Education – A South African Study | | 5054-5057 |
| <i>Douglas, Tania S* (University of Cape Town)</i> | | |
| 13:45-14:00 | | FrC11.2 |
| Biomedical Engineering Education through Global Engineering Teams | | 5058-5061 |
| <i>Scheffer, Cornie* (Stellenbosch University); Blanckenberg, Mike (Stellenbosch University); Garth-Davis, Bryan (Stellenbosch University); Eisenberg, Marco (Technische Universität Berlin)</i> | | |
| 14:00-14:15 | | FrC11.3 |
| Introducing Bio- and Micro-Technology into Undergraduate Thermal-Fluids Courses: Investigating Pipe Pressure Loss Via Atomic Force Microscopy | | 5062-5065 |
| <i>Müller, Marcus* (Milwaukee School of Engineering); Traum, Matthew (Milwaukee School of Engineering)</i> | | |
| 14:15-14:30 | | FrC11.4 |
| Analysis of the Impact of Medical Technology Assessment Subjects on BME Curricula | | 5066-5069 |
| <i>Martinez-Licona, Fabiola (Universidad Autonoma Metropolitana); Azpiroz-leehan, Joaquin* (Universidad Autonoma Metropolitana); Cadena, Miguel (Universidad Autonoma Metropolitana); Sacristan, Emilio (Universidad Autónoma Metropolitana)</i> | | |
| 14:30-14:45 | | FrC11.5 |
| Effective Collaborative Learning in Biomedical Education Using a Web-Based Infrastructure | | 5070-5073 |
| <i>Zheng, Fang (Xiamen University); Xu, Weihong (Xiamen University); Cai, Suxian* (Xiamen University); Xiang, Ning (Xiamen University); Zhong, Zhangting (Xiamen University); He, Jia (Xiamen University); Wu, Yunfeng (Xiamen University); Xu, Fang (Xiamen University)</i> | | |

14:45-15:00 FrC11.6
Medical Imaging Education in Biomedical Engineering Curriculum: Courseware Development and Application through a Hybrid Teaching Model 5074-5077
Zhao, Weizhao (University of Miami); Li, Xiping (University of Miami); Chen, Hairong (University of Miami); Manns, Fabrice (University of Miami)*

FrC13: 13:30-15:00 Aqua 306B
10.7.1 Decision Support and Data Mining I (Oral Session)
Chair: Kant Kumar, Dinesh (*RMIT Univ.*)
Co-Chair: Simalatsar, Alena (*EPFL*)

13:30-13:45 FrC13.1
TAT-Based Formal Representation of Medical Guidelines: Imatinib Case-Study 5078-5081
Simalatsar, Alena (EPFL); De Micheli, Giovanni (EPFL)*

13:45-14:00 FrC13.2
Sequential Algorithm for the Detection of the Shockable Rhythms in Electrocardiogram 5082-5085
Jeong, Ji-Wook (ETRI); Lee, InBum (ETRI); Song, Yoonseon (Electronics & Telecom Research Inst); Noh, Hyung Wook (Electronics and Telecommunications Research Institute); Jang, Yongwon (Electronics & Telecom Research Inst.); Lee, Sooyeul (Electronics & Telecom Research Inst)*

14:00-14:15 FrC13.3
High Performance Biomedical Time Series Indexes Using Salient Segmentation 5086-5089
Woodbridge, Jonathan (University of California, Los Angeles); Mortazavi, Bobak (Computer Science Department, University of California Los Angeles); Sarrafzadeh, Majid (University of California Los Angeles)*

14:15-14:30 FrC13.4
Data-Driven Modeling of Sleep States from EEG 5090-5093
Van Esbroeck, Alexander (University of Michigan); Westover, Brandon (Massachusetts General Hospital)*

14:30-14:45 FrC13.5
Prediction of Extubation Failure for Neonates with Respiratory Distress Syndrome Using the MIMIC-II Clinical Database 5094-5097
Mikhno, Arthur (Columbia University); Ennett, Colleen M. (Philips Research North America)*

14:45-15:00 FrC13.6
Improving Surgical Models through One/Two Class Learning 5098-5101
Chia, Chih-Chun (University of Michigan, Ann Arbor); Karam, Zahi (University of Michigan, Ann Arbor); Lee, Gyemin (University of Michigan, Ann Arbor); Rubinfeld, Ilan (Henry Ford Hospital); Syed, Zeeshan (University of Michigan)*

FrC14: 13:30-15:00 Aqua 308
10.5.2 Smart Home Technology and Ambient Assisted Living I (Oral Session)
Chair: Kailas, Aravind (*The Univ. of North Carolina at Charlotte*)
Co-Chair: Park, Kwang S. (*Seoul National Univ.*)

13:30-13:45 FrC14.1
Resident Identification Using Kinect Depth Image Data and Fuzzy Clustering Techniques 5102-5105
Banerjee, Tanvi (University of Missouri); Skubic, Marjorie (University of Missouri); Keller, James M (University of Missouri)*

13:45-14:00 FrC14.2
Capturing Habitual, In-Home Gait Parameter Trends Using an Inexpensive Depth Camera 5106-5109
Stone, Erik (University of Missouri); Skubic, Marjorie (University of Missouri)*

14:00-14:15 FrC14.3
Audible Vision for the Blind and Visually Impaired in Indoor Open Spaces 5110-5113
Yu, Xunyi (University of Massachusetts); Ganz, Aura (University of Massachusetts, Amherst)*

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| 14:15-14:30 | | FrC14.4 |
| Safe Trajectory Estimation at a Pedestrian Crossing to Assist Visually Impaired People | 5114-5117 | |
| <i>Alghamdi, Saleh (RMIT University); van Schyndel, Ron G* (RMIT University); Khalil, Ibrahim (RMIT University)</i> | | |
| 14:30-14:45 | | FrC14.5 |
| A Ubiquitous Ambient Assisted Living Solution to Promote Safer Independent Living in Older Adults Suffering from Co-Morbidity | 5118-5121 | |
| <i>Prescher, Sandra* (Charité Universitätsmedizin Berlin); Bourke, Alan (University of Limerick); Koehler, Friedrich (Zentrum für kardiovaskuläre Telemedizin GmbH); Martins, Angelo Manuel (INESC TEC/ISEP); Sereno Ferreira, Hugo (INESC TEC (formerly INESC Porto) and Faculty of Engineering, University of Porto); Sousa, Tiago Boldt (INESC TEC (formerly INESC Porto) and Faculty of Engineering, University of Porto); Castro, Rui (Fraunhofer Portugal Research Center for Assistive Information and Communication Solutions FhP-AICOS); Santos, António (Fraunhofer Portugal AICOS); Torrent Poch, Marc (Fundació Cetemmsa); Gomis Gascó, Sergi (Fundació Cetemmsa); Margarita, Hospedales (Cetemmsa Technological Center in Mataró); Nelson, John (University of Limerick)</i> | | |
| 14:45-15:00 | | FrC14.6 |
| Combined Analysis of Sensor Data from Hand and Gait Motor Function Improves Automatic Recognition of Parkinson's Disease | 5122-5125 | |
| <i>Barth, Jens* (ASTRUM IT GmbH); Sünkel, Michael (ASTRUM IT GmbH); Bergner, Katharina (University Hospital Erlangen); Schickhuber, Gerald (University of Applied Sciences Regensburg); Winkler, Juergen (University Hospital Erlangen); Klucken, Jochen (University Hospital Erlangen); Eskofier, Bjoern M (University of Erlangen-Nuremberg)</i> | | |
| FrC16: 13:30-15:00 | | Sapphire L |
| 6.1.3 Microelectrodes and Microsystems (Oral Session) | | |
| Chair: Bozkurt, Alper (North Carolina State Univ.) | | |
| Co-Chair: Khraiche, Massoud (Univ. of California, San Diego) | | |
| 13:30-13:45 | | FrC16.1 |
| Pre-Implantation Electrochemical Characterization of a Parylene C Sheath Microelectrode Array Probe | 5126-5129 | |
| <i>Hara, Seth A.* (University of Southern California); Kim, Brian J. (University of Southern California); Kuo, Jonathan T.W. (University of Southern California); Lee, Curtis (University of Southern California); Gutierrez, Christian A. (University of Southern California); Hoang, Tuan (University of Southern California); Meng, Ellis (University of Southern California)</i> | | |
| 13:45-14:00 | | FrC16.2 |
| Parylene-Coated Metal Tracks for Neural Electrode Arrays – Fabrication Approaches and Improvements Utilizing Different Laser Systems | 5130-5133 | |
| <i>Kohler, Fabian* (University of Freiburg); Schuettler, Martin (University of Freiburg); Stieglitz, Thomas (University of Freiburg)</i> | | |
| 14:00-14:15 | | FrC16.3 |
| Improved Polyimide Thin-Film Electrodes for Neural Implants | 5134-5137 | |
| <i>Ordonez, Juan Sebastian* (University of Freiburg); Boehler, Christian (University of Freiburg); Schuettler, Martin (University of Freiburg); Boretius, Tim (University of Freiburg); Stieglitz, Thomas (University of Freiburg)</i> | | |
| 14:15-14:30 | | FrC16.4 |
| Reduction of Current Density at Disk Electrode Periphery by Shaping Current Pulse Edges | 5138-5141 | |
| <i>Wang, Boshuo* (University of Southern California); Weiland, James (University of Southern California)</i> | | |
| 14:30-14:45 | | FrC16.5 |
| A Novel Technique for Increasing Charge Injection Capacity of Neural Electrodes for Efficacious and Safe Neural Stimulation | 5142-5145 | |
| <i>Negi, Sandeep* (University); Bhandari, Rajmohan (Blackrock Microsystems); Solzbacher, Florian (University of Utah)</i> | | |

14:45-15:00 FrC16.6
A CMOS-Based On-Chip Neural Interface Device Equipped with Integrated LED Array for Optogenetics 5146-5149
Tokuda, Takashi (Nara Institute of Science and Technology); Tomoaki, Miyatani (Nara Institute of Science and Technology); Yasuyo, Maezawa (Nara Institute of Science and Technology); Kobayashi, Takuma (Nara Institute of Science and Technology); Noda, Toshihiko (Nara Institute of Science and Technology); Sasagawa, Kiyotaka (Nara Institute of Science and Technology); Ohta, Jun (Nara Institute of Science and Technology)*

FrC17: 13:30-15:00 Sapphire H
6.11.1 Epilepsy (Oral Session)
Chair: Besio, W. G. (*Univ. of Rhode Island*)
Co-Chair: Song, Dong (*Univ. of Southern California*)

13:30-13:45 FrC17.1
Design Techniques and Analysis of High-Resolution Neural Recording Systems Targeting Epilepsy Focus Localization 5150-5153
Shoaran, Mahsa (EPFL); Pollo, Claudio (Centre Hospitalier Universitaire Vaudois (CHUV)); Leblebici, Yusuf (EPFL); Schmid, Alexandre (EPFL)*

13:45-14:00 FrC17.2
Sensor Integration of Multiple Tripolar Concentric Ring Electrodes Improves Pentylentetrazole-Induced Seizure Onset Detection in Rats 5154-5157
Makeyev, Oleksandr (University of Rhode Island); Ding, Quan (University of Rhode Island); Kay, Steven (University of Rhode Island); Besio, W. G. (University of Rhode Island)*

14:00-14:15 FrC17.3
Brain State Evolution During Seizure and under Anesthesia: A Network-Based Analysis of Stereotaxic EEG Activity in Drug-Resistant Epilepsy Patients 5158-5161
Yaffe, Robert (Johns Hopkins University); Burns, Samuel (Johns Hopkins University); Gonzalez-Martinez, Jorge (Cleveland Clinic); Gale, John (Cleveland Clinic); Bulacio, Juan (Cleveland Clinic); Park, Hyun-Joo (Cleveland Clinic); Sarma, Sridevi V. (Johns Hopkins University)*

14:15-14:30 FrC17.4
Channel Selection for Epilepsy Seizure Prediction Method Based on Machine Learning 5162-5165
Chang, Nai-Fu (National Taiwan University); Chen, Tung-Chien (National Taiwan University); Chiang, Cheng-Yi (National Taiwan University DSP/IC Lab); Chen, Liang-Gee (NTU)*

14:30-14:45 FrC17.5
Spatio-Temporal Inter-Ictal Activity Recorded from Human Epileptic Hippocampal Slices 5166-5169
Hsiao, Min-Chi (University of Southern California); Yu, Pen-Ning (University of Southern California); Song, Dong (University of Southern California); Liu, Charles Y. (Keck Hospital of the University of Southern California); Heck, Christi N. (Keck Hospital of the University of Southern California); Millett, David (University of Southern California); Berger, Theodore (University of Southern California)*

14:45-15:00 FrC17.6
Efficient Epileptic Seizure Detection by a Combined IMF-VoE Feature 5170-5173
Qi, Yu (Zhejiang University, QAAS); Wang, Yueming (Zhejiang University); Zheng, Xiaoxiang (Zhejiang University); Zhu, Junming (Second Affiliated Hospital, School of Medicine, Zhejiang University); Zhang, Jianmin (Second Affiliated Hospital, School of Medicine, Zhejiang University); Guo, Jianping (QAAS, Zhejiang University)*

FrD01: 15:00-16:30 Indigo Ballroom
1.5.2 Coherence, Causality and Connectivity (Poster Session)

15:00-16:30 FrD01.1
Partial Directed Coherence Analysis of Intracranial Neural Spikes in Epilepsy Patients 5174-5177
Chan, Hsiao-Lung (Chang Gung University)*

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| 15:00-16:30 | FrD01.2 |
| Information Transfer Along the Ventral Auditory Processing Stream in the Awake Macaque | 5178-5181 |
| <i>Smith, Elliot* (University of Utah); Kellis, Spencer (California Institute of Technology); House, Paul (University of Utah); Greger, Bradley (University of Utah)</i> | |
| 15:00-16:30 | FrD01.3 |
| Functional Connectivity Analysis of Cortical Networks in Functional Near Infrared Spectroscopy Using Phase Synchronization | 5182-5185 |
| <i>Molavi, Behnam* (University of British Columbia); Gervain, Judit (Laboratoire Psychologie de la Perception, CNRS-Paris Descartes); Dumont, Guy (University of British Columbia)</i> | |
| 15:00-16:30 | FrD01.4 |
| Functional Brain Connectivity As Revealed by Singular Spectrum Analysis | 5186-5189 |
| <i>Seghouane, Abd-krim (National ICT Australia); Shah, Adnan* (National ICT Australia, Canberra, The Australian National University Canberra)</i> | |
| 15:00-16:30 | FrD01.5 |
| Estimating Correlation for a Real-Time Measure of Connectivity | 5190-5193 |
| <i>Arunkumar, Akhil* (University of North Carolina at Charlotte); Panday, Ashish (University of North Carolina at Charlotte); Joshi, Bharat (University of North Carolina at Charlotte); Ravindran, Arun (University of North Carolina at Charlotte); Zaveri, Hitten (Yale University)</i> | |
| 15:00-16:30 | FrD01.6 |
| EEG Theta Rhythm Analysis using Nonlinear Granger Causality and Approximate Decomposition for Decoding of Motor Intention | 5194-5197 |
| <i>Liu, MengTing (Louisiana Tech University); Kuo, Ching-Chang (Louisiana Tech University); Chiu, Alan Wing Lun* (Louisiana Tech University)</i> | |
| 15:00-16:30 | FrD01.7 |
| Correlation between Intra and Extracranial Background EEG | 5198-5201 |
| <i>Duun-Henriksen, Jonas* (Technical University of Denmark); Kjaer, Troels Wesenberg (Rigshospitalet); Madsen, Rasmus Elsborg (HypoSafe A/S); Remvig, Line Sofie (HypoSafe A/S); Thomsen, Carsten Eckhart (University of Copenhagen); Sorensen, Helge B D (Technical University of Denmark)</i> | |
| 15:00-16:30 | FrD01.8 |
| Effect of Latency on Clustering of P300 Recordings for ADHD Discrimination | 5202-5205 |
| <i>Peluffo-Ordóñez, Diego Hernán (National University, Colombia – Manizales); Martínez-Vargas, Juan David* (Universidad Nacional de Colombia); Castellanos-Dominguez, Germán (Universidad Nacional de Colombia)</i> | |
| 15:00-16:30 | FrD01.9 |
| Music and Emotion: An EEG Connectivity Study in Patients with Disorders of Consciousness | 5206-5209 |
| <i>Varotto, Giulia* (Fondazione IRCCS Istituto Neurologico C. Besta); Fazio, Patrik (Fondazione IRCCS Istituto Neurologico C. Besta, via Celoria 11, Milano, Italy); Rossi, Davide (Fondazione IRCCS Istituto Neurologico C. Besta); Avanzini, Giulia (Fondazione IRCCS Istituto Neurologico C. Besta); Franceschetti, Silvana (Fondazione IRCCS Istituto Neurologico C. Besta, via Celoria 11, Milano, Italy); Panzica, Ferruccio (Fondazione IRCCS Istituto Neurologico C. Besta Milano, Italy)</i> | |
| FrD02: 15:00-16:30 | Indigo Ballroom |
| 1.6.1 Adaptive Filtering (Poster Session) | |
| 15:00-16:30 | FrD02.1 |
| A Modified Log-LMS Adaptive Filter with Low Signal Distortion for Biomedical Applications | 5210-5213 |
| <i>Jiao, Yuzhong* (Hong Kong Applied Science and Technology Research Institute); Cheung, Rex (Hong Kong Applied Science and Technology Research Institute Co., Ltd.); Mok, Mark (Hong Kong Applied Science and Technology Research Institute Co., Ltd.)</i> | |
| 15:00-16:30 | FrD02.2 |
| Power Line Interference Cancellation in In-Vivo Neural Recording | 5214-5217 |
| <i>Keshtkaran, Mohammad Reza* (National University of Singapore); Yang, Zhi (National University of Singapore)</i> | |

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| 15:00-16:30 | FrD02.3 |
| Order Selection of the Hearing Aid Feedback Canceller Filter Based on Its Impulse Response Energy | 5218-5221 |
| <i>Ardestani Khoubrouy, Soudeh* (University of Texas at Dallas); Panahi, Issa (University of Texas at Dallas)</i> | |
| 15:00-16:30 | FrD02.4 |
| Brain Source Localization Based on Fast Fully Adaptive Approach | 5222-5225 |
| <i>Ravan, Maryam* (McMaster University); Reilly, James (McMaster University)</i> | |
| 15:00-16:30 | FrD02.5 |
| A Ventricular Activity Cancellation Algorithm Based on Event Synchronous Adaptive Filter for Single-Lead Electrocardiograms | 5226-5229 |
| <i>Lee, Jeon* (Yonsei University); Lee, Junghun (Yonsei University); Park, Jongwook (Yonsei University); Song, Mi Hye (Yonsei University); Lee, Kyoung Joung (Yonsei University)</i> | |
| 15:00-16:30 | FrD02.6 |
| Improving Misalignment for Feedback Path Estimation in Hearing Aid by Multiple Short-Time Noise Injections | 5230-5233 |
| <i>Ardestani Khoubrouy, Soudeh* (University of Texas at Dallas); Panahi, Issa (University of Texas at Dallas)</i> | |
| FrD03: 15:00-16:30 | Indigo Ballroom |
| 1.9.3 Pattern Recognition Methods for Data Mining in Biosignals I (Poster Session) | |
| 15:00-16:30 | FrD03.1 |
| Fault Detection and Isolation in Motion Monitoring System | 5234-5237 |
| <i>Kim, Duk-Jin* (UT at Dallas); Suk, Myoung Hoon (UTD); Prabhakaran, Balakrishnan (UTD)</i> | |
| 15:00-16:30 | FrD03.2 |
| Multimodal Emotion Recognition by Combining Physiological Signals and Facial Expressions: A Preliminary Study | 5238-5241 |
| <i>Kortelainen, Jukka* (University of Oulu); Tiinanen, Suvi (University of Oulu); Huang, Xiaohua (University of Oulu); Li, Xiaobai (University of Oulu); Laukka, Seppo (University of Oulu); Pietikäinen, Matti (University of Oulu); Seppänen, Tapio (University of Oulu)</i> | |
| 15:00-16:30 | FrD03.3 |
| Support Vector Regression Correlates Single-Sweep Evoked Brain Potentials to Gastrointestinal Symptoms in Diabetes Mellitus Patients | 5242-5245 |
| <i>Graversen, Carina* (Aalborg University Hospital, Aalborg, Denmark); Frøkjær, Jens B. (Aalborg Hospital); Brock, Christina (Aalborg Hospital, Denmark); Drewes, Asbjørn Mohr (Aalborg Hospital, Mech-Sense, Department of Gastroenterology); Farina, Dario (Bernstein Center for Computational Neuroscience, University Medical Center Göttingen)</i> | |
| 15:00-16:30 | FrD03.4 |
| The Evaluation of the Discriminant Ability of Multiclass SVM in a Study of Hand Motion Recognition by Using SEMG | 5246-5249 |
| <i>Futamata, Masachika* (Tokai University); Nagata, Kentaro (WASEDA University); Magatani, Kazushige (Tokai Univ.)</i> | |
| 15:00-16:30 | FrD03.5 |
| Promise of a Low Power Mobile CPU Based Embedded System in Artificial Leg Control | 5250-5253 |
| <i>Hernandez, Robert* (The University of Rhode Island); Zhang, Fan (University of Rhode Island); Zhang, Xiaorong (University of Rhode Island); Huang, He (University of Rhode Island); Yang, Qing (University of Rhode Island)</i> | |
| 15:00-16:30 | FrD03.6 |
| Unobtrusive Classification of Sleep and Wakefulness Using Load Cells under the Bed | 5254-5257 |
| <i>Austin, Daniel* (Oregon Health & Science University); Beattie, Zachary Todd (Oregon Health & Science University); Riley, Thomas (Oregon Health and Science University); Adami, Adriana Miorelli (University of Caxias do Sul); Hagen, Chad (Oregon Health & Science University); Hayes, Tamara (Oregon Health & Science University)</i> | |

15:00-16:30 FrD03.7
Recursive Feature Elimination for Brain Tumor Classification Using Desorption Electrospray Ionization Mass Spectrometry Imaging 5258-5261
*Gholami, Behnood** (Brigham and Women's Hospital, Harvard Medical School); *Norton, Isaiah* (Brigham and Women's Hospital, Harvard Medical School); *Agar, Nathalie* (Brigham and Women's Hospital, Harvard Medical School)

15:00-16:30 FrD03.8
Mining Pattern Sequences in Respiratory Tumor Motion Data 5262-5265
*Balasubramanian, Arvind** (The University of Texas at Dallas); *Prabhakaran, Balakrishnan* (UTD); *Sawant, Amit* (The University of Texas Southwestern)

15:00-16:30 FrD03.9
Toward Fewer EEG Channels and Better Feature Extractor of Non-Motor Imagery Mental Tasks Classification for a Wheelchair Thought Controller 5266-5269
*Chai, Rifai** (University of Technology, Sydney); *Ling, Steve* (University of Technology Sydney); *Hunter, Gregory Peter* (University of Technology, Sydney); *Nguyen, Hung T.* (University of Technology, Sydney)

15:00-16:30 FrD03.10
Prior Estimation of Motion Using Recursive Perceptron with sEMG: A Case of Wrist Angle 5270-5273
*Kuroda, Yoshihiro** (Osaka University); *Tanaka, Takeshi* (Osaka University); *Imura, Masataka* (Osaka University); *Oshiro, Osamu* (Osaka University)

15:00-16:30 FrD03.11
An Efficient Spike-Sorting for Implantable Neural Recording Microsystem Using Hybrid Neural Network 5274-5277
*Li, hongge** (Beihang University)

15:00-16:30 FrD03.12
Non-Invasive Cerebrospinal Fluid Pressure Estimation Using Multi-Layer Perceptron Neural Networks . 5278-5281
*Golzan, S.Mojtaba** (Macquarie University); *Avolio, Alberto P* (Macquarie University); *Graham, Stuart L* (Macquarie University)

FrD04: 15:00-16:30 Indigo Ballroom
1.9.4 Pattern Recognition Methods for Data Mining in Biosignals II (Poster Session)

15:00-16:30 FrD04.1
Dimensionality Reduction Based on Fuzzy Rough Sets Oriented to Ischemia Detection 5282-5285
*Orrego Metaute, Diana Alexandra** (Instituto Tecnológico Metropolitano); *Becerra Botero, Miguel Alberto* (Institución Universitaria Salazar y Herrera); *Delgado-Trejos, Edilson* (Instituto Tecnológico Metropolitano)

15:00-16:30 FrD04.2
Heart Sound Localization in Chest Sound Using Temporal Fuzzy C-Means Classification 5286-5289
Shamsi, Hamed (Ataturk University); *Ozbek, I.Yucel** (Ataturk University)

15:00-16:30 FrD04.3
Individual Optimization of EEG Channel and Frequency Range by Means of Genetic Algorithm 5290-5293
Lee, chungki (KIST); *Jung, Jihee* (Korea Institute of Science and Technology); *Kwon, Gyu Hyun* (Korea Institute of Science and Technology); *Kim, Laehyun** (Korea Institute of Science and Technology)

FrD05: 15:00-16:30 Indigo Ballroom
2.7.2 Image Registration Posters I (Poster Session)

15:00-16:30 FrD05.1
3D Curve Constrained Deformable Registration Using a Neuro-Fuzzy Transformation Model 5294-5297
*HUANG, (Edward) XISHI** (Hospital for Sick Children)

15:00-16:30 FrD05.2
Affine Transformation Registers Small Scale Lung Deformation 5298-5301
Arai, Tatsuya (University of California, San Diego); Villongco, Christopher (University of California San Diego);
T. Villongco, Michael (University of California, San Diego); Hopkins, Susan R (University of California, San
Diego, Pulmonary Imaging Laboratory); Theilmann, Rebecca (University of California, San Diego)*

15:00-16:30 FrD05.3
Methodology for the Construction and Comparison of 3D Models of the Human Cornea 5302-5305
Auvinet, Edouard (Université de Montréal); Meunier, Jean (Universite de Montreal);
Ong, Jeb (University of Montréal); Durr, George (University of Montréal);
Gilca, Marina (University of Montréal); Brunette, Isabelle (University of Montréal)*

15:00-16:30 FrD05.4
**Markerless Registration for Intracerebral Hemorrhage Surgical System Using Weighted Iterative
Closest Point (ICP)** 5306-5309
*Shin, Sangkyun (Korea Institute of Science and Technology); Lee, Deukhee (Korea Institute of Science and
Technology); Kim, Youngjun (KIST); Park, Sehyung* (Korea Institute of Science and Technology)*

FrD06: 15:00-16:30 Indigo Ballroom
2.7.6 Image Segmentation Posters I (Poster Session)

15:00-16:30 FrD06.1
Cell Tracking and Mitosis Detection Using Splitting Flow Networks in Phase-Contrast Imaging 5310-5313
Massoudi, Amir (University of New South Wales); Semenovich, Dimitri (University of New South Wales);
Sowmya, Arcot (University of New South Wales)*

15:00-16:30 FrD06.2
Phosphene Vision of Depth and Boundary from Segmentation-Based Associative MRFs 5314-5318
Xie, Yiran (Australian National University); Liu, Nianjun (National ICT Australia Limited);
Barnes, Nick (NICTA Canberra Research Laboratory)*

15:00-16:30 FrD06.3
Adaptive Image Segmentation for Robust Measurement of Longitudinal Brain Tissue Change 5319-5322
Fletcher, Evan (University of California, Davis); Singh, Baljeet (University of California, Davis);
Harvey, Danielle (UC Davis); Carmichael, Owen (University of California, Davis);
DeCarli, Charles (University of California, Davis)*

15:00-16:30 FrD06.4
Reconstruction of Missing Cells in Fluorescent Microscopy 5323-5326
Wan, Justin (University of Waterloo); Leung, Nat (University of Waterloo)*

15:00-16:30 FrD06.5
Point-Guided Modeling and Segmentation of Myocardium for Low Dose Cardiac CT Images 5327-5330
Liu, Yixun (National Institutes of Health); Nacif, Marcelo (National Institutes of Health); Liu, Songtao (National
Institutes of Health); Sibley, Chris (National Institutes of Health); Bluemke, David (National Institutes of Health
Clinical Center); Summers, Ronald (National Institutes of Health); Yao, Jianhua (National Institutes of Health)*

15:00-16:30 FrD06.6
**Quantitative Characterization and Identification of Lymph Nodes and Nasopharyngeal Carcinoma by
Coregistered Magnetic Resonance Images** 5331-5334
Veronese, Fabio (Politecnico di Milano); Montin, Eros (Politecnico di Milano);
Potepan, Paolo (Istituto Nazionale dei Tumori); Mainardi, Luca (Politecnico di Milano)*

15:00-16:30 FrD06.7
Automated and Robust PERCIST-Based Thresholding Framework for Whole Body PET-CT Studies 5335-5338
Bl, LEI (University of Sydney); Kim, Jinman (University of Sydney); Wen, Lingfeng (University of Sydney);
Feng, Dagan (The University of Sydney)*

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| 15:00-16:30 | FrD06.8 |
| Active Contour Based Segmentation for Insulin Granule Cores in Electron Micrographs of Beta Islet Cells | 5339-5342 |
| <i>Nam, David* (University of Bristol); Mantell, Judith (University of Bristol); Bull, David Roger (University of Bristol); Verkade, Paul (University of Bristol); Achim, Alin (University of Bristol)</i> | |
| 15:00-16:30 | FrD06.9 |
| Dendritic Spines Detection Based on Directional Morphological Filter and Shortest Path | 5343-5346 |
| <i>Su, Ran* (The University of New South Wales and CSIRO Mathematics, Informatics and Statistics); Sun, Changming (CSIRO); Pham, Tuan D. (University of Aizu)</i> | |
| 15:00-16:30 | FrD06.10 |
| Color Diffusion Model for Active Contours – An Application to Skin Lesion Segmentation | 5347-5350 |
| <i>Ivanovici, Mihai* (Transilvania University); Stoica, Diana (Transilvania University)</i> | |
| 15:00-16:30 | FrD06.11 |
| Automated Material Map Generation from MRI Scout Pairs for Preclinical PET Attenuation Correction | 5351-5354 |
| <i>Bandi, Peter* (Mediso Medical Imaging Systems Ltd.); Zsoter, Norbert (Mediso Medical Imaging Systems Ltd.); Koncz, Peter (Mediso Medical Imaging Systems Ltd.); Babos, Magor (Mediso Medical Imaging Systems Ltd.); Hobor, Sandor (Mediso Medical Imaging Systems Ltd.); Mathe, Domokos (CROmed Research Ltd.); Papp, Laszlo (Mediso Medical Imaging Systems Ltd.)</i> | |
| 15:00-16:30 | FrD06.12 |
| Automated Segmentation and Analysis of the Epidermis Area in Skin Histopathological Images | 5355-5359 |
| <i>Lu, Cheng (University of Alberta); Mandal, Mrinal* (University of Alberta)</i> | |

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| FrD07: 15:00-16:30 | Indigo Ballroom |
| 2.7.7 Image Segmentation Posters II (Poster Session) | |

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| 15:00-16:30 | FrD07.1 |
| Automatic Measurements of Choroidal Thickness in EDI-OCT Images | 5360-5363 |
| <i>Tian, Jing* (Nanyang Technological University); Marziliano, Pina (Nanyang Technological University); Baskaran, Mani (Singapore Eye Research Institute); TUN, TIN AUNG (Singapore Eye Research Institute); Aung, Tin (Singapore Eye Research Institute)</i> | |
| 15:00-16:30 | FrD07.2 |
| Brain Anatomical Structure Segmentation by Adaptive Bandwidth Density Estimation | 5364-5367 |
| <i>Lopez Palafox, Guadalupe Desiree* (Universidad Autonoma Metropolitana); Jimenez-Alaniz, Juan Ramon (Universidad Autonoma Metropolitana)</i> | |
| 15:00-16:30 | FrD07.3 |
| Improving Active Contour Methods for Tracking Endothelial Cells by the Removal of Low-Confidence Edge Segments | 5368-5371 |
| <i>Nejati Javaremi, Alireza* (University of Auckland); Unsworth, Charles Peter (University of Auckland); Scott, Euan Graham (University of Auckland)</i> | |
| 15:00-16:30 | FrD07.4 |
| Automated Segmentation of Free-Lying Cell Nuclei in Pap Smears for Malignancy-Associated Change Analysis | 5372-5375 |
| <i>Moshavegh, Ramin (Chalmers University of Technology); Ehteshami Bejnordi, Babak (Chalmers University of Technology); Mehnert, Andrew James Heinrich* (Chalmers University of Technology); Malm, Patrik (Centre for Image Analysis, Uppsala University); Bengtsson, Ewert (Uppsala University)</i> | |
| 15:00-16:30 | FrD07.5 |
| An Automated Method for High-Definition Transcranial Direct Current Stimulation Modeling | 5376-5379 |
| <i>Huang, Yu* (City College of New York); Su, Yuzhuo (Evoke Neuroscience); Rorden, Christopher (Georgia Institute of Technology); Dmochowski, Jacek (City College of New York, CUNY); Datta, Abhishek (The City College of the CUNY); Parra, Lucas C. (City College of New York)</i> | |

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| 15:00-16:30 | FrD07.6 |
| Lesion Border Detection in Buruli Ulcer Images | 5380-5383 |
| <i>Hu, Rui (University of Houston); Wadhawan, Tarun (University of Houston); Queen, Courtney (University of Houston); Zouridakis, George* (University of Houston)</i> | |
| 15:00-16:30 | FrD07.7 |
| Automated Localization and Segmentation of Lung Tumor from PET-CT Thorax Volumes Based on Image Feature Analysis | 5384-5387 |
| <i>Cui, Hui* (The University of Sydney); Wang, Xiu Ying (The University of Sydney); Feng, Dagan (The University of Sydney)</i> | |
| 15:00-16:30 | FrD07.8 |
| Psoriasis Segmentation through Chromatic Regions and Geometric Active Contours | 5388-5391 |
| <i>Bogo, Federica* (University of Padova); Samory, Mattia (University of Padova); Belloni Fortina, Anna (University of Padova); Piaserico, Stefano (University of Padova); Peserico, Enoch (University of Padova)</i> | |
| 15:00-16:30 | FrD07.9 |
| Overlapped Chromosome Segmentation and Separation of Touching Chromosome for Automated Chromosome Classification | 5392-5395 |
| <i>Madian, Nirmala (K.S. Rangasamy College of Technology); Krishnasamy Balasundaram, Jayanthi* (K.S. Rangasamy College of Technology)</i> | |
| 15:00-16:30 | FrD07.10 |
| Objective Measurements to Evaluate Glottal Space Segmentation from Laryngeal Images | 5396-5399 |
| <i>Gutiérrez-Arriola, Juana Maria* (Universidad Politécnica de Madrid); Osma-Ruíz, Víctor (Universidad Politécnica de Madrid); Sáenz-Lechón, Nicolás (Universidad Politécnica de Madrid); Godino-Llorente, Juan Ignacio (Universidad Politécnica de Madrid); Fraile, Ruben (Universidad CEU Cardenal Herrera); Arias-Londoño, Julián David (Universidad de Antioquia)</i> | |

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| FrD08: 15:00-16:30 | Indigo Ballroom |
| 2.7.9 Image Analysis, Compression and Fusion (Poster Session) | |

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| 15:00-16:30 | FrD08.1 |
| An In-Vivo Computed Tomography Approach for Quantifying Porcine Pulmonary Arterial Morphometry | 5400-5403 |
| <i>Lee, Yik Ching* (The University of Auckland); Clark, Alys (The University of Auckland); Fuld, Matthew (Departments of Radiology, University of Iowa); Haynes, Susan (University of Iowa); Abhay, Divekar (University of Iowa Childrens Hospital); Hoffman, Eric (University of Iowa); Tawhai, Merryn (The University of Auckland)</i> | |
| 15:00-16:30 | FrD08.2 |
| Electromyographic Signal Compression Based on Preprocessing Techniques | 5404-5407 |
| <i>Melo, Wheidima* (UFAM); Sabino, Waldir (UFAM); Eddie, Batista (CTPIM)</i> | |
| 15:00-16:30 | FrD08.3 |
| A Graph-Based Approach to the Retrieval of Volumetric PET-CT Lung Images | 5408-5411 |
| <i>Kumar, Ashnil* (University of Sydney); Kim, Jinman (University of Sydney); Wen, Lingfeng (University of Sydney); Feng, Dagan (The University of Sydney)</i> | |
| 15:00-16:30 | FrD08.4 |
| A Statistical Model-Based Technique for Accounting for Prostate Gland Deformation in Endorectal Coil-Based MR Imaging | 5412-5415 |
| <i>Tahmasebi, Amir M.* (Philips Research North America); Sharifi, Reza (Philips research); Agarwal, Harsh Kumar (Philips Research NA); Turkbey, Baris (Molecular Imaging Program, NCI, NIH); Bernardo, Marcelino (SAIC-Frederick); Choyke, Peter (National Institutes of Health); Pinto, Peter (National Institutes of Health); Wood, Bradford (NIH); Kruecker, Jochen (Philips Research North America)</i> | |

15:00-16:30 FrD08.5
Joint Probability of Shape and Image Similarities to Retrieve 2D TRUS-MR Slice Correspondence for Prostate Biopsy 5416-5419
Mitra, Jhimli (Université de Bourgogne); Ghose, Soumya (Université de Bourgogne); Sidibé, Désiré (Université de Bourgogne); Martí, Robert (University of Girona); Oliver, Arnau (University of Girona); Lladó, Xavier (University of Girona); Vilanova, Joan Carles (University of Girona); Comet, Josep (Hospital Dr. Josep Trueta); Meriaudeau, Fabrice (Universite de Bourgogne)*

15:00-16:30 FrD08.6
A Probability Distribution of Shape for the Dental Maxillary Arch Using Digital Images 5420-5423
Rijal, Omar Mohd (University of Malaya); Abdullah, Norli Anida (University of Malaya, Kuala Lumpur, Malaysia); Mohd Isa, Zakiah (University of Malaya, Kuala Lumpur, Malaysia); Noor, Norliza Mohd (Universiti Teknologi Malaysia); Farouq, Tawfiq, Omar (University of Malaya, Kuala Lumpur, Malaysia)*

15:00-16:30 FrD08.7
ZPEG: A Hybrid DPCM-DCT Based Approach for Compression of Z-Stack Images 5424-5427
Khire, Sourabh (Georgia Institute of Technology); Cooper, Lee (Emory); Park, Yuna (Emory University); Carter, Alexis (Emory University); Jayant, Nikil (Georgia Institute of Technology); Saltz, Joel (Emory University)*

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| FrD09: 15:00-16:30 | Indigo Ballroom |
| 4.1.1 Biological Networks (Poster Session) | |

15:00-16:30 FrD09.1
Nonlinear Dynamics of DNA Double Strand: Existence of the Compact-Envelope Bright Solitary Wave . 5428-5431
Ndjoko, Paul (University of Burgundy); Bilbault, Jean-Marie (LE2I UMR CNRS 5158, Université de Bourgogne, France); Binczak, Stéphane (Université de Bourgogne); Kofané, Timoléon Crépin (University of Yaoundé I)*

15:00-16:30 FrD09.2
Revealing the Dynamic Modularity of Composite Biological Networks in Breast Cancer Treatment 5432-5436
Dimitrakopoulou, Konstantina (University of Patras); Dimitrakopoulos, George (University of Patras); Zacharaki, Evangelia (University of Patras); Maraziotis, Ioannis (Medical School, University of Patras); Sgarbas, Kyriakos (University of Patras); Bezerianos, Anastasios (University of Patras)*

15:00-16:30 FrD09.3
Data Assimilation of Glucose Dynamics for Use in the Intensive Care Unit 5437-5440
Sedigh-Sarvestani, Madineh (Penn State University); Albers, David J. (Columbia University); Gluckman, Bruce J. (Pennsylvania State University)*

15:00-16:30 FrD09.4
Nonlinear Model for Dynamic Synapse Neural Network 5441-5444
Park, Hyung ook (University of Southern California); Dibazar, Alireza (University of Southern Claifornia); Berger, Theodore (University of Southern California)*

15:00-16:30 FrD09.5
Examining Intrinsic Thalamic Resting State Networks Using Graph Theory Analysis : Implications for mTBI Detection 5445-5448
Nathan, Dominic (National Intrepid Center of Excellence (Henry M. Jackson Foundation Contractor)); Wang, BinQuan (Henry M. Jackson Foundation); Wolfowitz, Rachel (Henry M. Jackson Foundation); Liu, Wei (Henry M. Jackson Foundation); Yeh, Ping Hong (Henry M. Jackson Foundation); John, Graner (National Intrepid Center of Excellence); Harper, Jamie (National Intrepid Center of Excellence); oakes, Terrence Richard (National Intrepid Center of Excellence); Riedy, Gerard (National Intrepid Center of Excellence)*

15:00-16:30 FrD09.6
Using an Adaptive Gene Network Model for Self-Organizing Multicellular Behavior 5449-5453
Yong-Jun, Shin (Cornell University); Sayed, Ali H. (University of California at Los Angeles); Shen, Xiling (Cornell University)*

15:00-16:30 FrD09.7
Exploring the Effective Connectivity of Resting State Networks in Mild Cognitive Impairment: An Fmri Study Combining ICA and Multivariate Granger Causality Analysis 5454-5457
Liu, Zhenyu (Institute of Automation, Chinese Academy of Sciences); Bai, Lijun (Life Science Research Center, Xidian University); Dai, ruwei (Institute of Automation, Chinese Academy of Sciences); Zhong, Chongguang (Institute of Automation, Chinese Academy of Sciences); Wang, Hu (Institute of Automation, Chinese Academy of Sciences); You, Youbo (Institute of Automation, Chinese Academy of Sciences); Wei, Wenjuan (Institute of Automation, Chinese Academy of Sciences); Tian, Jie (Chinese Academy of Sciences)*

15:00-16:30 FrD09.8
Connectivity and Phase Coherence in Neural Network Models of Interconnected Z4-Bi-Stable Units 5458-5461
Koppert, Marc (Foundation Epilepsy Institute in The Netherlands (SEIN)); Kalitzin, Stiliyan (Foundation Epilepsy Institute in The Netherlands (SEIN)); Lopes da Silva, Fernando (Swammerdam Institute of Life Sciences, Univ. of Amsterdam); Viergever, Max A. (University Medical Center Utrecht)*

15:00-16:30 FrD09.9
A Game-Of-Life Like Simulator for Design-Oriented Modeling of BioBricks in Synthetic Biology 5462-5465
Madec, Morgan (Institut d'Electronique du Solide et des Systèmes); Gendrault, Yves (Institut d'Electronique du Solide et des Systèmes); Lallement, Christophe (Institut d'Electronique du Solide et des Systèmes); Haiech, Jacques (Laboratoire d'Innovation Thérapeutique)*

15:00-16:30 FrD09.10
Biological Pathway Discovery through Text Mining and Data Integration 5466-5469
Zhang, Chi (Florida State Univ); Chowdhary, Rajesh (Marshfield Clinic); Zhang, Jinfeng (Florida State U)*

15:00-16:30 FrD09.11
Supporting Reconstruction of the Blood Vessel Network Using Graph Theory: An Abstraction Method 5470-5473
Bossard, Antoine (Tokyo University of Agriculture and Technology); Kato, Toshikazu (Tokyo University of Agriculture and Technology); Masuda, Kohji (Tokyo Univ. A&T)*

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| FrD10: 15:00-16:30 | Indigo Ballroom |
| 4.5.5 Parameter Estimation and Inverse Modeling (Poster Session) | |

15:00-16:30 FrD10.1
Global Optimization for Human Skin Investigation in Terahertz 5474-5477
Truong, Bao C. Q. (University of Technology Sydney); Hoang, Tuan D. (University of Technology, Sydney); Hoang, Kha H. (University of Technology Sydney); Nguyen, Hung T. (University of Technology, Sydney)*

15:00-16:30 FrD10.2
A Sparse Matrix Approach for Simultaneous Quantification of Nystagmus and Saccade 5478-5481
Kukreja, Sunil (NASA); Stone, Leland (NASA); Boyle, Richard (NASA)*

15:00-16:30 FrD10.3
Identification of the Glucose Minimal Model by Stochastic Nonlinear-Mixed Effects Methods 5482-5485
Largajolli, Anna (University of Padova); Bertoldo, Alessandra (University of Padova); Cobelli, Claudio (University of Padova)*

15:00-16:30 FrD10.4
A Pipeline for the Simulation of Transcranial Direct Current Stimulation for Realistic Human Head Models Using SCIRun/BioMesh3D 5486-5489
Dannhauer, Moritz (University of Utah)*

15:00-16:30 FrD10.5
A Novel Discrete Particle Swarm Optimization Algorithm for Estimating Dielectric Constants of Tissue 5490-5493
Modiri, Arezoo (University of Texas at Dallas); Kiasaleh, Kamran (University of Texas at Dallas)*

15:00-16:30 FrD10.6
Morphological Analysis of T-Wave in Vectorcardiographic Leads System by a Bi-Gaussian Approach in Patients under Effect of Salbutamol 5494-5497
Marques, Jefferson L B (Federal University of Santa Catarina); Perdomo, Oscar Julian (Federal University of Santa Catarina); Robinson, Emma J (University of Sheffield); Suzuki, Daniela O H (Federal University of Santa Catarina); Heller, Simon (University of Sheffield)*

FrD11: 15:00-16:30 Indigo Ballroom
4.5.6 Models of Cells and Physiological Systems (Poster Session)

15:00-16:30 FrD11.1
Modeling Cell-To-Cell Stochastic Variability in Intrinsic Apoptosis Pathway 5498-5501
Ma, Lan (University of Texas at Dallas); Ooi, Hsu Kiang (University of Texas at Dallas)*

15:00-16:30 FrD11.2
Modeling Spatial Population Dynamics of Stem Cell Lineage in Tissue Growth 5502-5505
Cao, Youfang (University of Illinois at Chicago); Liang, Claire (Illinois Math and Science Academy); Naveed, Hammad (University of Illinois at Chicago); Li, Yingzi (Shanghai Jiao Tong University); Nie, Qing (University of California at Irvine)*

15:00-16:30 FrD11.3
Modeling Normal and Rebound Excitation in Mammalian Retinal Ganglion Cells 5506-5509
Guo, Tianruo (University of New South Wales); Tsai, David (University of New South Wales); Suaning, Gregg (The University of New South Wales); Lovell, Nigel H. (University of New South Wales); Dokos, Socrates (University of New South Wales)*

15:00-16:30 FrD11.4
An Analysis of the Expression Locus of Long-Term Potentiation in Hippocampal CA1 Neurons 5510-5513
Roach, Shane (University of Southern California); Lu, Ude (University of Southern California); Song, Dong (University of Southern California); Berger, Theodore (University of Southern California)*

15:00-16:30 FrD11.5
Investigation of the Electric Field Components of Tdcs Via Anisotropically Conductive Gyri-Specific Finite Element Head Models 5514-5517
Kilany, Mohamed (Kyung Hee University); Cho, Young-Sun (Kyung Hee University); Park, Hae-Jeong (Yonsei University); Kim, Tae-Seong (Kyung Hee University)*

15:00-16:30 FrD11.6
Evaluation of Cell Impedance Using a Micro-Channel 5518-5521
Tsai, Chia-Hung Dylan (Osaka University); Kaneko, Makoto (Osaka University); Arai, Fumihito (Nagoya University)*

15:00-16:30 FrD11.7
Development of Multi-Compartment Model of the Liver Using Image-Based Meshing Software 5522-5525
Barthod-Malat, Annick (University of Franche-Comté); Kopylova, Veronika (Research Institute of Cytochemistry and Molecular Pharmacology); Podoprigora, Guennady (Institute of Cytochemistry and Molecular Pharmacology); Nartsissov, Yaroslav (Institute of Cytochemistry and Molecular Pharmacology); Young, Philippe (Simpleware Ltd); Crolet, Jean-Marie (University of Franche-Comte); Blagosklonov, Oleg (CHU Jean Minjoz)*

FrD12: 15:00-16:30 Indigo Ballroom
4.6.3 Bioinformatics Models and Algorithms (Poster Session)

15:00-16:30 FrD12.1
A Multibody Atomic Statistical Potential for the Prediction of Enzyme-Inhibitor Binding Energy 5526-5529
Masso, Majid (George Mason University)*

15:00-16:30 FrD12.2
Using Digital Electronic Design Flow to Create a Genetic Design Automation Tool 5530-5533
Gendrault, Yves (Institut d'Electronique du Solide et des Systemes); Madec, Morgan (Institut d'Electronique du Solide et des Systemes); Wlotzko, Vincent (Telecom Physique Strasbourg (ex: ENSPS)); Andraud, Martin (Telecom Physique Strasbourg (ex: ENSPS)); Lallement, Christophe (Institut d'Electronique du Solide et des Systemes); Haiech, Jacques (Laboratoire d'Innovation Therapeutique)*

15:00-16:30 FrD12.3
SVM-based Prediction of the Calpain Degradome Using Bayes Feature Extraction 5534-5540
Wee, Lawrence JK (Institute for Infocomm Research); Low, Hwee Meng (Genome Institute of Singapore)*

15:00-16:30 FrD12.4
Identification of Genes for Complex Diseases by Integrating Multiple Types of Genomic Data 5541-5544
Wang, Yu-Ping (Tulane University)*

15:00-16:30 FrD12.5
Visualization of High Resolution Spatial Mass Spectrometric Data During Acquisition 5545-5548
Thomas, Mathew (Pacific Northwest National Laboratory); Heath, Brandi (Pacific Northwest National Laboratory); Laskin, Julia (Pacific Northwest National Laboratory); Li, Dongsheng (Pacific Northwest National Laboratory); Liu, Ellen (Pacific Northwest National Laboratory); Hui, Katrina (Pacific Northwest National Laboratory); Kuprat, Andrew (Pacific Northwest National Laboratory); Kleese van Dam, Kerstin (Pacific Northwest National Laboratory); Carson, James (Pacific Northwest National Laboratory)*

15:00-16:30 FrD12.6
Building Phylogenetic Trees by Using Gene Nucleotide Genomic Signals 5549-5553
Cristea, Paul Dan (University POLITEHNICA of Bucharest)*

15:00-16:30 FrD12.7
An Adaptation of Pfam Profiles to Predict Protein Sub-Cellular Localization in Gram Positive Bacteria 5554-5557
Arango, Gustavo (Universidad Nacional de Colombia); Ruiz-Muñoz, José Francisco (Universidad Nacional de Colombia); Jaramillo Garzón, Jorge Alberto (Instituto Tecnológico Metropolitano); Castellanos-Dominguez, Germán (Universidad Nacional de Colombia)*

15:00-16:30 FrD12.8
Potential MiRNAs Recognition Site Identification in 3' UTR Regions by DSP Methods 5558-5561
Maggi, Norbert (University of Genoa); Arrigo, Patrizio (CNR Genova); Ruggiero, Carmelina (University of Genova)*

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| FrD13: 15:00-16:30 | Indigo Ballroom |
| 4.7.1 Medical Devices and Decision Making (Poster Session) | |

15:00-16:30 FrD13.1
Predicting Atrial Fibrillation and Flutter Using Electronic Health Records 5562-5565
Karnik, Shreyas (Marshfield Clinic); Tan, Sin Lam (Marshfield Clinic); Berg, Bess (University of Wisconsin at Madison); Glurich, Ingrid (Marshfield Clinic); Vidaillet, Humberto J (Marshfield Clinic); Page, C. David (University of Wisconsin at Madison); Zhang, Jinfeng (Florida State U); Chowdhary, Rajesh (Marshfield Clinic)*

15:00-16:30 FrD13.2
Simulink Based Behavioural Modelling of a Pulse Oximeter for Deployment in Rapid Development, Prototyping and Verification 5566-5569
Shokouhian, Mohsen (University of Westminster); Kale, Izzet (University of Westminster); Morling, Richard (University of Westminster)*

15:00-16:30 FrD13.3
A Survival Prediction Model of Rats in Hemorrhagic Shock Using the Random Forest Classifier 5570-5573
Choi, Joon Yul (Yonsei University); Kim, Sung Kean (Yonsei University); Lee, Wan Hyung (Yonsei University College of Medicine); Yoo, Tae Keun (College of Medicine, Yonsei Univ); Kim, Deok Won (Yonsei University College of Medicine)*

15:00-16:30 FrD13.4
Individualized Performance Prediction During Total Sleep Deprivation: Accounting for Trait Vulnerability to Sleep Loss 5574-5577
Ramakrishnan, Sridhar (DoD BioTechnology HPC Software Applications Institute); Laxminarayan, Srinivas (DoD BioTechnology High Performance Computing Software Applications Institute); Thorsley, David (DoD BioTechnology HPC Software Applications Institute); Wesensten, Nancy (Walter Reed Army Institute of Research); Balkin, Thomas (Walter Reed Army Institute of Research); Reifman, Jaques (U.S. Army Medical Research)*

15:00-16:30 FrD13.5
Support of a Patient-Specific Therapeutical Acoustic Stimulation in Tinnitus by Numerical Modeling 5578-5581
Haab, Lars (Saarland University Hospital); Scheerer, Mario (Saarland University Hospital); Ruckert, Jonathan (Saarland University Hospital); Hannemann, Ronny (Siemens Audiologische Technik); Strauss, Daniel J. (Saarland University, Medical Faculty)*

15:00-16:30 FrD13.6
Flow-Dependent Vascular Heat Transfer During Microwave Thermal Ablation 5582-5585
Chiang, Jason (University of Wisconsin); Hynes, Kieran (University of Wisconsin); Brace, Christopher (University of Wisconsin)*

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| FrD14: 15:00-16:30 | Indigo Ballroom |
| 5.1.2 Ventricular Mechanics/Assist Devices (Poster Session) | |

15:00-16:30 FrD14.1
Criteria for Study of Heart Failure Derived from ESPVR 5586-5589
Shoucri, Rachad M. (royal military college of canada)*

15:00-16:30 FrD14.2
Feasibility of Using Piezohydraulic Pumps As Motors for Pediatric Ventricular Assist Devices 5590-5594
Valdovinos, John (University of California Los Angeles); Carman, Gregory (University of California Los Angeles); Levi, Daniel (University of California Los Angeles); Williams, Ryan (University of California Los Angeles)*

15:00-16:30 FrD14.3
Quantitative Assessment of Left Ventricular Diastolic Function Via Longitudinal and Transverse Flow Impedances 5595-5598
Ghosh, Erina (Washington University in St. Louis); Kovács, Sándor J (Washington University in St Louis)*

15:00-16:30 FrD14.4
Simulation Based Efficiency Prediction of a Brushless DC Drive Applied in Ventricular Assist Devices 5599-5602
Pohlmann, Andre (Institute of Electrical Machines, RWTH Aachen University)*

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| FrD15: 15:00-16:30 | Indigo Ballroom |
| 5.2.2 Vascular Mechanics (Poster Session) | |

15:00-16:30 FrD15.1
Carotid-Radial Pulse Wave Velocity As an Alternative Tool for the Evaluation of Endothelial Function During Pregnancy: Potential Role in Identifying Hypertensive Disorders of Pregnancy 5603-5606
Torrado, Juan (Favaloro University); Farro, Ignacio (School of Medicine, Republic University); Farro, Federico (Universidad de la República, School of Medicine); Bia, Daniel (School of Medicine, Republic University); Zócalo, Yanina (School of Medicine, Republic University); Sosa, Claudio (Ginecología); Scasso, Santiago (Ginecología); Alonso, Justo (University of Uruguay School of Medicine); Armentano, Ricardo Luis (Favaloro University)*

15:00-16:30 FrD15.2
Utility of Noninvasive Brachial-Ankle Pulse Wave Velocity Measurement in People with Spinal Cord Injury 5607-5609
Shima, Norihiro (Tokai Gakuen University)*

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| 15:00-16:30 | FrD15.3 |
| Non Invasive Assessment of Carotid and Femoral Arterial Pressure Using B-Mode Ultrasound Diameter Waveforms | 5610-5613 |
| <i>Graf, Sebastián* (Favaloro University); Craiem, Damian (Favaloro University); Armentano, Ricardo Luis (Favaloro University)</i> | |
| 15:00-16:30 | FrD15.4 |
| Frequency Dependent Transmission Characteristics between Arterial Blood Pressure and Intracranial Pressure in Rats | 5614-5617 |
| <i>Kim, Mi Ok* (Macquarie University); Li, Jonathan (Macquarie University); Qasem, Ahmad (Macquarie University); Avolio, Alberto P (Macquarie University); Graham, Stuart L (Macquarie University)</i> | |
| 15:00-16:30 | FrD15.5 |
| Investigation of Cerebral Hemodynamics and Collateralization in Asymptomatic Carotid Stenoses | 5618-5621 |
| <i>AlMuhanna, Khalid* (George Mason University); Zhao, Limin (University of Maryland Medical Center); Kowalewski, Gregory (Baltimore Veteran Affairs Medical Center); Beach, Kirk (University of Washington); Lal, Brajesh (University of Maryland); Sikdar, Siddhartha (George Mason University)</i> | |
| 15:00-16:30 | FrD15.6 |
| Aging-Related Changes and Reference Values for the Carotid Intima-Media Thickness in a Uruguayan Population | 5622-5625 |
| <i>Farro, Ignacio (School of Medicine, Republic University); Bia, Daniel (School of Medicine, Republic University); Zócalo, Yanina (School of Medicine, Republic University); Torrado, Juan* (Favaloro University); Farro, Federico (Universidad de la República, School of Medicine); Florio, Lucía (CUIIDARTE); Lluberas, Ricardo (Depto. Cardiología); Armentano, Ricardo Luis (Favaloro University)</i> | |
| FrD16: 15:00-16:30 | Indigo Ballroom |
| 5.11.1 Cardiorespiratory Variability (Poster Session) | |
| 15:00-16:30 | FrD16.1 |
| Compressed Sensing for Integral Pulse Frequency Modulation (IPFM)-based Heart Rate Variability Spectral Estimation | 5626-5629 |
| <i>Chen, Szi-Wen* (Chang Gung University); Chao, Shih-Chieh (Chang Gung University)</i> | |
| 15:00-16:30 | FrD16.2 |
| Prediction of Extubation Readiness in Extreme Preterm Infants Based on Measures of Cardiorespiratory Variability | 5630-5633 |
| <i>Precup, Doina (McGill University); Robles-Rubio, Carlos Alejandro (McGill University); Brown, Karen (McGill University); Kanbar, Lara (McGill University); Kaczmarek, Jennifer (McGill University); Chawla, Sanjay (Wayne State University); Sant'Anna, Guilherme Mendes (McGill University); Kearney, Robert Edward* (McGill University)</i> | |
| 15:00-16:30 | FrD16.3 |
| An Investigation of Simultaneous Variations in Cerebral Blood Flow Velocity and Arterial Blood Pressure During Sleep Apnea | 5634-5637 |
| <i>Alex, Raichel (University of Texas Arlington); Bhawe, Gauri (University of Texas at Arlington); Al-Abed, Mohammad (Hashemite University); Bashaboyina, Aditya (University Of Texas at Arlington); Iyer, Swathi (University of Texas at Arlington); Watenpugh, Donald (Sleep Consultants Inc.); Zhang, Rong (University of Texas Southwestern Medical Center at Dallas); Behbehani, Khosrow* (University of Texas at Arlington)</i> | |
| 15:00-16:30 | FrD16.4 |
| A PD Control-Based QRS Detection Algorithm for Wearable ECG Applications | 5638-5641 |
| <i>Choi, Changmok* (Samsung Advanced Institute of Technology); Kim, Youn Ho (Samsung Advanced Institute of Technology); Shin, Kunsoo (Future IT Research center)</i> | |
| 15:00-16:30 | FrD16.5 |
| Heart Rate Variability Analysis Using a Seismocardiogram Signal | 5642-5645 |
| <i>Ramos-Castro, Juan* (Universitat Politècnica de Catalunya); Moreno, Jordi (Universitat Autònoma de Barcelona); Miranda Vidal, Hoostins (Universitat Politècnica de Catalunya); Garcia-gonzalez, Miguel A. (Universitat Politècnica de Catalunya); Fernandez-Chimeno, Mireya (Technical University of Catalonia); Rodas, Gil (Medical Service, Futbol Club Barcelona); Capdevila, Lluís (Universitat Autònoma de Barcelona)</i> | |

15:00-16:30 FrD16.6
HRV based Health&Sport Markers Using Video from the Face 5646-5649
Capdevila, Lluís (Universitat Autònoma de Barcelona); Moreno, Jordi (Universitat Autònoma de Barcelona);
 Movellan, Javier (University of California San Diego); Parrado, Eva (Universitat Autònoma de Barcelona);
 Ramos-Castro, Juan (Universitat Politècnica de Catalunya)*

15:00-16:30 FrD16.7
Upper Airway Occlusion Detection Using a Novel Ultrasound Technique 5650-5653
Al-Abed, Mohammad (Hashemite University); Antich, Peter (University of Texas Southwestern Medical Center in
 Dallas); Watenpaugh, Donald (Sleep Consultants Inc.); Behbehani, Khosrow (University of Texas at Arlington)*

15:00-16:30 FrD16.8
High Frequency Analysis of Cough Sounds in Pediatric Patients with Respiratory Diseases 5654-5657
Kosasih, Keegan (University of Queensland); Abeyratne, Udantha R (University of Queensland);
 Swarnkar, Vinayak (University of Queensland)*

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| FrD17: 15:00-16:30 | Indigo Ballroom |
| 7.1.1 Cellular and Tissue Engineering and Biomaterials (Poster Session) | |

15:00-16:30 FrD17.1
Influence of electrical stimulation on 3D-cultures of Adipose Tissue Derived Progenitor Cells (ATDPCs) behavior 5658-5661
Castells-Sala, Cristina (Instituto Químico Sarria); Sanchez, Benjamin (Technical University of Catalonia, Barcelona, SPAIN); Recha-Sancho, Lourdes (Instituto Químico Sarria); Puig-Sanvicenc, Veronica (Instituto Químico Sarria); Bragos, Ramon (Technical University of Catalonia (UPC)); Semino, Carlos E. (Instituto Químico Sarria)*

15:00-16:30 FrD17.2
Computational 3D Model of In-Vitro Cell Stimulated by Electric and Magnetic Fields 5662-5665
Moncada, Maria Elena (Instituto Tecnológico Metropolitano); De la Cruz, Jorge (Universidad del Valle);
 Escobar, Adolfo (Instituto Tecnológico Metropolitano)*

15:00-16:30 FrD17.3
Improved Bone Marrow Stromal Cell Adhesion on Micropatterned Titanium Surfaces 5666-5669
*Emil, Iskandar, Maria (University of California, Riverside); Cipriano, Aaron (University of California, Riverside);
 Lock, Jaclyn (University of California, Riverside); Gott, Shannon (University of California, Riverside);
 Rao, Masaru P. (University of California, Riverside); Liu, Huinan* (University of California, Riverside)*

15:00-16:30 FrD17.4
Interactions between Aggressive Ions and the Surface of a Magnesium-Yttrium Alloy 5670-5673
*Johnson, Ian (University of California at Riverside); Perchy, Daniel (University of Pittsburgh,);
 Liu, Huinan* (University of California, Riverside)*

15:00-16:30 FrD17.5
Signal Transduction on Enzymes: The Effect of Electromagnetic Field Stimuli on Superoxide Dismutase (SOD) 5674-5677
Marracino, Paolo (ICEmB); Migliorati, Marta (La Sapienza University); Paffi, Alessandra (ICEmB@La Sapienza Univ Rome);
 Liberti, Micaela (ICEmB at Sapienza University of Rome); D'Inzeo, Guglielmo (ICEmB@"La Sapienza" University of Rome);
 Apollonio, Francesca (ICEmB@La Sapienza Univ Rome)*

15:00-16:30 FrD17.6
Monolithic Graphene Transistor Biointerface 5678-5678
Nam, SungWoo (University of California, Berkeley); Lee, Mi-Sun (Ulsan National Institute of Science and Technology (UNIST));
 Park, Jang-Ung (Ulsan National Institute of Science and Technology (UNIST))*

9.4.2 Ablation and Surgical Therapies II (Poster Session)

- 15:00-16:30 FrD18.1
SAR Analysis of the Improved Resonant Cavity Applicator with Electrical Shield and Water Bolus for Deep Tumors by a 3-D FEM 5679-5682
Shindo, Yasuhiro (Meiji University); Kato, Kazuo (Meiji University); Iseki, Yuya (Meiji University); Yokoyama, Kouhei (Meiji University); Arakawa, Jiro (Meiji University); Watanabe, Kazuki (Meiji University)*
- 15:00-16:30 FrD18.2
A New Antenna System for Microwave Non-Invasive Hyperthermia Lipolysis 5683-5686
Park, Sangbok (University of Seoul); Hwang, Joosung (University of Seoul); Kwon, Youngwoo (School of Electrical Engineering); Cheon, Changyul (University of Seoul)*
- 15:00-16:30 FrD18.3
Theoretical Assessment of Principal Factors Influencing Laser Interstitial Thermotherapy Outcomes on Pancreas 5687-5690
Saccomandi, Paola (University Campus Bio-Medico of Rome); Schena, Emiliano (University of Rome Campus Bio-Medico); Di Matteo, Francesco Maria (University Campus Bio-Medico of Rome); Pandolfi, Monica (University Campus Bio-Medico of Rome); Martino, Margareth (University Campus Bio-Medico of Rome); Roberta, Rea (University Campus Bio-Medico of Rome); Silvestri, Sergio (Università Campus Bio-Medico di Roma)*
- 15:00-16:30 FrD18.4
Accelerating Three-Dimensional FDTD Calculations on GPU Clusters for Electromagnetic Field Simulation 5691-5694
Nagaoka, Tomoaki (National Institute Info & Comm Tech); Watanabe, Soichi (Nat'l Inst of Information & Comms Tech)*
- 15:00-16:30 FrD18.5
Heating Characteristics with a Re-Entrant Type Applicator in Consideration of Tissue Blood Flow Rate 5695-5698
Ishimori, Takahiro (Meiji University); Ishihara, Yasutoshi (Meiji University)*
- 15:00-16:30 FrD18.6
Development of a Temperature Distribution Simulator for Lung RFA Based on Air Dependence of Thermal and Electrical Properties 5699-5702
Yamazaki, Nozomu (Waseda University); Watanabe, Hiroki (Waseda University); Lu, XiaoWei (Waseda University); Isobe, Yosuke (Waseda University); Kobayashi, Yo (Waseda University); Miyashita, Tomoyuki (Waseda University); Fujie, Masakatsu G. (Waseda University)*
- 15:00-16:30 FrD18.7
A Novel Thermal Treatment Modality for Controlling Breast Tumor Growth and Progression 5703-5706
Xu, Lisa Xuemin (Shanghai Jiaotong University); Liu, Ping (Shanghai Jiao Tong University); Xie, Yifan (Shanghai Jiao Tong University)*
- 15:00-16:30 FrD18.8
Numerical and Experimental Characterization of Radiofrequency Ablation in Perfused Kidneys 5707-5711
Frank, Kristian (University of Kassel); Lindenborn, Herbert (University of Kassel); Dahlhaus, Dirk (University of Kassel)*
- 15:00-16:30 FrD18.9
Validation of Accuracy of Liver Model with Temperature-Dependent Thermal Conductivity by Comparing the Simulation and in Vitro RF Ablation Experiment 5712-5717
Watanabe, Hiroki (Waseda University); Yamazaki, Nozomu (Waseda University); Isobe, Yosuke (Waseda University); Lu, XiaoWei (Waseda University); Kobayashi, Yo (Waseda University); Miyashita, Tomoyuki (Waseda University); Ohdaira, Takeshi (Kyushu University Hospital); Hashizume, Makoto (Kyushu University); Fujie, Masakatsu G. (Waseda University)*
- 15:00-16:30 FrD18.10
Use of 3D-Printers to Create Intensity-Modulated Radiotherapy Compensator Blocks 5718-5721
Avelino, Samuel (University of Brasilia); Silva, Luis Felipe (University Hospital of Brasilia); Miosso, Cristiano (University of Brasilia at Gama)*

15:00-16:30 FrD18.11
Measurement of the Thermal Relaxation Time in Agar-Gelled Water 5722-5725
Matsunaga, Raphael (Universidade de Brasilia); dos Santos, Icaro (University of Brasilia)*

FrD19: 15:00-16:30 Indigo Ballroom
9.10.1 Electrical and Magnetic Stimulation Techniques and Devices (Poster Session)

15:00-16:30 FrD19.1
Surface EMG Analysis and Changes in Gait Following Electrical Stimulation of Quadriceps Femoris and Tibialis Anterior in Children with Spastic Cerebral Palsy 5726-5729
Arya, Bikas K (Indian Institute of Technology, Kharagpur); K, Subramanya (St. Joseph Engineering College, Manglore); Mohapatra, J (National Institute of Orthopedically Handicapped, Kolkata); Kumar, Ratnesh (National Institute for the Orthopaedically Handicapped); Prasad, Hari (John Hopkins School of Medicine, Baltimore); Mahadevappa, Manjunatha (Indian Institute of Technology)*

15:00-16:30 FrD19.2
Percutaneously Injectable Fetal Pacemaker: Electronics, Pacing Thresholds, and Power Budget 5730-5733
Nicholson, Adriana (University of Southern California); Chmait, Ramen (Maternal Fetal Medicine in the Keck School of Medicine, University of Southern California); Bar-Cohen, Yaniv (Pediatric Cardiology at Children's Hospital Los Angeles); Zheng, Kaihui (University of Southern California); Loeb, Gerald (University of Southern California)*

15:00-16:30 FrD19.3
Essentials of Low-Power Electrocutation: Established and Speculated Mechanisms 5734-5740
Kroll, Mark (University of Minnesota); Fish, Raymond (University of Illinois); Lakkireddy, Dhanunjaya (University of Kansas Hospitals); Luceri, Richard (Holy Cross Hospital); Panescu, Dorin (Intuitive Surgical)*

15:00-16:30 FrD19.4
New Implantable Therapeutic Device for the Control of an Atrial Fibrillation Attack Using the Peltier Element 5741-5744
Yambe, Tomoyuki (Tohoku Univ); Sugita, Norihiro (Tohoku University); Yoshizawa, Makoto (Tohoku University); Tanaka, Akira (Fukushima University); Shiraishi, Yasuyuki (Tohoku University)*

15:00-16:30 FrD19.5
EEG EPs Analysis of Magnetic Stimulation on Acupoint of Shenmen(HT7)* 5745-5748
Geng, Yuehua (Hebei University of Technology); Zhang, Xin (Tianjin Polytechnic University)*

15:00-16:30 FrD19.6
An Interactive Implantable Vagal Nerve Stimulator for Real-Time Modulation of Cardiac Autonomic Control 5749-5752
Wagner, David (Krannert Institute of Cardiology, Indiana University School of Medicine); shelton, Richard (Krannert Institute of Cardiology, Indiana University School of Medicine); Adams, David (Krannert Institute of Cardiology, Indiana University School of Medicine); Garlie, Jason (Krannert Institute of Cardiology, Indiana University School of Medicine); Rhee, Kyoung-Suk (Krannert Institute of Cardiology, Indiana University School of Medicine); Chen, Peng-Sheng (Indiana University School of Medicine); Lin, Shien-Fong (Krannert Institute of Cardiology, Indiana University School of Medicine)*

FrD20: 15:00-16:30 Indigo Ballroom
9.6.1 Endoscopic Techniques and Devices (Poster Session)

15:00-16:30 FrD20.1
An approach towards bronchoscopic-based gene therapy using electrical field accelerated plasmid droplets 5753-5756
Hradetzky, David (School of Life Sciences); Boehringer, Stephan (University of Applied Sciences, School of Life Sciences, Institut for Medical- and Analytical Technologies); Geiser, Thomas (University Hospital Bern, Department of Clinical Research); Gazdhar, Amiq (University Hospital Bern, Department of Clinical Research)*

15:00-16:30 FrD20.2
A Novel Method for Medical Implant In-Body Localization 5757-5760
Pourhomayoun, Mohammad (Binghamton University); Fowler, Mark (State University of New York); Jin, Zhanpeng (Binghamton University, SUNY)*

15:00-16:30 FrD20.3
A High Resolution Bladder Wall Map: Feasibility Study 5761-5764
Shevchenko, Nikita (Technische Universitaet Muenchen); Fallert, Johannes (Karl Storz); Stepp, Herbert (Laser-Forschungslabor Klinikum der Universität München); Sahli, Hichem (Vrije Universiteit Brussel (VUB) Dept. Electronics & Informatics (ETRO)); Karl, Alexander (Urologische Klinik und Poliklinik, Ludwig-Maximilians-Universität München, Klinikum Großhadern); Lueth, Tim (Technical University of Munich)*

15:00-16:30 FrD20.4
Development of a New Aortoscope System for the Use of Endovascular Intervention 5765-5768
Tanaka, Shinobu (Kanazawa University); Suzuki, Toshiyuki (Kanazawa University); Iida, Tadahiro (Kanazawa University); Tanaka, Naoto (Kanazawa University); Matsumura, Kenta (Kanazawa University); Yamakoshi, Takehiro (Kanazawa University); Nogawa, Masamichi (Kanazawa University); Ohtake, Hiroshi (Kanazawa University); Watanabe, Go (Kanazawa University); Shibata, Masahiro (Shibaura Institute of Technology); Yamakoshi, Ken-ichi (Kanazawa University)*

15:00-16:30 FrD20.5
A Structured Light-Based Laparoscope with Real-Time Organs' Surface Reconstruction for Minimally Invasive Surgery 5769-5772
Maurice, Xavier (University of Strasbourg); albitar, Chadi (Institut of Applied Sciences and Technology, Damas); Doignon, Christophe (University of Strasbourg); de Mathelin, Michel (University of Strasbourg)*

FrD21: 15:00-16:30 Indigo Ballroom
9.7.1 Product Development (Poster Session)

15:00-16:30 FrD21.1
Foam Phantom Development for Artificial Vertebrae Used for Surgical Training 5773-5776
Fuerst, David (Upper Austria University of Applied Sciences); Stephan, Daniel (Berufgenossenschaftliche Unfallklinik Murnau); Schrempf, Andreas (Upper Austria University of Applied Sciences); Augat, Peter (Institute for Biomechanics, BGU Murnau)*

15:00-16:30 FrD21.2
X-Ray Simulation with the Monte Carlo Code PENELOPE. Application to Quality Control 5777-5780
POZUELO, FAUSTO (Universitat Politècnica València); Gallardo, Sergio (Universidad Politécnica de Valencia); Querol, Andrea (Polytechnic University of Valencia); Verdu, Gumersindo (Polytechnic University of Valencia); Rodenas Diago, Jose (Polytechnic University of Valencia)*

15:00-16:30 FrD21.3
Finite Element Simulation of a Scoliotic Spine with Periodic Adjustments of an Attached Growing Rod 5781-5785
Abolaeha, Osama (University of Dayton)*

15:00-16:30 FrD21.5
MCNP5 Monte Carlo Simulation of Amorphous Silicon EPID Dosimetry from MLC Radiation Therapy Treatment Beams 5786-5789
Juste, Belen (Polytechnic University of Valencia); Miró, Rafael (Polytechnic University of Valencia); Morera, Daniel (Polytechnic University of Valencia); Verdú, Gumersindo (Polytechnic University of Valencia); Díez, Sergio (Hospital Clínic de València); Campayo, Juan Manuel (Hospital Clínic de València)*

15:00-16:30 FrD21.6
A Micromachined Intensity-Modulated Fiber Optic Sensor for Strain Measurements: Working Principle and Static Calibration 5790-5793
Moscato, Maddalena (University Campus Bio-Medico di Roma); Schena, Emiliano (University of Rome Campus Bio-Medico); Saccomandi, Paola (University Campus Bio-Medico of Rome); Francomano, Maria Teresa (Università Campus Bio-Medico di Roma); Accoto, Dino (Campus Bio-Medico University); Guglielmelli, Eugenio (Campus Bio-Medico University); Silvestri, Sergio (Università Campus Bio-Medico di Roma)*

15:00-16:30 FrD21.7
Demonstration of Novel, Real-Time, Portable Ultrasound Transmission from an Austere International Location 5794-5797
Ogedegbe, Chinwe (Hackensack University Medical Center); Morchel, Herman (Hackensack University Medical Center); Hazelwood, Vikki (Hackensack University Medical Center); Hassler, Cynthia (Hackensack University Medical Center); Feldman, Joseph (Hackensack University Medical Center)*

15:00-16:30 FrD21.8
**Integration of DASH and ICS 3000 Devices with Hospital Information System and
 REPACE Central Registry** 5798-5801
Vlach, Karel (VSB-Technical University of Ostrava); Jirka, Jakub (VSB-Technical University of Ostrava);
 Černohorský, Jindřich (VSB-Technical University of Ostrava)*

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| FrD22: 15:00-16:30 | Indigo Ballroom |
| 10.5.3 Smart Home Technology and Ambient Assisted Living II (Poster Session) | |

15:00-16:30 FrD22.1
**Development of a Wearable System Integrated with Novel Biomedical Sensors for
 Ubiquitous Healthcare** 5802-5805
Hung, Kevin (The Open University of Hong Kong)*

15:00-16:30 FrD22.2
Smart Sensing of Cardiovascular Physiological Information from Soles without Direct Skin Contact 5806-5809
Kato, Yuuki (Osaka University); Nambu, Masayuki (Osaka Electro-Communication Univ); Imura, Masataka
 (Osaka University); Kuroda, Yoshihiro (Osaka University); Oshiro, Osamu (Osaka University)*

15:00-16:30 FrD22.3
Bed Occupancy Monitoring: Data Processing and Clinician User Interface Design 5810-5814
Pouliot, Melanie (Carleton University); Joshi, Vilas (Carleton University);
 Goubran, Rafik A. (Carleton University); Knoefel, Frank-Dietrich (SCO Health Service)*

15:00-16:30 FrD22.4
**Quantitative and Qualitative Evaluation of PERCEPT Indoor Navigation System for
 Visually Impaired Users** 5815-5818
Ganz, Aura (University of Massachusetts, Amherst); Schafer, James (University of Massachusetts Amherst);
 Puleo, Elaine (Department of Public Health University of Massachusetts, Amherst); Wilson, Carole (Executive
 Office of Health and Human Services)*

15:00-16:30 FrD22.5
Flexible and Customizable Visualization of Data Generated within Intelligent Environments 5819-5822
Synnott, Jonathan (University of Ulster); Chen, Liming (University of Ulster);
 Nugent, Chris (University of Ulster); Moore, George (University of Ulster)*

15:00-16:30 FrD22.6
Ambient Assisted Living and Ageing: Preliminary Results of RITA Project 5823-5826
Aquilano, Michela (Scuola Superiore Sant'Anna); Cavallo, Filippo (Scuola Superiore Sant'Anna); Esposito,
 Raffaele (Scuola Superiore Sant'Anna); Rovini, Erika (Scuola Superiore Sant'Anna); Filippi, Massimo (Scuola
 Superiore Sant'Anna); Esposito, Dario (Scuola Superiore Sant'Anna); Dario, Paolo (IIT Italian Institute of
 Technology); Carrozza, Maria Chiara (Scuola Superiore Sant'Anna)*

15:00-16:30 FrD22.7
Impact of Physical Telerehabilitation on Functional Outcomes in Seniors with Mobility Limitations 5827-5832
Finkelstein, Joseph (Johns Hopkins University School of Medicine); Wood, Jeffrey
 (Johns Hopkins University); Cha, Eunme (Johns Hopkins University)*

15:00-16:30 FrD22.8
Physical Activity Monitoring and Sharing Platform for Manual Wheelchair Users 5833-5836
Ding, Dan (University of Pittsburgh); Ayubi, Soleh (University of Pittsburgh); Hiremath, Shivayogi V
 (University of Pittsburgh); Parmanto, Bambang (University of Pittsburgh)*

15:00-16:30 FrD23.1
Distinguishing Near-Falls from Daily Activities with Wearable Accelerometers and Gyroscopes Using Support Vector Machines 5837-5840
Aziz, Omar (Simon Fraser University); Park, Edward J. (Simon Fraser University); Mori, Greg (Simon Fraser University); Robinovitch, Stephen (Simon Fraser University)*

15:00-16:30 FrD23.2
First Application of Behaviour Recognition through the Recording of ADL by Radio Modules in a Home . 5841-5845
Neuhaeuser, Jakob (Technical University of Munich); Proebstl, Dominik (Technical University of Munich); D'Angelo, Lorenzo Tancredi (Technische Universitaet Muenchen); Lueth, Tim (Technical University of Munich)*

15:00-16:30 FrD23.3
Location and Activity Tracking with the Cloud 5846-5849
Morton, Taj (Oregon State University); Weeks, Alex (Oregon State University); House, Samuel (Oregon State University); Chiang, Patrick (Oregon State University); Scaffidi, Christopher (Oregon State University)*

15:00-16:30 FrD23.4
SVM to Detect the Presence of Visitors in a Smart Home Environment 5850-5853
Petersen, Johanna (Oregon Health & Science University); Larimer, Nicole (Oregon Health & Science University); Kaye, Jeffrey A. (Oregon Health and Science University); Pavel, Michael (Oregon Health and Science University); Hayes, Tamara (Oregon Health & Science University)*

15:00-16:30 FrD23.5
Improve Quality of Care with Remote Activity and Fall Detection Using Ultrasonic Sensors 5854-5857
Kimberly, Newman (University of Colorado at Boulder); Yirui, Huang (University of Colorado at Boulder)*

15:00-16:30 FrD23.6
Framework for Preventing Falls in Acute Hospitals Using Passive Sensor Enabled Radio Frequency Identification Technology 5858-5862
Visvanathan, Renuka (University of Adelaide); Ranasinghe, Damith Chinthana (The University of Adelaide); Shinmoto Torres, Roberto Luis (University of Adelaide); Hill, Keith (Curtin University)*

15:00-16:30 FrD23.7
Radar Walk Detection in the Apartments of Elderly 5863-5866
Phillips, Calvin (University of Missouri); Keller, James M (University of Missouri); Popescu, Mihail (University of Missouri); Cuddihy, Paul (GE Global Research); Yardibi, Tarik (General Electric Global Research); Skubic, Marjorie (University of Missouri); Rantz, Marilyn (University of Missouri)*

15:00-16:30 FrD23.8
Improving Automatic Sound-Based Fall Detection Using Ivat Clustering and GA-Based Feature Selection 5867-5870
Li, Yun (University of Missouri); Popescu, Mihail (University of Missouri); Ho, K.C. (University of Missouri)*

15:00-16:30 FrD24.1
Interactive Radiology Teaching File System: The Development of a MIRC-Compliant and User-Centered E-Learning Resource 5871-5874
dos-Santos, Marcelo (School of Communications and Arts – Univ. of Sao Paulo(ECA-USP))*

15:00-16:30 FrD24.2
Robust Lossless Watermarking Based on Circular Interpretation of Bijective Transformations for the Protection of Medical Databases 5875-5878
Franco-Contreras, Javier (TELECOM Bretagne, LaTIM); Coatrieux, Gouenou (Institut Telecom – Telecom Bretagne – Inserm); Chazard, Emmanuel (Lille University Hospital); Cuppens, Nora (Telecom Bretagne); Cuppens, Frédéric (Telecom Bretagne); Roux, Christian (TELECOM Bretagne – INSERM)*

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| 15:00-16:30 | FrD24.3 |
| Lossless Eeg Signal Compression | 5879-5882 |
| <i>Arnavut, Ziya* (SUNY Fredonia); Gumusalan, Arda (State University of New York at Fredonia)</i> | |
| 15:00-16:30 | FrD24.4 |
| Improvement of Surveillance of Hemophilia Treatment through ICTs | 5883-5886 |
| <i>Teixeira, Leonor* (Aveiro University); Saavedra, Vasco (Aveiro University); Ferreira, Carlos Manuel Santos (Aveiro University); Sousa Santos, Beatriz (Aveiro University)</i> | |
| 15:00-16:30 | FrD24.5 |
| Bed Detection for Monitoring System in Hospital Wards | 5887-5890 |
| <i>Kittipanya-ngam, Panachit* (Institute for Infocomm Research); Ong, Soh Guat (Institute for Infocomm Research); Eng, How-Lung (Institute for Infocomm Research)</i> | |
| 15:00-16:30 | FrD24.6 |
| Distributed PACS Using Distributed File System with Hierarchical Meta Data Servers | 5891-5894 |
| <i>Hiroyasu, Tomoyuki (Doshisha University); Minamitani, Yoshiyuki* (Doshisha University); Miki, Mitsunori (Doshisha University); Yokouchi, Hisatake (Doshisha University); Yoshimi, Masato (Doshisha University)</i> | |
| 15:00-16:30 | FrD24.7 |
| Understanding Requirements of Novel Healthcare Information Systems for Management of Advanced Prostate Cancer | 5895-5898 |
| <i>Wagholikar, Amol* (The Australian e-Health Research Centre, ICT Centre, CSIRO); Fung, Maggie (The Australian Prostate Cancer Research Centre, QUT); Nelson, Colleen (The Australian Prostate Cancer Research Centre, QUT)</i> | |
| 15:00-16:30 | FrD24.8 |
| Safety Evaluation of a Medical Device Data System | 5899-5902 |
| <i>Liddle, Stephanie (Massachusetts General Hospital); Zhang, Rachel (Massachusetts General Hospital); Grover, Lata (Massachusetts General Hospital); Khitrov, Maxim (U.S. Army Medical Res. and Materiel Command); Brown, Joan (Massachusetts General Hospital); Cobb, J. Perren (Massachusetts General Hospital); Goldman, Julian (Massachusetts General Hospital, CIMIT, Partners HealthCare); Chou, Joseph (Massachusetts General Hospital); Westover, Brandon (Massachusetts General Hospital); Yagoda, Dan (Massachusetts General Hospital); Reisner, Andrew* (Massachusetts General Hospital)</i> | |
| 15:00-16:30 | FrD24.9 |
| Time Based Clustering for Analyzing Acute Hospital Patient Flow | 5903-5906 |
| <i>Khanna, Sankalp* (CSIRO Australian e-Health Research Centre); Boyle, Justin (CSIRO ICT Centre); Good, Norm (CSIRO Australian e-Health Research Centre); Lind, James (Queensland Health); Zeitz, Kathryn (Central Adelaide Local Health Network, South Australia Health, SA)</i> | |
| 15:00-16:30 | FrD24.10 |
| Improvement of CVD Risk Assessment Tools' Performance through Innovative Patients' Grouping Strategies | 5907-5910 |
| <i>Paredes, Simão* (Instituto Superior de Engenharia de Coimbra); Rocha, Teresa (Inst Superior de Eng de Coimbra); de Carvalho, Paulo (University of Coimbra – NIF: 501617582); Henriques, Jorge (University of Coimbra – NIF 501617582); Morais, João (Hospital de Santo André, Leiria); Ferreira, Jorge (Cardiology Department, Santa Cruz Hospital, Lisbon, Portugal); Mendes, Miguel (Cardiology Department, Santa Cruz Hospital, Lisbon, Portugal)</i> | |

FrE01: 16:30-18:00

Sapphire A

1.2.1 Biomedical Simulation Involving Signal Processing (Oral Session)

Chair: Grayden, David B. (*The Univ. of Melbourne*)

Co-Chair: Khodayari-Rostamabad, Ahmad (*McMaster Univ.*)

16:30-16:45

FrE01.1

A Machine Learning Approach Using P300 Responses to Investigate Effect of Clozapine Therapy

5911-5914

Ravan, Maryam (McMaster University); MacCrimmon, Duncan (McMaster University); Hasey, Gary (McMaster University); Reilly, James (McMaster University); Khodayari-Rostamabad, Ahmad (McMaster University)*

16:45-17:00 FrE01.2
Feature Accentuation in Phosphenated Images 5915-5918
Kiral-Kornek, Filiz Isabell (University of Melbourne); Savage, Craig Owen (University of Melbourne); Grayden, David B. (The University of Melbourne); Burkitt, Anthony Neville (The University of Melbourne)*

17:15-17:30 FrE01.4
Noise Reduction Using Anisotropic Diffusion Filter in Inverse Electrocardiology 5919-5922
Mazloumi Gavgani, Alireza (Middle East Technical University-Turkey); Serinagaoglu Dogrusoz, Yesim (Middle East Technical University)*

17:30-17:45 FrE01.5
Effect of Duty Cycle in Different Frequency Domains on SSVEP Based BCI: A Preliminary Study 5923-5926
Huang, Gan (Shanghai Jiao Tong University); Yao, Lin (Shanghai Jiao Tong University); Zhang, Dingguo (Shanghai Jiao Tong University); Zhu, Xiangyang (Shanghai Jiao Tong University)*

FrE03: 16:30-18:00 Sapphire E
1.9.1 Data Mining in Biosignals (Oral Session)
Chair: Yousefi Mesri, Hamed (*Univ. of Melbourne*)

16:30-16:45 FrE03.1
Localization of Hemorrhage Site in Stroke Patients Using Multichannel Microwave Measurements 5927-5930
Yousefi Mesri, Hamed (University of Melbourne)*

16:45-17:00 FrE03.2
Application of Decision Tree for the Prediction of Periventricular Leukomalacia (PVL) Occurrence in Neonates after Heart Surgery 5931-5934
Jalali, Ali (Villanova University); Nataraj, C. (Villanova University); Licht, Daniel J. (Children's Hospital of Philadelphia)*

17:00-17:15 FrE03.3
A Data Mining Approach to Reduce the False Alarm Rate of Patient Monitors 5935-5938
Baumgartner, Benedikt (Technical University Munich); Rödel, Kolja (Technical University Munich); Knoll, Alois (Technical University Munich)*

17:15-17:30 FrE03.4
Discovering Shared Dynamics in Physiological Signals: Application to Patient Monitoring in ICU 5939-5942
Lehman, Li-wei (Harvard-MIT Division of Health Sciences & Technology); Nemat, Shamim (Harvard Medical School); Adams, Ryan (Harvard School of Engineering and Applied Sciences); Mark, Roger (Massachusetts Institute of Technology)*

17:30-17:45 FrE03.5
Epileptic Seizure Prediction Based on a Bivariate Spectral Power Methodology 5943-5946
Bandarabadi, Mojtaba (CISUC, University of Coimbra); Teixeira, César (University of Coimbra); Direito, Bruno (FCTUC, University of Coimbra); Dourado, António (FCTUC, University of Coimbra)*

17:45-18:00 FrE03.6
Spectrum Based Feature Extraction Using Spectrum Intensity Ratio for SSVEP Detection 5947-5950
Itai, Akitoshi (Chubu University); Funase, Araq (Naogya Institute of Technology)*

FrE04: 16:30-18:00 Sapphire I
2.3.2 Retinal Image Analysis II (Oral Session)
Chair: Ruggeri, Alfredo (*Univ. of Padua*)
Co-Chair: Quelled, Gwenole (*Inserm*)

16:30-16:45 FrE04.1
Automatic Exudate Detection Using Active Contour Model and Regionwise Classification 5951-5954
Harangi, Balazs (University Of Debrecen); Hajdu, Andras (University of Debrecen); Lazar, Istvan (University of Debrecen)*

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| 16:45-17:00 | FrE04.2 |
| An Adaptive Weighting Approach for Ensemble-Based Detection of Microaneurysms in Color Fundus Images | 5955-5958 |
| <i>Antal, Balint (University of Debrecen); Lazar, Istvan* (University of Debrecen); Hajdu, Andras (University of Debrecen)</i> | |
| 17:00-17:15 | FrE04.3 |
| Studying Disagreements among Retinal Experts through Image Analysis | 5959-5962 |
| <i>Quellec, Gwenole* (Inserm); Lamard, Mathieu (Université de Bretagne Occidentale); Cochener, Béatrice (CHU Morvan); Droueche, Zakarya (INSTITUT TELECOM; TELECOM Bretagne; UEB; Dpt ITI, Brest, F-29200 France); LAY, Bruno (ADCIS); Chabouis, Agnes (Assistance Publique-Hopitaux de Paris, Paris, france); Roux, Christian (TELECOM Bretagne – INSERM); Cazuguel, Guy (Institut Mines-Telecom/Telecom Bretagne)</i> | |
| 17:15-17:30 | FrE04.4 |
| Glaucoma Risk Assessment Based on Clinical Data and Automated Nerve Fiber Layer Defects Detection | 5963-5966 |
| <i>Hatanaka, Yuji* (University of Shiga Prefecture); Muramatsu, Chisako (Gifu University); Sawada, Akira (Gifu University); Hara, Takeshi (Gifu Univ Graduate Sch of Medicine); Yamamoto, Tetsuya (Gifu University); Fujita, Hiroshi (Gifu University)</i> | |
| 17:30-17:45 | FrE04.5 |
| Quantitative Assessment of Age-Related Macular Degeneration Using Parametric Modeling of the Leakage Transfer Function: Preliminary Results | 5967-5970 |
| <i>Eldeeb, Safaa M* (Nile University); Abdelmoula, Walid M. (Center for Informatics Science, Nile University); Shah, Syed Mahmoud (University of Rochester); Fahmy, Ahmed S. (Cairo University)</i> | |
| FrE05: 16:30-18:00 | Sapphire M |
| 2.4.1 Novel Approaches in CT, Nuclear Medicine and Molecular Imaging (Oral Session) | |
| Chair: Watabe, Hiroshi (Osaka Univ. Graduate School of Medicine) | |
| Co-Chair: Wang, Guangzhi (Tsinghua Univ.) | |
| 16:30-16:45 | FrE05.1 |
| New Workflows and Algorithms of Bone Scintigraphy Based on SPECT-CT | 5971-5974 |
| <i>Bandi, Peter* (Mediso Medical Imaging Systems Ltd.); Zsoter, Norbert (Mediso Medical Imaging Systems Ltd.); Wirth, Andras (Mediso Medical Imaging Systems Ltd.); Luetzen, Ulf (Medical University of Kiel, Department of Nuclear Medicine); Papp, Laszlo (Mediso Medical Imaging Systems Ltd.)</i> | |
| 16:45-17:00 | FrE05.2 |
| A Head Motion Measurement System Suitable for 3D Cone-Beam Tomography Using Markers | 5975-5978 |
| <i>Bhowmik, Ujjal* (The University of Alabama in Huntsville, USA); Adhami, Reza (The University of Alabama in Huntsville)</i> | |
| 17:00-17:15 | FrE05.3 |
| Implementation of Digital Multiplexing for High Resolution X-Ray Detector Arrays | 5979-5982 |
| <i>Sharma, Prateek* (University at Buffalo); Setlur Nagesh, Swetadri Vasan (University At Buffalo); Titus, Albert (University at Buffalo, The State University of New York); Cartwright, Alexander (Electrical Engineering, University at Buffalo, SUNY); Bednarek, Daniel (University at Buffalo); Rudin, Stephen (University at Buffalo)</i> | |
| 17:15-17:30 | FrE05.4 |
| A 2x2 Array of EMCCD Based Solid State X-Ray Detectors | 5983-5986 |
| <i>Sharma, Prateek* (University at Buffalo); Setlur Nagesh, Swetadri Vasan (University At Buffalo); Titus, Albert (University at Buffalo, The State University of New York); Cartwright, Alexander (Electrical Engineering, University at Buffalo, SUNY); Bednarek, Daniel (University at Buffalo); Rudin, Stephen (University at Buffalo)</i> | |
| 17:30-17:45 | FrE05.5 |
| Brain Tissue Selection Procedures for Image Derived Input Functions Derived Using Independent Components Analysis | 5987-5990 |
| <i>Mikhno, Arthur* (Columbia University); Zanderigo, Francesca (Columbia University); Naganawa, Mika (Yale University, PET Center); Laine, Andrew F. (Columbia University); Parsey, Ramin (Columbia University)</i> | |

17:45-18:00 FrE05.6
An Improved FDK Algorithm Using Camera Calibration Technique for Reconstruction of Misaligned CBCT System 5991-5994
Wang, Mengjiao (Tsinghua University); Ding, Hui (Tsinghua University); Wang, Guangzhi (Tsinghua University)*

FrE08: 16:30-18:00 Sapphire 411
3.5.1 Implantable Sensors (Oral Session)
Chair: Basu, Amar (*Wayne State Univ.*)
Co-Chair: Meng, Ellis (*Univ. of Southern California*)

16:30-16:45 FrE08.1
Optimization of Multi-Layer Metal Neural Probe Design 5995-5998
Tooker, Angela (Lawrence Livermore National Lab); Tolosa, Vanessa (Lawrence Livermore National Laboratory); Shah, Kedar (Lawrence Livermore National Laboratory); Sheth, Heeral (Lawrence Livermore National Laboratory); Felix, Sarah (Lawrence Livermore National Laboratory); Delima, Terri (Lawrence Livermore National Laboratory); Pannu, Satinderpall (Lawrence Livermore National Laboratory)*

16:45-17:00 FrE08.2
Polymer Neural Interface with Dual-Sided Electrodes for Neural Stimulation and Recording 5999-6002
Tooker, Angela (Lawrence Livermore National Lab); Tolosa, Vanessa (Lawrence Livermore National Laboratory); Shah, Kedar (Lawrence Livermore National Laboratory); Sheth, Heeral (Lawrence Livermore National Laboratory); Felix, Sarah (Lawrence Livermore National Laboratory); Delima, Terri (Lawrence Livermore National Laboratory); Pannu, Satinderpall (Lawrence Livermore National Laboratory)*

17:00-17:15 FrE08.3
Brain-Friendly Amperometric Enzyme Biosensor Based on Encapsulated Oxygen Generating Biomaterial 6003-6006
Li, Chunyan (Feinstein Institute for Medical Research); Wu, Zhizhen (University of Cincinnati); Hartings, Jed (University of Cincinnati); Rajan, Neena (Feinstein Institute for Medical Research); Chahine, Nadeen (Columbia University); cheyuo, cletus (Feinstein Institute for Medical Research); Wang, Ping (Feinstein Institute for Medical Research); Wu, Pei-ming (Feinstein Institute); Golanov, Eugene V. (Feinstein Institute for Medical Research); Ahn, Chong (University of Cincinnati); Narayan, Raj (Feinstein Institute for Medical Research)*

17:15-17:30 FrE08.4
Stretchable Biocompatible Electronics by Embedding Electrical Circuitry in Biocompatible Elastomers 6007-6010
Jahanshahi, Amir (Centre for Microsystems Technology (CMST), IMEC-GhentUniversity, Technologiepark 914a, B-9052 Ghent, Belgium); Salvo, Pietro (Centre for Microsystems Technology (CMST) at University ofGhent and IMEC); Vanfleteren, Jan (IMEC / Ghent University)*

17:30-17:45 FrE08.5
Baseband Signal Transmission Experiment for Intra-Brain Communication with Implantable Image Sensor 6011-6014
Sasagawa, Kiyotaka (Nara Institute of Science and Technology); Yokota, Shogo (Nara Institute of Science and Technology); Matsuda, Takashi (National Institute of Information and Communications Technology); Davis, Peter (Telecognix corporation); Zhang, Bing (National Institute of Information and Communications Technology); Li, Keren (National Institute of Information and Communications Technology); Kobayashi, Takuma (Nara Institute of Science and Technology); Noda, Toshihiko (Nara Institute of Science and Technology); Tokuda, Takashi (Nara Institute of Science and Technology); Ohta, Jun (Nara Institute of Science and Technology)*

17:45-18:00 FrE08.6
Realistic Modeling of the Biological Channel for the Design of Implantable Wireless UWB Communication Systems 6015-6018
Bahrami, Hadi (Laval University); Gosselin, Benoit (Laval University); Rusch, Leslie Ann (Laval University)*

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| FrE09: 16:30-18:00 | Sapphire 400 |
| 9.2.6 Advancement of Cyber-medicine: Intelligent ICT Care (Oral Session) | |
| Chair: Yoshizawa, Makoto (<i>Tohoku Univ.</i>) | |
| Co-Chair: Homma, Noriyasu (<i>Cyberscience Center, Tohoku Univ.</i>) | |

16:30-16:45 FrE09.1
Development of a Virtual Reality System to Evaluate Skills Needed to Drive a Cycling Wheel-Chair 6019-6022
Sugita, Norihiro (Tohoku University); Yoshizawa, Makoto (Tohoku University); Tanaka, Akira (Fukushima University); Abe, Makoto (Tohoku University); Homma, Noriyasu (Cyberscience Center, Tohoku University)*

16:45-17:00 FrE09.2
Detection and Localization of Radiotherapy Targets by Template Matching 6023-6027
Mostafavi, Hassan (Varian Medical Systems Inc.); Sloutsky, Alexander (Varian Medical System); Jeung, Andrew (Varian Medical Systems)*

17:00-17:15 FrE09.3
Respiratory Motion Prediction for Tumor Following Radiotherapy by Using Time-Variant Seasonal Autoregressive Techniques 6028-6031
Ichiji, Kei (Tohoku University); Homma, Noriyasu (Cyberscience Center, Tohoku University); Sakai, Masao (Tohoku University); Takai, Yoshihiro (Hirosaki University); Narita, Yuichiro (Hirosaki University); Abe, Makoto (Tohoku University); Sugita, Norihiro (Tohoku University); Yoshizawa, Makoto (Tohoku University)*

17:15-17:30 FrE09.4
Training Strategies for a Lower Limb Rehabilitation Robot Based on Impedance Control 6032-6035
Hu, Jin (Institute of Automation, Chinese Academy of Sciences); Hou, Zeng-Guang (Institute of Automation, Chinese Academy of Sciences); Zhang, Feng (Chinese Academy of Sciences); Chen, Yixiong (Institute of Automation, Chinese Academy of Sciences); Li, Pengfeng (Institute of Automation, Chinese Academy of Sciences)*

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| FrE11: 16:30-18:00 | Cobolt 520 |
| 11.3.1 Global Health, Instruction, and Career Development (Oral Session) | |
| Chair: Waghlikar, Amol (<i>The Australian e-Health Res. Centre, ICT Centre, CSIRO</i>) | |
| Co-Chair: Saldivar, Enrique (<i>West Wireless Health Inst.</i>) | |

16:30-16:45 FrE11.1
Neural Network-Based Data Analysis for Medical-Surgical Nursing Learning 6036-6039
Fernandez Aleman, Jose Luis (University of Murcia); Jayne, Chrisina (University of Coventry); Sánchez García, Ana Belén (Hospital Universitario Reina Sofia de Murcia); Carrillo de Gea, Juan Manuel (University of Murcia); Toval, Ambrosio (University of Murcia)*

16:45-17:00 FrE11.2
Real-Time Simulation for Safer Vascular Stenting – The Training Application 6040-6043
Tripoliti, Evanthia (University of Ioannina); Sakellarios, Antonis (University of Ioannina); Peroulis, Michael (University Hospital of Ioannina); Petrakis, Euripides (Technical University of Crete)*

17:00-17:15 FrE11.3
In Vitro Spectrophotometric Near Infrared Measurements of Skin Absorption and Dehydration 6044-6047
Kyriacou, Panayiotis (City University London); Qassem, Meha (City University London)*

17:15-17:30 FrE11.4
Career Development Initiatives in Biomedical Health Informatics 6048-6051
Waghlikar, Amol (The Australian e-Health Research Centre, ICT Centre, CSIRO)*

17:30-17:45 FrE11.5
Two Dimensional Affective State Distribution of the Brain under Emotion Stimuli 6052-6055
Yaacob, Hamwira (International Islamic University Malaysia); Karim, Izzah (International Islamic University Malaysia); Abdul, Wahab (International Islamic University Malaysia); Kamaruddin, Norhaslinda (MARA University of Technology)*

17:45-18:00 FrE11.6
Image-Guided Navigation: A Cost Effective Practical Introduction Using the Image-Guided Surgery Toolkit (IGSTK) 6056-6059
Yaniv, Ziv (Children's National Medical Center); Guler, Ozgur (Children's National Medical Center)*

FrE13: 16:30-18:00 Aqua 306B
10.4.1 Ehealth/Mhealth I (Oral Session)
Chair: McLaughlin, James (*Univ. of Ulster*)
Co-Chair: Maglaveras, Nikolaos (*Aristotle Univ. of Thessaloniki*)

16:30-16:45 FrE13.1
Non-Intrusive Head Movement Analysis of Videotaped Seizures of Epileptic Origin 6060-6063
Mandal, Bappaditya (Institute for Infocomm Research); Eng, How-Lung (Institute for Infocomm Research); Lu, Haiping (Institute for Infocomm Research); Chan, Derrick W. S. (KK Women's and Children's Hospital); Ng, Yen-Ling (KK Women's and Children's Hospital)*

16:45-17:00 FrE13.2
A Proposed Next Generation Service Delivery Platform (NG-SDP) for Ehealth Domain 6064-6067
Andriopoulou, Foteini (University of Patras); Lymberopoulos, Dimitrios (University of Patras)*

17:15-17:30 FrE13.4
Development of a Ubiquitous Clinical Monitoring Solution to Improve Patient Safety and Outcomes 6068-6073
Donnelly, Nicola (Intelesens); Harper, Roy (NHS); Anderson, John McCune (University of Ulster); branagh, David (Intelesens); Kennedy, Alan (Intelesens); Caulfield, Michael (Intelesens); McLaughlin, James (University of Ulster)*

17:30-17:45 FrE13.5
Changing Communications within Hospital and Home Health Care 6074-6077
Torrado-Carvajal, Angel (Rey Juan Carlos University); Rodriguez-Sanchez, Cristina (Universidad rey Juan Carlos); Rodriguez-Moreno, Alberto (Rey Juan Carlos University); Borromeo, Susana (Universidad Rey Juan Carlos); Garro-Gomez, Cesar (Rey Juan Carlos University); Hernandez-Tamames, Juan Antonio (Universidad Rey Juan Carlos); Luaces, Maria (Fuenlabrada University Hospital)*

17:45-18:00 FrE13.6
S2DIA: A Diagnostic System for Diabetes Mellitus Using SANA Platform 6078-6081
Costa, Clayton Maciel (IFRN); Dibe, Dikson (UFRN); Dibe, Dibson (UFRN); Bezerra Soares, Heliana (UFRN); Ribeiro, Anna Giselle (Universidade Federal do Rio Grande do Norte); Silva, Ikaro (Massachusetts Institute of Technology); Winkler, Eric (SANA); Celi, Leo Anthony (MIT); Guerreiro, Ana Maria G. (Federal University of Rio Grande do Norte); Maia, Cicilia (UERJ and FMC)*

FrE14: 16:30-18:00 Aqua 308
10.4.3 Telehealth/Telemedicine (Oral Session)
Chair: Kuroda, Tomohiro (*Kyoto Univ.*)
Co-Chair: Pattichis, Constantinos (*Univ. of Cyprus*)

16:30-16:45 FrE14.1
Telematic Integrated System to Perform Drugs Prescription and Administration Reducing Adverse Drug Events 6082-6085
Iadanza, Ernesto (Università degli Studi di Firenze); Pettenati, Maria Chiara (ICON Foundation); Bianchi, Lorenzo (Department of Electronics and Telecommunications); Turchi, Stefano (Department of Electronics and Telecommunications); Ciofi, Lucia (Department of Electronics and Telecommunications); Pirri, Franco (Department of Electronics and Telecommunications); Biffi Gentili, Guido (Department of Electronics and Telecommunications); Giuli, Dino (Department of Electronics and Telecommunications)*

16:45-17:00 FrE14.2
A Social Cybernetic Analysis of Simulation-Based, Remotely Delivered Medical Skills Training in an Austere Environment: Developing a Test Bed for Spaceflight Medicine 6086-6089
Musson, David (McMaster University); Doyle, Thomas E. (McMaster University)*

17:00-17:15 FrE14.3
Systems Modelling of Space Medical Support Architecture: Topological Mapping of High Level Characteristics and Constraints 6090-6094
Musson, David (McMaster University); Doyle, Thomas E. (McMaster University); Saary, Joan (University of Toronto and Canadian Forces Environmental Medicine Establishment)*

17:15-17:30 FrE14.4
Computer-Assisted Upper Extremity Training Using Interactive Biking Exercise (iBike) Platform* 6095-6099
Jeong, In cheol (Johns Hopkins University); Finkelstein, Joseph (Johns Hopkins University School of Medicine)*

17:30-17:45 FrE14.5
Screening for Congenital Heart Diseases by Murmurs Using Telemedical Phonocardiography 6100-6103
Fodor, Gábor (Budapest University of Technology and Economics); Balogh, Ádám T. (Pázmány Péter Catholic University); Hosszu, Gabor (Budapest University of Technology and Economics); Kovacs, Ferenc (Pazmany Peter Catholic University)*

17:45-18:00 FrE14.6
Impact of Position Tracking on the Outpatient Navigation System 6104-6106
Kuroda, Tomohiro (Kyoto University); Takemura, Tadamasa (Kyoto University); Noma, Haruo (ATR); Okamoto, Kazuya (Kyoto University); Kume, Naoto (Kyoto University); Yoshihara, Hiroyuki (Kyoto University)*

FrE16: 16:30-18:00 Sapphire L
6.8.1 Wearable Systems for Neurorehabilitation (Oral Session)
Chair: Chi, Yu (*Cognionics, Inc.*)
Co-Chair: Carrozza, Maria Chiara (*Scuola Superiore Sant'Anna*)

16:30-16:45 FrE16.1
A Robust Wheelchair Pressure Relief Monitoring System 6107-6110
Dai, Rui (Georgia Institute of Technology); Sonenblum, Sharon (Georgia Institute of Technology); Sprigle, Stephen (Georgia Institute of Technology)*

16:45-17:00 FrE16.2
Beyond the Standard Clinical Rating Scales: Fine-Grained Assessment of Post-Stroke Motor Functionality Using Wearable Inertial Sensors 6111-6115
Zhang, Mi (University of Southern California); Lange, Belinda (University of Southern California); Chang, Chien-Yen (Institute for Creative Technologies, University of Southern California); Sawchuk, Alexander (University of Southern California); Rizzo, Albert (Institute for Creative Technologies, University of Southern California)*

17:00-17:15 FrE16.3
An Automatic and User-Driven Training Method for Locomotion Mode Recognition for Artificial Leg Control 6116-6119
Zhang, Xiaorong (University of Rhode Island); Wang, Ding (University of Rhode Island); Yang, Qing (University of Rhode Island); Huang, He (University of Rhode Island)*

17:15-17:30 FrE16.4
Wearable, Battery-Powered, Wireless, Programmable 8-Channel Neural Stimulator 6120-6123
Farahmand, Sina (K.N. Toosi University of Technolog); vahedian, hanif (K.N. Toosi University of Technolog); Abedinkhan eslami, mazyar (K.N. Toosi University of Technolog); Sodagar, Amir M. (University of Michigan)*

17:30-17:45 FrE16.5
On the Design of Ergonomic Wearable Robotic Devices for Motion Assistance and Rehabilitation 6124-6127
Chiri, Azzurra (Scuola Superiore Sant'Anna); Cempini, Marco (Scuola Superiore Sant'Anna); De Rossi, Stefano Marco Maria (Scuola Superiore Sant'Anna); Lenzi, Tommaso (Scuola Superiore Sant'Anna); Giovacchini, Francesco (Scuola Superiore Sant'Anna); Vitiello, Nicola (Scuola Superiore Sant'Anna); Carrozza, Maria Chiara (Scuola Superiore Sant'Anna)*

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| FrE17: 16:30-18:00 | Sapphire H |
| 6.4.2 Sensory Substitution and Other Aids for Balance or Gait Dysfunction (Oral Session) | |
| Chair: Sienko, Kathleen H. (<i>Univ. of Michigan</i>) | |
| Co-Chair: Loughlin, Patrick (<i>Univ. of Pittsburgh</i>) | |

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| 16:30-16:45 | FrE17.1 |
| Longitudinal Performance of a Vestibular Prosthesis As Assessed by Electrically Evoked Compound Action Potential Recording 6128-6131 | |
| <i>Phillips, James* (University of Washington); Shepherd, Sarah (University of Washington); Nowack, Amy (University of Washington); Ling, Leo (University of Washington); Bierer, Steven (University of Washington); Kaneko, Chris (University of Washington); Phillips, Christopher (University of Washington); Nie, Kaibao (University of Washington); Rubinstein, Jay T (University of Washington)</i> | |
| 16:45-17:00 | FrE17.2 |
| Strategies and Synergies Underlying Replacement of Vestibular Function with Prosthetic Feedback 6132-6136 | |
| <i>Honegger, Flurin (Dept of ORL, University Hospital Basel); Hillebrandt, Imke (Dept of ORL, University Hospital of Basel); Elzen v.d., Nadja (Dept of ORL, University hospital of Basel); Tang, Kok-Sing (Dept of ORL, University Hospital Basel); Allum, John HJ* (Basel University)</i> | |
| 17:00-17:15 | FrE17.3 |
| Use of Galvanic Vestibular Feedback for a Balance Prosthesis 6137-6140 | |
| <i>Peterka, Robert* (Oregon Health & Science University)</i> | |
| 17:15-17:30 | FrE17.4 |
| Vestibular Physical Therapy Intervention: Utilizing a Computer Assisted Rehabilitation Environment in Lieu of Traditional Physical Therapy 6141-6144 | |
| <i>Gottshall, Kim* (Naval Medical Center San Diego); Sessoms, Pinata (Naval Health Research Center); Bartlett, Jaime (Naval Health Research Center)</i> | |
| 17:30-17:45 | FrE17.5 |
| Vibrotactile Feedback of Mediolateral Trunk Tilt or Foot Pressure Increases Locomotor Performance in Healthy Older Adults – a Pilot Study 6145-6148 | |
| <i>Wall, Conrad* (Harvard Medical School); Wrisley, Diane (Lynchburg College); Oddsson, Lars (Sister Kenny Rehabilitation Institute)</i> | |
| 17:45-18:00 | FrE17.6 |
| Effects of Co-Vibrotactile Stimulations Around the Torso on Non-Volitional Postural Responses 6149-0 | |
| <i>Lee, Beom-Chan* (University of Michigan); Ho, Allison (University of Michigan); Martin, Bernard (University of Michigan); Sienko, Kathleen H. (University of Michigan)</i> | |

Saturday, 1 September 2012

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| SaA01: 08:00-09:30 | Sapphire A |
| 1.2.2 Multivariate Biosignal Processing (Oral Session) | |
| Chair: Heldt, Thomas (<i>Massachusetts Inst. of Tech.</i>) | |
| Co-Chair: Signorini, Maria G. (<i>Pol. di Milano</i>) | |

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| 08:00-08:15 | SaA01.1 |
| Decoupling the Influence of Systemic Variables in the Peripheral and Cerebral Haemodynamics During ECMO Procedure by Means of Oblique and Orthogonal Subspace Projections 6153-6156 | |
| <i>Caicedo Dorado, Alexander* (Katholieke Universiteit Leuven); Papademetriou, Maria (University College London); Tachtsidis, Ilias (University College London); Van Huffel, Sabine (Katholieke Universiteit Leuven)</i> | |
| 08:15-08:30 | SaA01.2 |
| Space-Time Adaptive Processing for Improved Estimation of Preictal Seizure Activity 6157-6160 | |
| <i>Stamoulis, Catherine* (Harvard Medical School); Chang, Bernard (Harvard Medical School/Beth Israel Deaconess Medical Center)</i> | |

08:30-08:45 SaA01.3
Gaussian Process Regression in Vital-Sign Early Warning Systems 6161-6164
Clifton, Lei (University of Oxford); Clifton, David (University of Oxford); Pimentel, Marco A.F. (University of Oxford); Watkinson, Peter J. (University of Oxford, Oxford University Hospitals NHS Trust); Tarassenko, Lionel (University of Oxford)*

08:45-09:00 SaA01.4
Extraction of Fetal Heart Rate from Maternal Surface ECG with Provisions for Multiple Pregnancies 6165-6168
Fanelli, Andrea (Politecnico di Milano); Signorini, Maria G. (Politecnico di Milano); Heldt, Thomas (Massachusetts Institute of Technology)*

09:00-09:15 SaA01.5
Determination of Glucose Concentration from Near-Infrared Spectra Using Locally Weighted Partial Least Square Regression 6169-6171
Malik, Bilal (Sheffield University); Benaissa, Mohammed (Sheffield University)*

09:15-09:30 SaA01.6
Multivariate Spectral Analysis for Identifying the Brain Activations During Olfactory Perception 6172-6175
Kroupi, Eleni (EPFL); Yazdani, Ashkan (EPFL); Vesin, Jean-Marc (EPFL); Ebrahimi, Touradj (EPFL)*

SaA02: 08:00-09:30 Sapphire D
1.5.1 Casuality and Connectivity (Oral Session)
Chair: Tong, Shanbao (*Shanghai Jiao Tong Univ.*)
Co-Chair: Porta, Alberto (*Univ. degli Studi di Milano*)

08:00-08:15 SaA02.1
An Association Framework to Analyze Dependence Structure in Time Series 6176-6179
Fadlallah, Bilal (University of Florida); Brockmeier, Austin (University of Florida); Seth, Sohan (University of Florida); Keil, Andreas (University of Florida); Principe, Jose (University of Florida)*

08:15-08:30 SaA02.2
On the Improved Correlative Prediction Scheme for Aliased Electrocardiogram (ECG) Data Compression 6180-6183
Gao, Xin (The University of Arizona, Tucson)*

08:30-08:45 SaA02.3
Comparing Causality Measures of Fmri Data Using PCA, CCA and Vector Autoregressive Modelling 6184-6187
Shah, Adnan (National ICT Australia, Canberra, The Australian National University Canberra); Khalid, Muhammad Usman (National ICT Australia, Canberra, The Australian National University Canberra); Seghouane, Abd-krim (National ICT Australia)*

08:45-09:00 SaA02.4
Synchrony Analysis of Spontaneous MEG Activity in Alzheimer's Disease Patients 6188-6191
Gomez, Carlos (University of Valladolid, CIF: Q4718001C); Martinez-Zaruela, Mario (Grupo de Telemática Industrial, University of Valladolid); Poza, Jesús (University of Valladolid); Díaz-Pernas, Francisco Javier (Grupo de Telemática Industrial, University of Valladolid); Fernandez, Alberto (Universidad Complutense de Madrid); Hornero, Roberto (University Of Valladolid)*

09:00-09:15 SaA02.5
Towards the Time Varying Estimation of Complex Brain Connectivity Networks by Means of a General Linear Kalman Filter Approach 6192-6195
Astolfi, Laura (University of Rome Sapienza); Toppi, Jlenia (University of Rome "Sapienza")*

09:15-09:30 SaA02.6
Cortical Functional Connectivity under Different Auditory Attentional Efforts 6196-6199
Hong, Xiangfei (Shanghai Jiao Tong University); Tong, Shanbao (Shanghai Jiao Tong University)*

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| SaA03: 08:00-09:30 | Sapphire E |
| 1.9.2 Pattern Recognition Methods for Biosignals Processing (Oral Session) | |
| Chair: Clifton, Lei (<i>Univ. of Oxford</i>) | |
| Co-Chair: Kant Kumar, Dinesh (<i>MIT Univ.</i>) | |

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| 08:00-08:15 | SaA03.1 |
| Classification of Physical Activities Based on Sparse Representation | 6200-6203 |
| <i>Liu, Shaopeng* (University of Connecticut); Gao, Robert X. (University of Connecticut); John, Dinesh (University of Massachusetts Amherst); Staudenmayer, John (University of Massachusetts, Amherst); Freedson, Patty (University of Massachusetts Amherst)</i> | |
| 08:15-08:30 | SaA03.2 |
| Learning Dependencies among Fetal Heart Rate Features Using Bayesian Networks | 6204-6207 |
| <i>Dash, Shishir* (Stony Brook University); Quirk, J Gerald (Stony Brook University Medical Center); Djuric, Petar (Stony Brook University)</i> | |
| 08:30-08:45 | SaA03.3 |
| Decomposition of Intramuscular EMG Signals Using a Knowledge-based Certainty Classifier Algorithm | 6208-6211 |
| <i>Parsaei, Hossein (University of Waterloo); Stashuk, Daniel William (University of Waterloo); Adel, Tameem* (University of Waterloo)</i> | |
| 08:45-09:00 | SaA03.4 |
| Optimization Strategies for Rapid Centroid Estimation | 6212-6215 |
| <i>Yuwono, Mitchell* (University of Technology Sydney); Su, Steven Weidong (University of Technology, Sydney); moulton, Bruce (University of Technology, Sydney); Nguyen, Hung T. (University of Technology, Sydney)</i> | |
| 09:15-09:30 | SaA03.6 |
| An Efficient Strategy for Evaluating Similarity between Time Series Based on Wavelet / Karhunen-Loève Transforms | 6216-6219 |
| <i>Rocha, Teresa* (Inst Superior de Eng de Coimbra); Paredes, Simão (Instituto Superior de Engenharia de Coimbra); de Carvalho, Paulo (University of Coimbra – NIF: 501617582); Henriques, Jorge (University of Coimbra – NIF 501617582)</i> | |

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| SaA04: 08:00-09:30 | Sapphire 412 |
| 2.5.1 Electrical Impedance Imaging (Oral Session) | |
| Chair: Shung, K. Kirk (<i>Univ. of Southern California</i>) | |
| Co-Chair: Khraiche, Massoud (<i>Univ. of California, San Diego</i>) | |

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| 08:00-08:15 | SaA04.1 |
| Incorporating a Biopsy Needle As an Electrode in Transrectal Electrical Impedance Imaging | 6220-6223 |
| <i>Wan, Yuqing (Dartmouth College); Borsic, Andrea (Dartmouth College); Hartov, Alexander (Dartmouth College); Halter, Ryan* (Dartmouth College)</i> | |
| 08:15-08:30 | SaA04.2 |
| Sparse Electromagnetic Source Imaging Using Combined EEG and MEG | 6224-6227 |
| <i>Ding, Lei* (University of Oklahoma); Yuan, Han (Laureate Institute for Brain Research)</i> | |
| 08:30-08:45 | SaA04.3 |
| Dynamic Seizure Imaging in Patients with Extratemporal Lobe Epilepsy | 6228-6231 |
| <i>Lu, Yunfeng* (University of Minnesota); Yang, Lin (University of Minnesota); Worrell, Gregory A. (Mayo Clinic); Brinkmann, Benjamin (Mayo Foundation); Nelson, Cindy (Mayo Clinic); He, Bin (University of Minnesota)</i> | |
| 08:45-09:00 | SaA04.4 |
| Non-Invasive EEG Source Localization Using Particle Swarm Optimization: A Clinical Experiment | 6232-6235 |
| <i>Shirvany, Yazdan* (Chalmers University of Technology)</i> | |

09:00-09:15 SaA04.5
A Novel Spatiotemporal Muscle Activity Imaging Approach Based on the Extended Kalman Filter 6236-6238
Wang, Jing (University of Minnesota); Zhang, Yingchun (University of Minnesota); Zhu, Xiangjun (Zhejiang University of Technology); Zhou, Ping (Northwestern University & Rehab Inst of Chicago); Liu, Chenguang (University of Alabama at Birmingham); Rymer, William Zev (Northwest. & Rehab Inst of Chicago)*

09:15-09:30 SaA04.6
A New Image Reconstruction Algorithm for Real-Time Monitoring of Conductivity and Permeability Changes in Magnetic Induction Tomography 6239-6242
Caeiros, Jorge (Telecommunications Institute); Martins, Raul (Instituto de Telecomunicações)*

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| SaA06: 08:00-09:30 | Sapphire M |
| 2.8.1 Image Classification I (Oral Session) | |
| Chair: Naguib, Raouf (Coventry Univ.) | |

08:00-08:15 SaA06.1
Automatic Brain MR Images Diagnosis Based on Edge Fractal Dimension and Spectral Energy Signature 6243-6246
Boukadoum, Mounir (University of Quebec at Montréal); Lahmiri, Salim (University of Quebec at Montréal)*

08:15-08:30 SaA06.2
Cross-device automated prostate cancer localization with multiparametric MRI 6247-6250
Artan, Yusuf (Illinois Institute of Technology); Oto, Aytakin (University of Chicago); Yetik, Imam Samil (Illinois Institute of Technology)*

08:30-08:45 SaA06.3
Assessment of Videolaryngostroboscopy Images Based on Visible Vessels of Vocal Folds 6251-6254
Turkmen, Irem (Yildiz Technical University); Karsligil, M. Elif (Yildiz Technical University); Kocak, Ismail (Sesvak)*

08:45-09:00 SaA06.4
A Decision Support System for the Assisted Diagnosis of Brain Tumors: A Feasibility Study for 18F-FDG PET Preclinical Studies 6255-6258
Grosso, Eleonora (University of Milan-Bicocca); López, Miriam (University of Granada, Spain); Salvatore, Christian (University of Milan-Bicocca, Milan, Italy); Gallivanone, Francesca (Institute of Molecular Bioimaging and Physiology of the National Research Council (IBFM-CNR), Milan); Di Grigoli, Giuseppe (Fondazione Tecnomed, Milan); Valtorta, Silvia (Fondazione Tecnomed, Milan); Moresco, Rosa Maria (University of Milan-Bicocca, Milan); Gilardi, Maria Carla (Institute of Molecular Bioimaging and Physiology of the National Research Council (IBFM-CNR), Milan); Ramírez, Javier (Department of Signal Theory, Networking and Communications, University of Granada); Górriz-Sáez, Juan Manuel (University of Granada); Castiglioni, Isabella (National Research Council (CNR))*

09:00-09:15 SaA06.5
Computer Vision-Based Breast Self-Examination Stroke Position and Palpation Pressure Level Classification Using Artificial Neural Networks and Wavelet Transforms 6259-6262
Cabatuan, Melvin (De La Salle University); Dadios, Elmer (De La Salle University); Naguib, Raouf (Coventry University); oikonomou, Andreas (Derby University)*

09:15-09:30 SaA06.6
Mycobacterium Tuberculosis Recognition with Conventional Microscopy 6263-6268
Costa Filho, Cicero F. F. (Fundacao de Apoio Inst Rio Solimoes); Levy, Pamela (Universidade Federal do Amazonas); Xavier, Clahildek (Universidade Federal do Amazonas); Costa, Marly G. F. (Federal University of Amazonas – UFAM); Fujimoto, Luciana (Instituto Nacional de Pesquisas da Amazonia); Salem, Julia (Instituto Nacional de Pesquisas Amazônicas – INPA)*

3.8.1 Microfluidics in Biological Applications (Oral Session)**Chair:** Zheng, Si-Yang (*Pennsylvania State Univ.*)**Co-Chair:** Bae, Hojae (*Brigham and Women's Hospital, Harvard Medical School*)08:00-08:15 SaA07.1**Viable Circulating Tumor Cell Enrichment by Flexible Micro Spring Array** 6269-6272*Harouaka, Ramdane (Pennsylvania State University); Zhou, Ming-Da (Pennsylvania State University); Yeh, Yin-Ting (Pennsylvania State University); Khan, Waleed (Pennsylvania State University); Allerton, Jeffrey (Penn State Hershey Medical Group); Zheng, Si-Yang* (Pennsylvania State University)*08:15-08:30 SaA07.2**Simultaneous Dielectric Monitoring of Microfluidic Channels at Microwaves Utilizing a Metamaterial Transmission Line Structure** 6273-6276*Schuessler, Martin* (TU Darmstadt); Puentes, Margarita (Technische Universität Darmstadt); Grenier, Katia (LAAS CNRS, Toulouse); Dubuc, David (LAAS CNRS, Toulouse); Jakoby, Rolf (TU Darmstadt)*08:30-08:45 SaA07.3**Counting Leukocytes from Whole Blood Using a Lab-On-A-Chip Coulter Counter** 6277-6280*Mei, Zhe* (University of California San Diego); Cho, Sung Hwan (University of California San Diego); Zhang, Arthur (University of California San Diego); dai, jie (University of California San Diego); Wu, Tsung-Feng (University of California San Diego); Lo, Yu-Hwa (University of California San Diego)*08:45-09:00 SaA07.4**A New Microfluidic Device for Electric Lysis and Separation of Cells** 6281-6284*Brun, Mathieu* (Ecole centrale de Lyon); Frenea-Robin, Marie (UMR CNRS 5005); Chateaux, Jean-François (Université Lyon1 Claude Bernard); HADDOUR, Naoufel (Laboratoire Ampère); Deman, Anne-Laure (Université Lyon1 Claude Bernard); Ferrigno, Rosaria (Université Claude Bernard Lyon 1)*09:00-09:15 SaA07.5**Selective E.coli Trapping with 3D Insulator-Based Dielectrophoresis Using DC-Biased, AC Electric Fields** 6285-6288*Zellner, Phillip* (Virginia Tech); Sahari, Ali (Virginia Tech); Hosseini, Yahya (Virginia Tech); Behkam, Bahareh (Virginia Tech); Agah, Masoud (Virginia Tech)***4.5.3 Biomechanics Modeling** (Oral Session)**Chair:** Markey, Mia (*The Univ. of Texas at Austin*)**Co-Chair:** Wang, May D. (*Georgia Tech. and Emory Univ.*)08:00-08:15 SaA10.1**Simulation of Left Ventricle Flow Dynamics with Dilated Cardiomyopathy During the Filling Phase** 6289-6292*Chan, Bee Ting (University of Malaya); Ong, Chiwei (University of Malaya); Lim, Einly* (University of Malaya); Abu Osman, Noor Azuan (University of Malaya); Al Abed, Amr (University of New South Wales); Lovell, Nigel H. (University of New South Wales); Dokos, Socrates (University of New South Wales)*08:15-08:30 SaA10.2**Fluid Structure Interaction Simulation of Left Ventricular Flow Dynamics under Left Ventricular Assist Device Support** 6293-6296*Lim, Einly* (University of Malaya); Ong, Chiwei (University of Malaya); Chan, Bee Ting (University of Malaya); Abu Osman, Noor Azuan (University of Malaya); Al Abed, Amr (University of New South Wales); Dokos, Socrates (University of New South Wales); Lovell, Nigel H. (University of New South Wales)*08:30-08:45 SaA10.3**Implementation and Evaluation of Hyperelastic Model for Surgical Simulator and Navigation** 6297-6300*Ogata, Masato* (Yokohama City University, Mitsubishi Precision Co.,Ltd.); Dohi, Yasunori (Graduate School of Engineering, Yokohama National University); Yamada, Takahiro (Yokohama National University); Yoshinobu, Kubota (Graduate School of Medicine, Yokohama City University)*

08:45-09:00 SaA10.4
A Model to Study the Effect on Gallbladder Stress Due to Contraction and Gallstones 6301-6304
*Ali Yousuf, Muhammad (Johns Hopkins Medicine); Dumm, Rochelle (Johns Hopkins University);
Kim, Eunyoung (Johns Hopkins University); Asiyanbola, Bolanle* (Johns Hopkins Medicine)*

09:00-09:15 SaA10.5
Predicting Failure in Soft Tissue Phantoms Via Modeling of Non-Predetermined Tear Progression 6305-6308
Oldfield, Matthew (Imperial College London); Dini, Daniele (Imperial College London);
Rodriguez y Baena, Fernando (Imperial College London)*

SaA11: 08:00-09:30 Sapphire 400
4.6.2 Algorithms and Computational Tools for Proteomics (Oral Session)
Chair: Nguyen, Hung T. (*Univ. of Tech. Sydney*)
Co-Chair: Liao, Jiayu (*Univ. of California, Riverside*)

08:00-08:15 SaA11.1
Approximate String Matching Using Phase Correlation 6309-6312
Alba, Alfonso (Universidad Autonoma de San Luis Potosi); Rodríguez-Kessler, Margarita (Universidad
Autonoma de San Luis Potosi); Arce-Santana, Edgar Roman (Facultad de Ciencias);
Mendez, Martin Oswaldo (Universidad Autonoma de San Luis Potosi)*

08:15-08:30 SaA11.2
**Improving the prediction of sub-cellular locations of proteins with a particle swarm optimization-
based boosting strategy** 6313-6316
Garcia Lopez, Sebastian (Universidad Nacional de Colombia); Jaramillo Garzón, Jorge Alberto (Instituto
Tecnológico Metropolitano); Castellanos-Dominguez, Germán (Universidad Nacional de Colombia)*

08:30-08:45 SaA11.3
Network-Based Enrichment Analysis of Gene Expression through Protein-Protein Interaction Data 6317-6320
Massanet-Vila, Raimon (Universitat Politècnica de Catalunya); Fernández Albert, Francesc (University of
Barcelona / Polytechnic University of Catalonia); Caminal, Pere (Technical University of Catalonia (UPC));
Perera, Alexandre (Universitat Politècnica de Catalunya)*

08:45-09:00 SaA11.4
**Generation of Atomic Four-Body Statistical Potentials Derived from the Delaunay Tessellation of
Protein Structures** 6321-6324
Masso, Majid (George Mason University)*

09:00-09:15 SaA11.5
**Intelligent Detection of Hypoglycemic Episodes in Children with Type 1 Diabetes Using Adaptive
Neural-Fuzzy Inference System** 6325-6328
San, Phyto Phyto (University of Technology Sydney); Ling, Steve (University of Technology Sydney);
Nguyen, Hung T. (University of Technology, Sydney)*

09:15-09:30 SaA11.6
A Network Clustering Algorithm for Detection of Protein Families 6329-6332
*Xie, Jiang (Shanghai University); Wang, Minchao (Shanghai University); Dai, Dongbo (Shanghai University);
Zhang, huiran (Shanghai University); Zhang, Wu* (Shanghai University)*

SaA12: 08:00-09:30 Cobolt 520
5.10.1 Sleep Apnea (Oral Session)
Chair: Jané, Raimon (*Inst. de Bioenginyeria de Catalunya (IBEC)*)
Co-Chair: Behbehani, Khosrow (*Univ. of Texas at Arlington*)

08:00-08:15 SaA12.1
Detection of Breathing Segments in Respiratory Signals 6333-6336
Robles-Rubio, Carlos Alejandro (McGill University); Brown, Karen (McGill University);
Kearney, Robert Edward (McGill University)*

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| 08:15-08:30 | SaA12.2 |
| Respiratory and Spontaneous Arousals in Patients with Sleep Apnea Hypopnea Syndrome | 6337-6340 |
| <i>Mesquita, Joana (Universitat Politècnica de Catalunya); Porée, Fabienne (Université de Rennes 1); Carrault, Guy (Université de Rennes 1); Fiz Fernandez, José Antonio (Navarra Hospital); Abad Capa, Jorge (Hospital Germans Trias i Pujol); Jané, Raimon* (Institut de Bioenginyeria de Catalunya (IBEC))</i> | |
| 08:30-08:45 | SaA12.3 |
| Swallow Monitoring through Apnea Detection in Breathing Signal | 6341-6344 |
| <i>Dong, Bo* (Michigan State University); Biswas, Subir, Kumar (Michigan State University)</i> | |
| 08:45-09:00 | SaA12.4 |
| Monitoring Torso Acceleration for Estimating Respiratory Flow and Efforts for Sleep Apnea Detection and Classification | 6345-6348 |
| <i>Kheirkhah Dehkordi, Parastoo* (Simon Fraser University); Marzencki, Marcin (Simon Fraser University); Tavakolian, Kouhyar (Simon Fraser University); Kaminska, Marta (McGill University Health Centre); Kaminska, Bozena (Simon Fraser University)</i> | |
| 09:00-09:15 | SaA12.5 |
| Relation between Arterial Blood Pressure and Cerebral Blood Flow Velocity in Simulated Sleep Apnea | 6349-6352 |
| <i>Hassan, Gedaa (University of Texas at Arlington); Alex, Raichel (University of Texas Arlington); Bhave, Gauri (University of Texas at Arlington); Al-Abed, Mohammad (Hashemite University); Bashaboyina, Aditya (University Of Texas at Arlington); Watenpugh, Donald (Sleep Consultants Inc.); Zhang, Rong (University of Texas Southwestern Medical Center at Dallas); Iyer, Swathi (University of Texas at Arlington); Behbehani, Khosrow* (University of Texas at Arlington)</i> | |
| 09:15-09:30 | SaA12.6 |
| Gender Dependant Snore Sound Based Multi Feature Obstructive Sleep Apnea Screening Method | 6353-6356 |
| <i>de Silva, Shaminda (The University of Queensland); Abeyratne, Udantha R* (University of Queensland)</i> | |

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| SaA13: 08:00-09:30 | Indigo 206 |
| 5.8.1 Cardiac Electrophysiology I (Oral Session) | |
| Chair: Kroll, Mark (<i>Univ. of Minnesota</i>) | |
| Co-Chair: Sands, Gregory (<i>The Univ. of Auckland</i>) | |

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| 08:00-08:15 | SaA13.1 |
| Automated Quantification of Atrial Fibrillation Complexity by Probabilistic Electrogram Analysis and Fibrillation Wave Reconstruction | 6357-6360 |
| <i>Zeemering, Stef* (Maastricht University); Maesen, Bart (Maastricht University Hospital); Nijs, Jan (Maastricht University Hospital); Lau, Dennis (Maastricht University); Granier, Mathieu (Maastricht University); Verheule, Sander (Maastricht University); Schotten, Ulrich (Maastricht University)</i> | |
| 08:15-08:30 | SaA13.2 |
| Characterization of Fractionated Electrograms Using a Novel Time-Frequency Based Algorithm | 6361-6364 |
| <i>Ghoraani, Behnaz* (Ryerson University); Krishnan, Sridhar (Ryerson University); Chauhan, Vijay S. (University Health Network)</i> | |
| 08:30-08:45 | SaA13.3 |
| Myofiber Orientation and Electrical Activation in Human and Sheep Atrial Models | 6365-6368 |
| <i>Zhao, Jichao* (University of Auckland); Krueger, Martin Wolfgang (Karlsruhe Institute of Technology (KIT)); Seemann, Gunnar (Karlsruhe Institute of Technology); Meng, Shu (University of Auckland); Zhang, Henggui (University of Manchester); Doessel, Olaf (Karlsruhe Institute of Technology (KIT)); LeGrice, Ian (University); Smail, Bruce (University of Auckland)</i> | |
| 08:45-09:00 | SaA13.4 |
| Wavelet Variability of SA Node Originated P Waves in Atrial Fibrillation and in Signals with Ectopic Beats | 6369-6372 |
| <i>Filos, Dimitrios (Aristotle University o Thessaloniki); Chouvarda, Ioanna (Aristotle University); Dakos, George (Aristotle University o Thessaloniki); Mantziari, Lilian (Aristotle University of Thessaloniki); Vassilikos, Vassilios (Aristotle University o Thessaloniki); Maglaveras, Nikolaos* (Aristotle University of Thessaloniki)</i> | |

09:00-09:15 SaA13.5
Realistic Training Data Improve Noninvasive Reconstruction of Heart-Surface Potentials 6373-6376
Cluitmans, Matthijs (Maastricht University); Peeters, Ralf (Universiteit Maastricht);
Volders, Paul (Maastricht University); Westra, Ronald (Universiteit Maastricht)*

09:15-09:30 SaA13.6
The Stability of Electrically Induced Ventricular Fibrillation 6377-6381
Kroll, Mark (University of Minnesota); Walcott, Gregory (University of Alabama at Birmingham);
Ideker, Raymond (University of Alabama at Birmingham); Graham, Michael (St. Louis University);
Calkins, Hugh (Johns Hopkins University); Lakkireddy, Dhanunjaya (University of Kansas Hospitals);
Luceri, Richard (Holy Cross Hospital); Panescu, Dorin (Intuitive Surgical)*

SaA14: 08:00-09:30 Aqua 308
10.1.2 Personal Health Systems I (Oral Session)
Chair: Sazonov, Edward (*Univ. of Alabama*)
Co-Chair: Poon, Carmen CY (*The Chinese Univ. of Hong Kong*)

08:00-08:15 SaA14.1
Recognition of Household and Athletic Activities Using SmartShoe 6382-6385
*Edgar, S. Ryan (Clarkson University); Fulk, George (Clarkson University);
Sazonov, Edward* (University of Alabama)*

08:15-08:30 SaA14.2
A New Method to Determine Joint Range of Movement and Stiffness in Rheumatoid Arthritic Patients .. 6386-6389
Connolly, James (University Of Ulster); Condell, Joan (University Of Ulster);
Curran, Kevin (University Of Ulster)*

08:30-08:45 SaA14.3
A User Profile Ontology Based Approach for Assisting People with Dementia in Mobile Environments . 6390-6393
Skillen, Kerry-Louise (University of Ulster); Chen, Liming (University of Ulster);
Nugent, Chris (University of Ulster); Donnelly, Mark (University of Ulster)*

08:45-09:00 SaA14.4
A Laboratory Insole for Analysis of Sensor Placement to Determine Ground Reaction Force and Ankle Moment in Patients with Stroke 6394-6397
Howell, Adam (University of Utah); Kobayashi, Toshiki (Orthocare Innovations); Chou, Teri (Orthocare Innovation); orendurff, michael (Orthocare Innovations); Bamberg, Stacy J Morris (University of Utah)*

09:00-09:15 SaA14.5
Proof of Concept of a Shoe Based Human Activity Monitor 6398-6401
Rodriguez-Villegas, Esther (Imperial College London); Shad, Ali (Bechtel)*

09:15-09:30 SaA14.6
Towards Falls Prevention: A Wearable Wireless and Battery-Less Sensing and Automatic Identification Tag for Real Time Monitoring of Human Movements 6402-6405
Ranasinghe, Damith Chinthana (The University of Adelaide); Shinmoto Torres, Roberto Luis (University of Adelaide); Hill, Keith (Curtin University); Visvanathan, Renuka (University of Adelaide)*

SaA15: 08:00-09:30 Sapphire P
6.2.5 Brain-Machine Interface – V (Oral Session)
Chair: Nenadic, Zoran (*UC Irvine*)
Co-Chair: Jung, Tzyy-Ping (*Univ. of California San Diego*)

08:00-08:15 SaA15.1
Decoding of Velocities and Positions of 3D Arm Movement from EEG 6406-6409
Ofner, Patrick (Graz University of Technology); Müller-Putz, Gernot (Graz University of Technology)*

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| 08:15-08:30 | SaA15.2 |
| Detection of Movements with Attention or Distraction to the Motor Task During Robot-Assisted Passive Movements of the Upper Limb | 6410-6413 |
| <i>Antelis, Javier M.* (University of Zaragoza); Montesano, Luis (Universidad de Zaragoza); Giralt, Xavier (Technical University of Catalonia); Casals, Alicia (Institute for Biomechanics of Catalonia and Universitat Politècnica de Catalunya, Barcelona Tech); Minguez, Javier (Zaragoza University)</i> | |
| 08:30-08:45 | SaA15.3 |
| Brain-Computer Interface Controlled Functional Electrical Stimulation Device for Foot Drop Due to Stroke | 6414-6417 |
| <i>Do, An H.* (University of California Irvine); Wang, Po T (University of California Irvine); King, Christine E. (University of California, Irvine); Schombs, Andrew (University of California, Irvine); Cramer, Steven (University of California, Irvine); Nenadic, Zoran (UC Irvine)</i> | |
| 08:45-09:00 | SaA15.4 |
| Decoding Wrist Kinematics from Local Field Potentials of the Ipsilateral Primary Motor and Dorsal Premotor Cortices | 6418-6421 |
| <i>Wang, Dong (Zhejiang University); Hao, Yaoyao (Qiushi Academy for Advanced Studies, Zhejiang Univ., Hangzhou, China); Zhang, Qiaosheng (Zhejiang University); Zhang, Shaomin (Zhejiang University); Zhao, Ting (Zhejiang University); Zheng, Xiaoxiang (Zhejiang University); Chen, Weidong* (Zhejiang University)</i> | |
| 09:00-09:15 | SaA15.5 |
| Continuous Neural Decoding of Grasp Types for Asynchronous Brain Machine Interfaces | 6422-6425 |
| <i>Hao, Yaoyao (Qiushi Academy for Advanced Studies, Zhejiang Univ., Hangzhou, China); Chen, Weidong (Zhejiang University); Zhang, Shaomin (Zhejiang University); Zhang, Qiaosheng (Zhejiang University); Jiang, Bo (Zhejiang University); Zhao, Ting (Zhejiang University); Zheng, Xiaoxiang* (Zhejiang University)</i> | |

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| SaA16: 08:00-09:30 | Sapphire L |
| 6.1.1 Brain Stimulation I (Oral Session) | |
| Chair: Parra, Lucas C. (City Coll. of New York) | |
| Co-Chair: Peterchev, Angel V (Duke Univ.) | |

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| 08:00-08:15 | SaA16.1 |
| On the Role of Electric Field Orientation in Optimal Design of Transcranial Electrical Stimulation | 6426-6429 |
| <i>Dmochowski, Jacek* (City College of New York, CUNY); Bikson, Marom (The City College of New York); Datta, Abhishek (The City College of the CUNY); Richardson, Jessica (University of South Carolina); Fridriksson, Julius (University of South Carolina); Parra, Lucas C. (City College of New York)</i> | |
| 08:15-08:30 | SaA16.2 |
| Stimulation Strength and Focality of Electroconvulsive Therapy with Individualized Current Amplitude: A Preclinical Study | 6430-6433 |
| <i>Lee, Won Hee* (Columbia University); Lisanby, Sarah (Columbia University / New York State Psychiatric Institute); Laine, Andrew (Columbia University); Peterchev, Angel V (Duke University)</i> | |
| 08:30-08:45 | SaA16.3 |
| A Model of Variability in Brain Stimulation Evoked Responses | 6434-6437 |
| <i>Goetz, Stefan (TU Muenchen); Peterchev, Angel V* (Duke University)</i> | |
| 08:45-09:00 | SaA16.4 |
| Simulations and Visualizations for Interpretation of Brain Microdialysis Data During Deep Brain Stimulation | 6438-6441 |
| <i>Diczfalusy, Elin* (Linköping University); Dizdar, Nil (Linköping University); Zsigmond, Peter (Linköping University); Kullman, Anita (Linköping University); Loyd, Dan (Linköping University); Wårdell, Karin (Linköping University)</i> | |

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| SaA17: 08:00-09:30 | Sapphire H |
| 6.13.3 Human Performance I (Oral Session) | |
| Chair: Babiloni, Fabio (<i>Univ. of Rome</i>) | |
| Co-Chair: Stepp, Cara (<i>Boston Univ.</i>) | |

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| 08:00-08:15 | SaA17.1 |
| Assessment of Mental Fatigue During Car Driving by Using High Resolution EEG Activity and Neurophysiologic Indices | 6442-6445 |
| <i>Borghini, Gianluca (University of Rome Sapienza); Vecchiato, Giovanni (University of Rome Sapienza); Colosimo, Alfredo (University of Rome "Sapienza"); Wei, Daming (University of Aizu); Maglione, Anton Giulio (University of Rome Sapienza); Kong, Wanzeng (College of Computer Science, Hangzhou Dianzi University, Hangzhou); Babiloni, Fabio* (University of Rome); Astolfi, Laura (University of Rome Sapienza)</i> | |
| 08:15-08:30 | SaA17.2 |
| Examination of a Muscular Activity Estimation Model Using a Bayesian Network for the Influence of an Ankle Foot Orthosis | 6446-6450 |
| <i>Inoue, Jun* (Waseda Univ.); Kawamura, Kazuya (Chiba University); Fujie, Masakatsu G. (Waseda University)</i> | |
| 08:30-08:45 | SaA17.3 |
| Classification of Human Physical Activity and Energy Expenditure Estimation by Accelerometry and Barometry | 6451-6454 |
| <i>Anastasopoulou, Panagiota* (Karlsruhe Institute of Technology (KIT)); Tansella, Michael (Karlsruhe Institute of Technology (KIT)); Stumpp, Jürgen (movisens GmbH); Shammas, Layal (Karlsruhe Institute of Technology (KIT)); Hey, Stefan (Karlsruhe Institute of Technology)</i> | |
| 08:45-09:00 | SaA17.4 |
| Influence of Sound Source Width on Human Sound Localization | 6455-6458 |
| <i>Greene, Nathaniel* (University of Rochester); Paige, Gary (University of Rochester)</i> | |
| 09:00-09:15 | SaA17.5 |
| Normalization Strategies for Nasal Acceleration to Assess Velopharyngeal Function | 6459-6462 |
| <i>Thorp, Elias (Boston University); Virnik, Boris (Boston University); Stepp, Cara* (Boston University)</i> | |
| 09:15-09:30 | SaA17.6 |
| Analysis of Muscle Fatigue Induced by Isometric Vibration Exercise at Varying Frequencies | 6463-6466 |
| <i>Mischi, Massimo* (Eindhoven University of Technology); Rabotti, Chiara (Eindhoven University of Technology); Cardinale, Marco (British Olympic Association)</i> | |

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| SaA19: 08:00-09:30 | Aqua 304 |
| 8.7.2 Hardware and Control Developments in Robotics I (Oral Session) | |
| Chair: Rosen, Jacob (<i>Univ. of California – Santa Cruz</i>) | |
| Co-Chair: Howard, Ayanna (<i>Georgia Inst. of Tech.</i>) | |

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| 08:00-08:15 | SaA19.1 |
| Admittance Control of an Upper Limb Exoskeleton – Reduction of Energy Exchange | 6467-6470 |
| <i>Kim, Hyunchul (University of California Santa Cruz); Miller, Levi Makaio (University of Washington); Li, Zhi (University of California, Santa Cruz); Roldan, Jay Ryan (University of California, Santa Cruz); Rosen, Jacob* (University of California – Santa Cruz)</i> | |
| 08:15-08:30 | SaA19.2 |
| Viscoelastic Model for Redundancy Resolution of the Human Arm via the Swivel Angle: Applications for Upper Limb Exoskeleton Control | 6471-6474 |
| <i>Kim, Hyunchul (University of California Santa Cruz); Roldan, Jay Ryan (University of California, Santa Cruz); Li, Zhi (University of California, Santa Cruz); Rosen, Jacob* (University of California – Santa Cruz)</i> | |
| 08:30-08:45 | SaA19.3 |
| Robots and Therapeutic Play: Evaluation of a Wireless Interface Device for Interaction with a Robot Playmate | 6475-6478 |
| <i>Roberts, Luke (University of Maryland Baltimore County); Park, Hae Won (Georgia Institute of Technology); Howard, Ayanna* (Georgia Institute of Technology)</i> | |

08:45-09:00 SaA19.4
Human Motion Analysis with Ultrasound and Sonomyography 6479-6482
*Zhou, Guangquan** (Hong Kong Polytechnic University);
Zheng, Yongping (The Hong Kong Polytechnic University)

09:00-09:15 SaA19.5
New Method for Liquid-Medication Filling Systems 6483-6486
Miyashita, Koji (Mie University); *Kanazawa, Ken'ichi* (Mie University); *Yano, Kenichi** (Mie University);
Kakuda, Masanori (Shibuya Kogyo Co., Ltd.)

09:15-09:30 SaA19.6
Independent Ankle Motion Control Improves Robotic Balance Simulator 6487-6491
*Pospasil, Eric Robert** (The University of British Columbia); *Iuu, billy Liang* (University of British Columbia);
Blouin, Jean-Sébastien (University of British Columbia); *Van der Loos, H. F. Machiel* (University of
British Columbia); *Croft, Elizabeth Anne* (University of British Columbia)

SaC02: 11:00-12:30 Sapphire D
1.10.1 Principal Component and Independent Component Analyses (Oral Session)
Chair: Vullings, Rik (*Eindhoven Univ. of Tech.*)
Co-Chair: James, Christopher (*Univ. of Warwick*)

11:00-11:15 SaC02.1
Probabilistic Source Separation for Robust Electrocardiography 6492-6495
*Vullings, Rik** (*Eindhoven University of Technology*)

11:15-11:30 SaC02.2
An Optimized DSP Implementation of Adaptive Filtering and ICA for Motion Artifact Reduction in Ambulatory ECG Monitoring 6496-6499
*Berset, Torfinn** (*Holst Centre/imec*); *Geng, Di* (*Profit*); *Romero, Iñaki* (*IMEC*)

11:30-11:45 SaC02.3
Muscle Artifact Suppression Using Independent-Component Analysis and State-Space Modeling 6500-6503
*Santillan Guzman, Alina** (*Christian-Albrechts-University of Kiel*); *Heute, Ulrich* (*University of Kiel*);
Stephani, Ulrich (*Christian-Albrechts-University of Kiel*); *Galka, Andreas* (*Christian-Albrechts-University of Kiel*)

11:45-12:00 SaC02.4
Input Interface Using Event-Related Potential P3 6504-6507
*Boutani, Hidenori** (*Osaka Institute of Technology*); *Ohsuga, Mieko* (*Osaka Institute Of Technology*)

12:00-12:15 SaC02.5
Evaluating Different Combinations of Feature Selection Algorithms and Cost Function Applied to iPCA Tuning in Myoelectric Control Systems 6508-6513
Camacho, Guillermo (*University of Brasilia, Department of MechanicalEngineering*); *Llanos, Carlos* (*University of Brasilia, Department of Mechanical Engineering*); *Berger, Pedro* (*Universidade de Brasilia*); *Miosso, Cristiano** (*University of Brasilia at Gama*); *da Rocha, Adson F.* (*University of Brasilia*)

12:15-12:30 SaC02.6
Classification of Gait Kinematics of Anterior Cruciate Ligament Reconstructed Subjects Using Principal Component Analysis and Regressions Modelling 6514-6517
Leporace, Gustavo (*Universidade Federal do Rio de Janeiro*); *Batista, Luiz Alberto* (*Universidade Estadual do Rio de Janeiro*); *Muniz, Adriane Mara de Souza* (*Physical Education College of Brazilian Army*); *Zeitoune, Gabriel* (*Universidade Estadual do Rio de Janeiro*); *Luciano, Thiago* (*Universidade Estadual do Rio de Janeiro*); *Metsavah, Leonardo* (*Instituto Brasil de Tecnologias da Saude*); *Nadal, Jurandir** (*Federal University of Rio de Janeiro*)

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| SaC03: 11:00-12:30 | Sapphire E |
| 1.6.2 Kalman Filter and Markov Model (Oral Session) | |
| Chair: Kearney, Robert Edward (<i>McGill Univ.</i>) | |
| Co-Chair: Nemati, Shamim (<i>Harvard Medical School</i>) | |

11:00-11:15 SaC03.1
A NARMAX Method for the Identification of Time-Varying Joint Stiffness 6518-6521
*Guarin, Diego Luis** (*McGill University*); *Kearney, Robert Edward* (*McGill University*)

11:15-11:30 SaC03.2
An Adaptive Kalman Filter Technique for Context-Aware Heart Rate Monitoring 6522-6525
*Xu, Min** (*Blue Highway Inc*); *Goldfain, Albert* (*Blue Highway LLC*);
DelloStritto, Jim (*Blue Highway LLC*); *Iyengar, Satish* (*Blue Highway LLC*)

11:30-11:45 SaC03.3
Discovering Shared Cardiovascular Dynamics within a Patient Cohort 6526-6529
*Nemati, Shamim** (*Harvard Medical School*); *Lehman, Li-wei* (*Harvard-MIT Division of Health Sciences & Technology*); *Adams, Ryan* (*Harvard School of Engineering and Applied Sciences*); *Malhotra, Atul* (*Brigham and Women's Hospital and Harvard Medical School*)

11:45-12:00 SaC03.4
Output Regularization of SVM Seizure Predictors: Kalman Filter versus the "Firing Power" Method 6530-6533
Teixeira, César (*University of Coimbra*); *Direito, Bruno** (*FCTUC, University of Coimbra*); *Bandarabadi, Mojtaba* (*CISUC, University of Coimbra*); *Dourado, António* (*FCTUC, University of Coimbra*)

12:00-12:15 SaC03.5
An Expectation-Maximization Algorithm Based Kalman Smoother Approach for Single-Trial Estimation of Event-Related Potentials 6534-6538
*Ting, Chee-Ming** (*Universiti Teknologi Malaysia*); *Samdin, S. Balqis* (*Universiti Teknologi Malaysia*);
Salleh, Sh-Hussain (*Universiti Teknologi Malaysia*); *Omar, M. Hafizi* (*Universiti Teknologi Malaysia*);
Kamarulafizam, I (*Universiti Teknologi Malaysia*)

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| SaC06: 11:00-12:30 | Sapphire M |
| 2.8.3 Image Feature Extraction I (Oral Session) | |
| Chair: Hamitouche, Chafiaâ (<i>Télécommunications Bretagne</i>) | |

11:00-11:15 SaC06.1
Gait Cycle Spectrogram Analysis Using a Torso-Attached Inertial Sensor 6539-6542
*Yuwono, Mitchell** (*University of Technology Sydney*); *Su, Steven Weidong* (*University of Technology, Sydney*);
moulton, Bruce (*University of Technology, Sydney*); *Nguyen, Hung T.* (*University of Technology, Sydney*)

11:15-11:30 SaC06.2
Scale Invariant Feature Transform As Feature Tracking Method in 4D Imaging: A Feasibility Study 6543-6546
*Paganelli, Chiara** (*Politecnico di Milano*); *Peroni, Marta* (*Politecnico di Milano*); *Pennati, Francesca* (*Politecnico di Milano*); *Baroni, Guido* (*Politecnico di Milano*); *Summers, Paul* (*Istituto Europeo di Oncologia*); *Bellomi, Massimo* (*Istituto Europeo di Oncologia*); *Riboldi, Marco* (*Politecnico di Milano*)

11:30-11:45 SaC06.3
Global and Local Detection of Liver Steatosis from Ultrasound 6547-6550
Ribeiro, Ricardo (*Instituto Superior Técnico, Lisboa*); *Tato Marinho, Rui* (*Faculdade de Medicina da Universidade de Lisboa*); *Sanches, J. Miguel** (*IST(NIF:501507930)*)

11:45-12:00 SaC06.4
Fourier-Based Shape Feature Extraction Technique for Computer-Aided B-Mode Ultrasound Diagnosis of Breast Tumor 6551-6554
*Lee, Jong-Ha** (*Samsung Advanced Institute of Technology*); *Seong, Yeong Kyeong* (*Samsung Advanced Institute of Technology*); *Chang, Chu-Ho* (*Samsung Advanced Institute of Technology*); *Park, Jin Man* (*Samsung Electronics*); *Park, Moon Ho* (*Samsung Electronics*); *Woo, Kyoung-Gu* (*Samsung Advanced Institute of Technology (SAIT), SamsungElectronics*); *Ko, Eun Young* (*Samsung Medical Center*)

12:00-12:15 SaC06.5
A Mesh-Based Approach for the 3D Analysis of Anatomical Structures of Interest in Radiotherapy 6555-6558
Mejia-Rodriguez, Aldo Rodrigo (Politecnico di Milano); Scalco, Elisa (Polytechnic University of Milan); Tresoldi, Daniele (Polytechnic University of Milan); Bianchi, Anna Maria (Politecnico di Milano); Arce-Santana, Edgar Roman (Facultad de Ciencias); Mendez, Martin Oswaldo (Universidad Autonoma de San Luis Potosi); Rizzo, Giovanna (National Research Council (CNR))*

12:15-12:30 SaC06.6
Automated Boundary Extraction of the Spinal Canal in MRI Based on Dynamic Programming 6559-6562
Koh, Jaehan (University at Buffalo (SUNY)); Chaudhary, Vipin (Wayne State University); dhillon, gurmeet (Proscan Imaging Buffalo)*

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| SaC07: 11:00-12:30 | Sapphire 410 |
| 3.9.1 Micro- and Nano-Technology (Oral Session) | |
| Chair: Seker, Erkin (<i>Univ. of California, Davis</i>) | |
| Co-Chair: Rao, Masaru P. (<i>Univ. of California, Riverside</i>) | |

11:00-11:15 SaC07.1
Trapping of Vesicles on Patterned Surfaces by Physisorption for Potential Biosensing Applications 6563-6567
*Bera, L.K. (Institute of Materials Research and Engineering, A*STAR (Agency for Science, Technology and Research)); Ong, Kian Soo (Institute of Materials Research and Engineering, A*STAR (Agency for Science, Technology and Research)); Wong, Zheng Zheng* (Institute of Materials Research and Engineering, A*STAR (Agency for Science, Technology and Research)); Fu, Zhikang (Institute of Materials Research and Engineering, A*STAR (Agency for Science, Technology and Research)); Nallani, Madhavan (Institute of Materials Research and Engineering, A*STAR (Agency for Science, Technology and Research)); O'Shea, Sean (Institute of Materials Research and Engineering, A*STAR (Agency for Science, Technology and Research))*

11:15-11:30 SaC07.2
Nanotopography Effects on Astrocyte Attachment to Nanoporous Gold Surfaces 6568-6571
Seker, Erkin (University of California, Davis); Kurtulus, Ozge (University of California, Davis)*

11:30-11:45 SaC07.3
Titanium-Based, Fenestrated, In-Plane Microneedles for Passive Ocular Drug Delivery 6572-6575
Khandan, Omid (University of California, Riverside); Famili, Amin (University of Colorado, Denver); Kahook, Malik Y. (University of Colorado School of Medicine, Aurora); Rao, Masaru P. (University of California, Riverside)*

11:45-12:00 SaC07.4
Feasibility of Multiplex Quantum Dot Stain Using Primary Antibodies from Four Distinct Host Animals . 6576-6579
Tran, Jonathan (Georgia Institute of Technology); Hubbard, Elena (Georgia Institute of Technology); Stokes, Todd (Georgia Institute of Technology); Moffitt, Richard A. (University of North Carolina – Chapel Hill); Wang, May D. (Georgia Tech and Emory University)*

12:00-12:15 SaC07.5
Enhanced Directionality of Bio-Hybrid Mobile Micro-Robots Using Non-Spherical Body Geometries 6580-6582
Behkam, Bahareh (Virginia Tech); Sahari, Ali (Virginia Tech); Headen, Devon (Georgia Tech)*

12:15-12:30 SaC07.6
High Performance 3-Coil Wireless Power Transfer System for the 512-Electrode Epiretinal Prosthesis 6583-6586
Zhao, Yu (California Institute of Technology); Nandra, Mandheerej (California Institute of Technology); Yu, Chia-Chen (California Institute of Technology); Tai, Yu-Chong (California Institute of Technology)*

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| SaC09: 11:00-12:30 | Sapphire 400 |
| 9.8.1 Stimulation Techniques and Devices (Oral Session) | |
| Chair: Parra, Lucas C. (<i>City Coll. of New York</i>) | |
| Co-Chair: Mohseni, Pedram (<i>Case Western Res. Univ.</i>) | |

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| 11:00-11:15 | SaC09.1 |
| Finite Element Study of Skin and Fat Delineation in an Obese Subject for Transcranial Direct Current Stimulation 6587-6590 | |
| <i>Truong, Dennis Q.* (City College of New York, City University of New York); Magerowski, Greta (Harvard Medical School); Pascual-Leone, Alvaro (Harvard Medical School); Alonso-Alonso, Miguel (Harvard Medical School); Bikson, Marom (The City College of New York)</i> | |
| 11:15-11:30 | SaC09.2 |
| Moving Coil Pressure Algometer Produces Consistent Force Gradient and Repeated Stimulation 6591-6594 | |
| <i>Adnadjevic, Djordje* (Aalborg University); Graven-Nielsen, Thomas (Center for Sensory-Motor Interaction (SMI, Aalborg University)</i> | |
| 11:30-11:45 | SaC09.3 |
| A Wirelessly Programmable Chip for Multi-Channel Neural Stimulation 6595-6599 | |
| <i>Mai, Songping* (Graduate School at Shenzhen, Tsinghua University); Wang, Zhijun (Tsinghua University); Zhang, Chun (Department of Electronic Engineering, Tsinghua University, Beijing, P. R. China, 100084); Wang, Zhihua (Tsinghua University)</i> | |
| 11:45-12:00 | SaC09.4 |
| Percutaneously Injectable Fetal Pacemaker: Electrodes, Mechanical Design and Implantation 6600-6603 | |
| <i>Zhou, Li* (University of Southern California); Chmait, Ramen (Maternal Fetal Medicine in the Keck School of Medicine, University of Southern California); Bar-Cohen, Yaniv (Pediatric Cardiology at Children's Hospital Los Angeles); Peck, Ramond (Medical Device Development Facility, Department of Biomedical Engineering, Viterbi School of Engineering, USC); Loeb, Gerald (University of Southern California)</i> | |
| 12:00-12:15 | SaC09.5 |
| Magnetic Resonance Based Noninvasive RF Nerve Stimulator 6604-6607 | |
| <i>C V, Ganesh Bharadwaj* (Nanyang Technological University); Zheng, Yuanjin (ICS Lab, Institute of Microelectronics)</i> | |
| 12:15-12:30 | SaC09.6 |
| Prefrontal Cortex transcranial Direct Current Stimulation via a Combined High Definition and Conventional Electrode Montage: A FEM Modeling Studying 6608-6611 | |
| <i>Truong, Dennis Q.* (City College of New York, City University of New York); Datta, Abhishek (The City College of the CUNY); Xu, Jiansong (Yale Medical School); Fregni, Felipe (Harvard Medical School); Bikson, Marom (The City College of New York)</i> | |

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| SaC10: 11:00-12:30 | Cobalt 500 |
| 4.5.4 Multiscale Modeling (Oral Session) | |
| Chair: Bouteiller, Jean-Marie Charles (<i>Univ. of Southern California</i>) | |
| Co-Chair: Zhan, Ming (<i>The Methodist Hospital Res. Inst.</i>) | |

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| 11:00-11:15 | SaC10.1 |
| Modeling of the Nervous System: From Modulation of Glutamatergic and Gabaergic Molecular Dynamics to Neuron Spiking Activity 6612-6615 | |
| <i>Bouteiller, Jean-Marie Charles* (University of Southern California); Legendre, Arnaud (Rhenovia Pharma); Allam, Sushmita (University of Southern California); Ambert, Nicolas (Rhenovia Pharma); Hu, Eric (University of Southern California); Greget, Renaud (Rhenovia Pharma); Keller, Anne Florence (Rhenovia Pharma); Pernot, Fabien (Rhenovia Pharma); Bischoff, Serge (Rhenovia Pharma); Baudry, Michel (Dean, Graduate College of Biomedical Sciences, Western University of Health Sciences, Pomona, CA); Berger, Theodore (University of Southern California)</i> | |
| 11:15-11:30 | SaC10.2 |
| Integrating Degenerative Mechanisms in Bone and Cartilage: A Multiscale Approach 6616-6619 | |
| <i>Fernandez, Justin* (The University of Auckland); Shim, Vickie (University of Auckland, New Zealand); Hunter, Peter (University of Auckland)</i> | |

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| 11:45-12:00 | SaC10.4 |
| A Computational Multiscale Model of Glioblastoma Growth: Regulation of Cell Migration and Proliferation Via microRNA-451, LKB1 and AMPK | 6620-6623 |
| <i>Schuetz, Tina Anne* (University of Luebeck); Becker, Stefan (University of Luebeck); Mang, Andreas (University of Luebeck); Toma, Alina (University of Luebeck); Buzug, Thorsten M. (University of Luebeck)</i> | |
| 12:00-12:15 | SaC10.5 |
| A Program Code Generator for Multiphysics Biological Simulation Using Markup Languages | 6624-6627 |
| <i>Amano, Akira* (Ritsumeikan University); Kawabata, Masanari (Ritsumeikan University); Yamashita, Yoshiharu (Ritsumeikan University); Punzalan, Florencio (Ritsumeikan University); Shimayoshi, Takao (ASTEM Research Institute of Kyoto); Kuwabara, Hiroaki (Ritsumeikan University); Kunieda, Yoshitoshi (Ritsumeikan University, Department of Informatics)</i> | |
| 12:15-12:30 | SaC10.6 |
| An Architecture for Integrating Cancer Model Repositories | 6628-6631 |
| <i>Sfakianakis, Stelios (Foundation for Research and Technology Hellas); Sakkalis, Vangelis* (ICS-FORTH); Marias, Kostas (Foundation for Res. & Tech. Hellas); Stamatakos, Georgios (National Technical University of Athens); McKeever, Steve (University of Oxford); Deisboeck, Thomas (Harvard-MIT (HST) Athinoula A. Martinos Center for Biomedical Imaging, Massachusetts General Hospital); Graf, Norbert (University Hospital of the Saarland)</i> | |
| SaC12: 11:00-12:30 | Cobolt 520 |
| 5.1.1 Heart Valves (Oral Session) | |
| Chair: Sprouse, Chad (<i>Johns Hopkins Univ.</i>) | |
| Co-Chair: Shah, Sameer (<i>UCSD</i>) | |
| 11:00-11:15 | SaC12.1 |
| Valvular Closure Prediction Using Anisotropic and Hyperelastic Tissue Models and Individualized Anatomy Derived from RT3DE | 6632-6635 |
| <i>Sprouse, Chad (Johns Hopkins University); Mukherjee, Ryan (Johns Hopkins University); Burlina, Philippe* (Johns Hopkins University)</i> | |
| 11:15-11:30 | SaC12.2 |
| A Personalized Mitral Valve Closure Simulator | 6636-6640 |
| <i>Burlina, Philippe* (Johns Hopkins University); Mukherjee, Ryan (Johns Hopkins University); Sprouse, Chad (Johns Hopkins University)</i> | |
| 11:30-11:45 | SaC12.3 |
| In Vitro Characterization of an Aortic Bioprosthetic Valve Using Doppler Echocardiography and Qualitative Flow Visualization | 6641-6644 |
| <i>Dellimore, Kiran (Stellenbosch University); Kemp, Iain (Stellenbosch University); Rodriguez, Reynaldo (Stellenbosch University); Scheffer, Cornie* (Stellenbosch University)</i> | |
| 11:45-12:00 | SaC12.4 |
| Virtual Experiments of Heart Valve Tissues | 6645-6648 |
| <i>Huang, Siyao (North Carolina State University); Huang, Hsiao-Ying Shadow* (North Carolina State University)</i> | |
| 12:00-12:15 | SaC12.5 |
| Examination of Mitral Regurgitation with a Goat Heart Model for the Development of Intelligent Artificial Papillary Muscle | 6649-6652 |
| <i>Shiraishi, Yasuyuki* (Tohoku University)</i> | |
| 12:15-12:30 | SaC12.6 |
| Real-Time Strain Mapping Via Biaxial Stretching in Heart Valve Tissues | 6653-6656 |
| <i>Huang, Hsiao-Ying Shadow* (North Carolina State University); Huang, Siyao (North Carolina State University)</i> | |

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| SaC13: 11:00-12:30 | Indigo 206 |
| 5.5.1 Cardiopulmonary Modeling (Oral Session) | |
| Chair: Tawhai, Merryn (<i>The Univ. of Auckland</i>) | |
| Co-Chair: Diekman, Casey (<i>The Ohio State Univ.</i>) | |

11:00-11:15 SaC13.1
Ventilatory and Cardiac Responses to Pulmonary Embolism: Consequences for Gas Exchange and Blood Pressure 6657-6660
*Clark, Alys** (*The University of Auckland*); *Bajaj, Mohit* (*University of Auckland*); *Wilsher, Margaret* (*Auckland District Health Board*); *Milne, David* (*Auckland District Health Board*); *Tawhai, Merryn* (*The University of Auckland*)

11:15-11:30 SaC13.2
Assessment of Hemodynamic Load Components Affecting Optimization of Cardiac Resynchronization Therapy by Lumped Parameter Model 6661-6664
*Xu, Ke** (*Macquarie University*); *Butlin, Mark* (*Macquarie University*); *Avolio, Alberto P* (*Macquarie University*)

11:30-11:45 SaC13.3
A Feedback Control Framework for Personalization of Coronary Flow Simulations During Rest and Hyperemia 6665-6668
*Sharma, Puneet** (*Siemens Corporation, Corporate Research and Technology*); *Itu, Lucian* (*Transilvania University of Brasov*); *Zheng, Xudong* (*Siemens Corporation, Corporate Research and Technology*); *Kamen, Ali* (*Siemens Corporation, Corporate Research and Technology*); *Suciu, Constantin* (*Siemens Corporate Technology*); *Comaniciu, Dorin* (*Siemens Corporate Research*)

11:45-12:00 SaC13.4
Spontaneous Autoresuscitation in a Model of Respiratory Control 6669-6672
*Diekman, Casey** (*The Ohio State University*); *Wilson, Christopher* (*Case Western Reserve University*); *Thomas, Peter* (*Case Western Reserve University*)

12:00-12:15 SaC13.5
Simulation of the Fontan Circulation During Rest and Exercise 6673-6676
*Koeken, Yvette** (*Maastricht University*); *Arts, Theo* (*Maastricht University*); *Delhaas, Tammo* (*Maastricht University*)

12:15-12:30 SaC13.6
Effect of Saccular Aneurysm and Parent Artery Morphology on Hemodynamics of Cerebral Bifurcation Aneurysms 6677-6680
*Farnoush, Azadeh** (*Macquarie University*); *Qian, Yi* (*Macquarie University*); *Avolio, Alberto P* (*Macquarie University*); *Takao, Hiroyuki* (*Jikei University School of Medicine*); *Murayama, Yuichi* (*Jikei University School of Medicine*)

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| SaC14: 11:00-12:30 | Aqua 308 |
| 10.1.4 Personal Health Systems II (Oral Session) | |
| Chair: Poon, Carmen CY (<i>The Chinese Univ. of Hong Kong</i>) | |
| Co-Chair: Khraiche, Massoud (<i>Univ. of California, San Diego</i>) | |

11:00-11:15 SaC14.1
Detecting Stumbles with a Single Accelerometer 6681-6686
*Hajj Chehade, Nabil** (*UCLA*); *Ozsisik, Ayse Pinar* (*Brandeis University*); *Gomez, James* (*UCLA Center For Embedded Networked Sensing*); *Ramos, Fabio* (*University of Sydney*); *Pottie, Greg* (*UCLA EE Department*)

11:15-11:30 SaC14.2
Sensors Architectural Tradeoff for Diabetic Foot Ulcer Monitoring 6687-6690
Ostadabbas, Sarah (*University of Texas at Dallas*); *Saeed, Adnan* (*University of Texas at Dallas*); *Nourani, Mehrdad** (*University of Texas at Dallas*); *Pompeo, Matthew* (*Presbyterian Wound Care Clinic*)

11:30-11:45 SaC14.3
On the Deconvolution Analysis of Electrodermal Activity in Bipolar Patients 6691-6694
Greco, Alberto (*University of Pisa*); *Lanata', Antonio* (*University of Pisa*); *Valenza, Gaetano** (*University of Pisa*); *Rota, Giuseppina* (*University of Pisa*); *Vanello, Nicola* (*University of Pisa*); *Scilingo, Enzo Pasquale* (*University of Pisa*)

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| 11:45-12:00 | SaC14.4 |
| Vital Analysis: Annotating Sensed Physiological Signals with the Stress Levels of First Responders in Action | 6695-6698 |
| <i>Gomes, Pedro Tiago* (Faculdade de Ciências da Universidade do Porto, Portugal); Kaiseler, Mariana (Instituto de Telecomunicações / Universidade do Porto); Queirós, Cristina (Laboratório de Reabilitação Psicossocial from FPCEUP/ESTSIPP); Oliveira, Mónica (Laboratório de Reabilitação Psicossocial from FPCEUP/ESTSIPP); Lopes, Bruno (Instituto de Telecomunicações / Universidade do Porto); Coimbra, Miguel (Instituto de Telecomunicações / Universidade do Porto)</i> | |
| 12:00-12:15 | SaC14.5 |
| Limb Joint Effects on Signal Transmission in Capacitive Coupled Intra-Body Communication Systems | 6699-6702 |
| <i>Seyedi, MirHojjat* (Victoria University); Lai, Tze Huei, Daniel (Victoria University); Faulkner, Michael (Victoria University)</i> | |
| 12:15-12:30 | SaC14.6 |
| Instantaneous Heart Rate Detection Using Short-Time Autocorrelation for Wearable Healthcare Systems | 6703-6706 |
| <i>Nakano, Masanao* (Kobe University); Konishi, Toshihiro (Kobe University); Izumi, Shintaro (Kobe University); Kawaguchi, Hiroshi (Kobe University); Yoshimoto, Masahiko (Kobe University)</i> | |
| SaC15: 11:00-12:30 | Sapphire P |
| 6.2.6 Brain-Machine Interface – VI (Oral Session) | |
| Chair: Slutzky, Marc (<i>Northwestern Univ.</i>) | |
| Co-Chair: Lin, Chin-Teng (<i>National Chiao-Tung Univ.</i>) | |
| 11:00-11:15 | SaC15.1 |
| Exploring the Use of Tactile Feedback in an ERP-Based Auditory BCI | 6707-6710 |
| <i>Schreuder, Martijn* (Berlin Institute of Technology); Thurlings, Marieke (TNO & Utrecht University); Brouwer, Anne-Marie (TNO); van Erp, Jan (TNO); Tangemann, Michael (Berlin Institute of Technology)</i> | |
| 11:15-11:30 | SaC15.2 |
| Learning to Modulate Sensorimotor Rhythms with Stereo Auditory Feedback for a Brain-Computer Interface | 6711-6714 |
| <i>McCreadie, Karl* (University of Ulster, Magee); Coyle, Damien (University of Ulster); Prasad, Girijesh (University of Ulster)</i> | |
| 11:30-11:45 | SaC15.3 |
| Simultaneous Brain-Computer Interfacing and Motor Control: Expanding the Reach of Non-Invasive BCIs | 6715-6718 |
| <i>Cheung, Willy (University of Washington); Sarma, Devapratim* (University of Washington); Scherer, Reinhold (Graz University of Technology); Rao, Rajesh PN (University of Washington)</i> | |
| 11:45-12:00 | SaC15.4 |
| Control of a Biomimetic Brain Machine Interface with Local Field Potentials: Performance and Stability of a Static Decoder Over 200 Days | 6719-6722 |
| <i>Flint, Robert (Northwestern University); Wright, Zachary (Northwestern University); Slutzky, Marc* (Northwestern University)</i> | |
| 12:00-12:15 | SaC15.5 |
| Anticipation and Error-Related EEG Signals During Realistic Human-Machine Interaction: A Study on Visual and Tactile Feedback | 6723-6726 |
| <i>Chavarriaga, Ricardo* (Ecole Polytechnique Federale de Lausanne); Perrin, Xavier (ETH Zurich); Siegart, Roland (ETH Zurich); Millán, José del R. (Swiss Federal Institute of Technology, Lausanne)</i> | |
| 12:15-12:30 | SaC15.6 |
| Control of a Simulated Wheelchair Based on a Hybrid Brain Computer Interface | 6727-6730 |
| <i>Long, Jinyi (South China University of Technology, Chinese); Li, Yuanqing* (South China University of Technology); Wang, Hongtao (South China University of Technology); Yu, Tianyou (South China University of Technology, Chinese); Pan, Jiahui (South China University of Technology)</i> | |

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| SaC16: 11:00-12:30 | Sapphire L |
| 6.12.1 Brain Functional Imaging – EEG/MEG (Oral Session) | |
| Chair: Purdon, Patrick L (<i>Massachusetts General Hospital</i>) | |
| Co-Chair: Makeig, Scott (<i>Univ. of California San Diego</i>) | |

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| 11:00-11:15 | SaC16.1 |
| A Beamforming Approach to Phase-Amplitude Modulation Analysis of Multi-Channel EEG | 6731-6734 |
| <i>Sampson, Aaron* (Massachusetts General Hospital); Babadi, Behtash (Massachusetts General Hospital); Prerau, Michael (Massachusetts General Hospital); Mukamel, Eran A (University of California, San Diego); Brown, Emery N (MGH-Harvard Medical School-MIT); Purdon, Patrick L (Massachusetts General Hospital)</i> | |
| 11:15-11:30 | SaC16.2 |
| Stability of ICA Decomposition across Within-Subject EEG Datasets | 6735-6739 |
| <i>Grandchamp, Romain (Brain and Cognition Research Center (CerCo), Paul Sabatier University, Toulouse, France); Braboszcz, Claire (Brain and Cognition Research Center (CerCo), Paul Sabatier University, Toulouse, France); Makeig, Scott (University of California San Diego); Delorme, Arnaud* (UCSD)</i> | |
| 11:30-11:45 | SaC16.3 |
| Improve the Performance of Error Monitoring by Brain Connectivity Features | 6740-6743 |
| <i>Zhang, Huaijian* (École Polytechnique Fédérale de Lausanne); Chavarriga, Ricardo (Ecole Polytechnique Federale de Lausanne); Goel, Mohit Kumar (EPFL); Gheorghe, Lucian (Nissan Motor Co., Japan); Millán, José del R. (Swiss Federal Institute of Technology, Lausanne)</i> | |
| 11:45-12:00 | SaC16.4 |
| Evaluations of Sparse Source Imaging and Minimum Norm Estimate Methods in Both Simulation and Clinical MEG Data | 6744-6747 |
| <i>Zhu, Min* (University of Oklahoma); Zhang, Wenbo (Minnesota Epilepsy Group); Dickens, Deanna (Minnesota Epilepsy Group); Ding, Lei (University of Oklahoma)</i> | |
| 12:00-12:15 | SaC16.5 |
| A Fast Iterative Greedy Algorithm for MEG Source Localization | 6748-6751 |
| <i>Obregon-Henao, Gabriel* (Massachusetts General Hospital); Babadi, Behtash (Massachusetts General Hospital); Lamus, Camilo (Massachusetts Institute of Technology); Brown, Emery N (MGH-Harvard Medical School-MIT); Purdon, Patrick L (Massachusetts General Hospital)</i> | |
| 12:15-12:30 | SaC16.6 |
| A Spatially-Regularized Dynamic Source Localization Algorithm for EEG | 6752-6755 |
| <i>Pirondini, Elvira* (SV-EPFL/MGH/MIT); Babadi, Behtash (Massachusetts General Hospital); Lamus, Camilo (Massachusetts Institute of Technology); Brown, Emery N (MGH-Harvard Medical School-MIT); Purdon, Patrick L (Massachusetts General Hospital)</i> | |

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| SaC17: 11:00-12:30 | Sapphire H |
| 6.13.4 Human Performance II (Oral Session) | |
| Chair: Tong, Shanbao (<i>Shanghai Jiao Tong Univ.</i>) | |
| Co-Chair: Tan, Jindong (<i>Michigan Tech. Univ.</i>) | |

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| 11:00-11:15 | SaC17.1 |
| Electrodermal Response Propagation Time as a Potential Psychophysiological Marker | 6756-6759 |
| <i>Plácido da Silva, Hugo* (IST – Instituto Superior Técnico); Fred, Ana (IT – Instituto de Telecomunicações); Lourenço, André (Instituto Superior de Engenharia de Lisboa)</i> | |
| 11:15-11:30 | SaC17.2 |
| A Fast Adaptive-Gain Orientation Filter of Inertial/Magnetic Data for Human Motion Tracking in Free-Living Environments | 6760-6763 |
| <i>Tian, Ya* (The University of Tennessee); Tan, Jindong (University of Tennessee, Knoxville)</i> | |
| 11:30-11:45 | SaC17.3 |
| Exercise Training Plus Calorie Restriction Causes Synergistic Protection against Cognitive Decline Via Up-Regulation of BDNF in Hippocampus of Stroke-Prone Hypertensive Rats | 6764-6767 |
| <i>Kishi, Takuya* (Kyushu University Graduate School of Medical sciences); Sunagawa, Kenji (Kyushu University)</i> | |

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| 11:45-12:00 | | SaC17.4 |
| The Effect of Aging on Human Brain Spatial Processing Performance | | 6768-6771 |
| <i>Samadani, Ali-Akbar* (University of Waterloo); Moussavi, Zahra (University of Manitoba)</i> | | |
| 12:00-12:15 | | SaC17.5 |
| A Wearable Walking Monitoring System for Gait Analysis | | 6772-6775 |
| <i>Hsieh, Tsung-Han (National Taiwan University); Tsai, An-Chih (National Taiwan University); Chang, Cha-Wei (National Taiwan University); Ho, Ka-Hou (National Taiwan University); Hsu, Wei-Li (National Taiwan University); Lin, Ta-Te* (National Taiwan University)</i> | | |
| 12:15-12:30 | | SaC17.6 |
| Delayed Attentional Disengagement from Sad Face: A Study of Alpha Rhythm by Event-Related Desynchronization | | 6776-6779 |
| <i>Chen, Shan (Shanghai Jiao Tong University); Sun, Junfeng* (Shanghai Jiao Tong University); Tong, Shanbao (Shanghai Jiao Tong University)</i> | | |
| SaC19: 11:00-12:30 | | Aqua 304 |
| 8.9.1 Human Movement Analysis I (Oral Session) | | |
| Chair: Dubey, Rajiv (<i>Univ. of South Florida</i>) | | |
| Co-Chair: de Vlugt, Erwin (<i>Delft University of Technology</i>) | | |
| 11:00-11:15 | | SaC19.1 |
| Multi-Constrained Inverse Kinematics for the Human Hand | | 6780-6784 |
| <i>Samadani, Ali-Akbar* (University of Waterloo); Kulic, Dana (University of Waterloo); Gorbet, Rob (University of Waterloo)</i> | | |
| 11:15-11:30 | | SaC19.2 |
| Transfer of Learning between the Arms During Bimanual Reaching | | 6785-6788 |
| <i>Harley, Linda Rosemary* (Georgia Tech Research Institute); Prilutsky, Boris (School of Applied Physiology at Georgia Institute of Technology)</i> | | |
| 11:30-11:45 | | SaC19.3 |
| Probability Density-Based Gradient Projection Method for Inverse Kinematics of a Robotic Human Body Model | | 6789-6792 |
| <i>Lura, Derek* (University of South Florida); Wernke, Matthew (University of South Florida); Alqasemi, Redwan (University of South Florida); Carey, Stephanie (University of South Florida); Dubey, Rajiv (University of South Florida)</i> | | |
| 11:45-12:00 | | SaC19.4 |
| Lower Limb Movement Asymmetry Measurement with a Depth Camera | | 6793-6796 |
| <i>Auvinet, Edouard* (Université de Montréal); Multon, Franck (M2S – Université de Rennes 2); Meunier, Jean (Universite de Montreal)</i> | | |
| 12:00-12:15 | | SaC19.5 |
| Predicting the Initiation of Minimum-Jerk Submovements in Three-Dimensional Target-Oriented Human Arm Trajectories | | 6797-6800 |
| <i>Liao, James* (Case Western Reserve University); Kirsch, Robert (Case Western Reserve University)</i> | | |
| 12:15-12:30 | | SaC19.6 |
| The Impingement-Dislocation Risk of Total Hip Replacement: Effects of Cup Orientation and Patient Maneuvers | | 6801-6804 |
| <i>Ghaffari, Mahsa (RCBRT, Tehran University of Medical Sciences); Nickmanesh, Reza (Sharif University of Technology); Tamannaee, Neda (Sharif University of Technology); Farahmand, Farzam* (Sharif University of Technology)</i> | | |