Program in Chronological Order

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

Wednesday, 29 August 2012

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

WeA02: 08:00-09:30 Sapphire D

1.3.1 Nonlinear Analysis of Biomedical Signals I (Oral Session)

Chair: Marmarelis, Vasilis *(Univ. of Southern California)*

Co-Chair: Mitsis, Georgios D. *(Univ. of Cyprus)*

WeA03: 08:00-09:30 Sapphire E

1.4.6 Signal Pattern Classification (Oral Session)

Chair: Fotiadis, Dimitrios I. *(Univ. of Ioannina)*

Co-Chair: Tong, Shanbao *(Shanghai Jiao Tong Univ.)*

WeA04: 08:00-09:30 Sapphire 412
2.1.1 MRI I: Flow and Diffusion (Oral Session)
Chair: Amini, Amir *(Univ. of Louisville)*
Co-Chair: All, Angelo *(Johns Hopkins Univ.)*

WeA06: 08:00-09:30 Sapphire M
2.6.2 Image Improvement I (Oral Session)
Chair: Alirezaie, Javad *(Ryerson Univ. Univ. of Waterloo)*
Co-Chair: Carmichael, Owen *(Univ. of California, Davis)*

WeA07: 08:00-09:30 Sapphire 410
3.1.6 Electrical Bioimpedance (Oral Session)
Chair: Martinsen, Ørjan G *(Univ. of Oslo)*
Co-Chair: Seoane, Fernando *(Univ. of Borås)*

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: Dabling, Jeff *(Sandia National Lab.)*

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.)*

WeA10: 08:00-09:30 Cobalt 500
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Chair: Liang, Jie *(Univ. of Illinois at Chicago)*
Co-Chair: Zhang, Henggui *(Univ. of Manchester)*

WeA12: 08:00-09:30 Aqua 306A
5.2.1 Hemodynamic Monitoring (Oral Session)
Chair: Hahn, Jin-Oh *(Univ. of Alberta)*
Co-Chair: Sugo, Yoshihiro *(NIHON KOHDEN)*

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10.5.5 Fall Detection (Oral Session)
Chair: Popescu, Mihail *(Univ. of Missouri)*
Co-Chair: Tamura, Toshiyo *(Osaka Electro-comminication Univ.)*

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Chair: Istepanian, Robert *(Kingston Univ. London)*

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)*

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.)*

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)*

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1.10.3 Principal Component and Independent Component Analysis (Poster Session)

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

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09:30-11:00 WeB03.2
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Sato, Tetsuo (Nara Inst of Science & Tech)*

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Xu, Tao (University of Alberta); Mandal, Mrinal (University of Alberta)*

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WeB07: 09:30-11:00 Indigo Ballroom
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3.3.1 Advances in Sensing Technologies (Poster Session)

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09:30-11:00 WeB15.11
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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)*

09:30-11:00 WeB19.3
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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)*

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09:30-11:00 WeB19.5
Smooth Path Planning for a Biologically-Inspired Neurosurgical Probe 920-923
Bano, Sophia (Queen Mary, University of London); Ko, Seong Young (Chonnam National University); Rodriguez y Baena, Ferdinando (Imperial College London)*

09:30-11:00 WeB19.6
Real Time Simulation of Grasping Procedure of Large Internal Organs During Laparoscopic Surgery 924-927
Dehghani Ashkezari, Hossein (Sharif University of Technology); Farahmand, Farzam (Sharif University of Technology); Behzadipour, Saeed (Sharif University of Technology); Firoozbahksh, Keikhosrow (Sharif University of Technology)*

09:30-11:00 WeB19.7
Tracking and Position Control of an MRI-Powered Needle-Insertion Robot 928-931
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)*

WeB20: 09:30-11:00 Indigo Ballroom
8.7.1 New Technologies and Methodologies in Medical Robotics (Poster Session)

09:30-11:00 WeB20.1
A New Evaluation and Training System for Micro-Telemanipulation at the Middle Ear 932-935
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)*

09:30-11:00 WeB20.2
Difference of Perceiving Object Softness During Palpation through Single-Node and Multi-Node Contacts 936-939
Widmer, Antoine (University of Calgary); Hu, Yaoping (The University of Calgary)*

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

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

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.)*

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

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)*

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

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); Vigueras-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)*

13:45-14:00 WeC07.2
Development and Preliminary Evaluation of an Intraoral Tongue Drive System 1157-1160
Park, Hangue (Georgia Tech); Kim, Jeonghee (Georgia Institute of Techonology); Ghovanloo, Maysam (Georgia Institute of Technology)*

14:00-14:15 WeC07.3
A Neonatal Thorax Phantom for Contact-Less Magnetic Induction Vitalparameter Monitoring 1161-1164
Cordes, Axel (RWTH Aachen); Nils, Conzelmann (Chair for Medical Information Technology); Leonhardt, Steffen (RWTH Aachen University)*

14:15-14:30 WeC07.4
Evolutionary Coil Design for Maximally Uniform Magnetic Fields 1165-1168
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)*

14:30-14:45 WeC07.5
A Novel Magnetic Plethysmograph for Non-Invasive Evaluation of Arterial Compliance 1169-1172
Chandrasekhar, Anand (Indian Institute of Technology Madras); Joseph, Jayaraj (Indian Institute of Technology); Sivaprakasam, Mohanasankar (Indian Institute of Technology Madras)*

14:45-15:00 WeC07.6
Study on Technology of High-Frequency Pulsed Magnetic Field Strength Measurement 1173-1176
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)*

WeC08: 13:30-15:00 — Sapphire 411

9.3.4 Physiological Sensing (Oral Session)
Chair: Splinter, Robert *(Valencell, Inc)*
Co-Chair: LeBoeuf, Steven *(Valencell, Inc.)*

13:30-13:45 WeC08.1
Atrial Fibrillation Detection Using a Smart Phone 1177-1180
Lee, Jinseok (Worcester Polytechnic Institute); Reyes, Bersaín Alexander (Worcester Polytechnic Institute); McManus, David (University of Massachusetts Medical Center); Chon, Ki (Worcester Polytechnic Institute)*

13:45-14:00 WeC08.2
High-Efficiency Diffuse Raman Spectroscopy through a Fiber Bundle 1181-1183
Matthews, Thomas (Duke University); Wax, Adam (Duke University)*

14:00-14:15 WeC08.3
On Optical Imaging of Tissue: Aspects of Photo-Acoustic Femtosecond Spectroscopy ..... *
Parigger, Christian (The University of Tennessee Space Institute); Johnson, Jacqueline A. (The University of Tennessee Space Institute)*

14:15-14:30 WeC08.4
Custom Visible to Infrared, Multi-Wavelength Light Emitters for Pulse Oximeter Applications 1184-1187
LeBoeuf, Steven (Valencell, Inc.); Zhang, Hongguo (NC State University)*

WeC09: 13:30-15:00 — Sapphire 400

9.1.1 Clinical Engineering and Rehabilitation (Oral Session)
Chair: Pavel, Michael *(Oregon Health and Science Univ.)*
Co-Chair: Agrawal, Sunil *(Univ. of Delaware)*

13:30-13:45 WeC09.1
Accuracy and Robustness of Kinect Pose Estimation in the Context of Coaching of Elderly Population ... 1188-1193
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)*

WeC10: 13:30-15:00 Cobalt 500
4.5.2 Models of Physiological Systems (Oral Session)
Chair: Sarma, Sridevi V. *(Johns Hopkins Univ.)*

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 Politecnica 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)*

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

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 *(Slovak Univ. of Tech. Fac. of Electrical Eng.)*
Co-Chair: Saldivar, Enrique *(West Wireless Health Inst.)*

WeC15: 13:30-15:00 Sapphire P
6.10.1 Neural Decoding: New Paradigms and Open Challenges (Oral Session)
Chair: Chen, Zhe *(Harvard Medical School/MIT)*
Co-Chair: Mollazadeh, Mohsen *(Johns Hopkins Univ.)*

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

13:30-13:45 WeC16.1
A Bionic Neural Link for Peripheral Nerve Repair 1335-1338
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)*

13:45-14:00 WeC16.2
Evaluation of volitional control of hand with vertical force assist device for high tetraplegia 1339-1341
Solanki, Swarna (Case Western Reserve University); Kirsch, Robert (Case Western Reserve University)*

14:00-14:15 WeC16.3
A Comparison between Force and Position Control Strategies in Myoelectric Prostheses 1342-1345
Ameri, Ali (University of New Brunswick); Englehart, Kevin (University of New Brunswick); Parker, Philip (University of New Brunswick)*

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
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)*

14:30-14:45 WeC16.5
Implantable Multichannel Wireless Electromyography for Prosthesis Control 1350-1353
McDonnall, Daniel (Ripple LLC); Hiatt, Scott (Ripple LLC); Smith, Christopher Farand (Ripple, LLC.); Guillory, Kenneth Shane (Ripple LLC)*

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

13:30-13:45 WeC17.1
A Computational Model of Mild Traumatic Brain Injury 1354-1357
Menon, Jayant (University of California, San Diego); Gupta, Vikram (University of California, San Diego); Aravamudhan, Renga (University of California, San Diego)*

13:45-14:00 WeC17.2
Implementation of Topographically Constrained Connectivity for a Large-Scale Biologically Realistic Model of the Hippocampus 1358-1361
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)*

14:00-14:15 WeC17.3
Synaptic Dynamics: Linear Model and Adaptation Algorithm 1362-1365
Yousefi, Ali (University of Southern California); Dibazar, Alireza (University of Southern Claifornia); Berger, Theodore (University of Southern California)*

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
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)*

13:45-14:00 WeC19.2
Swept Source Optical Coherence Tomography based Smart Handheld Vitreoretinal Microsurgical Tool for Tremor Suppression 1405-1408
Song, Cheol (Johns Hopkins University); Gehlbach, Peter (Johns Hopkins Medical Institute); Kang, Jin U. (Johns Hopkins University)*

14:00-14:15 WeC19.3
Comparative Evaluation of Monocular Augmented-Reality Display for Surgical Microscopes 1409-1412
Rodriguez Palma, Santiago (University of Valladolid); Becker, Brian C. (Carnegie Mellon University); Riviere, Cameron N (Carnegie Mellon University)*

14:15-14:30 WeC19.4
Towards Localizing on the Surface of the Beating Heart 1413-1416
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)*

14:30-14:45 WeC19.5
The kinematic architecture of the Active Headframe: a new head support for awake brain surgery 1417-1421
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)*

14:45-15:00 WeC19.6
Handheld Micromanipulator for Robot-Assisted Stapes Footplate Surgery 1422-1425
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)*

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

15:00-16:30 WeD01.1
An Ensembling Approach for Optic Cup Detection Based on Spatial Heuristic Reliability in Retinal Fundus Images 1426-1429
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)*

15:00-16:30 WeD01.2
Efficient Optic Cup Localization Using Regional Propagation Based on Retinal Structure Priors 1430-1433
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)*

15:00-16:30 WeD01.3
Measurement of Retinal Arteriolar Diameters from Auto Scale Phase Congruency with Fuzzy Weighting and L1 Regularization 1434-1437
Nasehi Tehrani, Joubin (The University of Sydney); yan, Hong (Department of Electronic Engineering, City University ofHong Kong); zhu, meidong (Sydney Eye Hospital Campus, University of Sydney); Jin, Craig (The University of Sydney); McEwan, Alistair (The University of Sydney)*

15:00-16:30 WeD01.4
Computer-Aided Diagnosis of Proliferative Diabetic Retinopathy 1438-1441
Oloumi, Faraz (University of Calgary); Rangayyan, Raj (University of Calgary); Ells, Anna L. (Division of Ophthalmology, Department of Surgery, Alberta Children's Hospital)*

WeD02: 15:00-16:30 Indigo Ballroom
2.3.7 Optical Imaging Posters I (Oral Session)

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

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

15:00-16:30 WeD06.1
High Precision Semi-Automated Vertebral Height Measurement Using Computed Tomography: A Phantom Study 1554-1557
Tan, Sovira (NIH); Yao, Jianhua (National Institutes of Health); Yao, Lawrence (NIH); Ward, Michael (NIH)*

15:00-16:30 WeD06.2
GPU Acceleration of Optical Mapping Algorithm for Cardiac Electrophysiology 1558-1561
Meng, Pingfan (University of California, San Diego); Kastner, Ryan (University of California, San Diego); Irturk, Ali (University of California, San Diego)*

15:00-16:30 WeD06.4
Detection of Quiescent Phases in Echocardiography Data Using Non-Linear Filtering and Boundary Detection 1562-1565
Ravichandran, Lakshminarayan (Emory University, School of Medicine); Wick, Carson (Georgia Institute of Technology); Tridandapani, Srini (Emory University)*

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
Anderson, Alexander, John (Auckland Bioengineering Institute, University of Auckland); Nielsen, Poul (The University of Auckland); Taberner, Andrew (The University of Auckland)*

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

15:00-16:30 WeD07.1
Novel Method for Quantitative Assessment of Physical Workload of Healthcare Workers by a Tetherless Ergonomics Workstation 1570-1573
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)*

15:00-16:30 WeD07.2
Towards Minimally Invasive Monitoring for Gastroenterology – An External Squamocolumnar Junction Locator 1574-1577
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)*

15:00-16:30 WeD07.3
On the Use of Evoked Potentials for Quantification of Pain 1578-1581
Ribeiro de Pádua, Machado, Alessandro (Federal University of Uberlandia); Moraes, Oliveira, Iraides (Federal University of Uberlandia); Andrade, Adriano (Federal University of Ubelandia); Pereira, Adriano A. (Federal University of Uberlândia); Conte, Granado, Talita (Federal University of Uberlandia); Gonçalves da Silva, Chagas, Vitoria (Federal University of Uberlandia)*

15:00-16:30 WeD07.4
Investigation of Voltage Source Design's for Electrical Impedance Mammography (EIM) Systems 1582-1585
Qureshi, Tabassum Ur Razaq (University of Sussex); Chatwin, Chris R (University of Sussex); Zhou, Zhou (NationalUniversity of Defense Technology); Li, Nan (University of Sussex); Wang, Wei (University of Sussex)*

15:00-16:30 WeD07.5
Activity Recognition in Planetary Navigation Field Tests Using Classification Algorithms Applied to Accelerometer Data 1586-1589
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)*

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

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

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

WeD11: 15:00-16:30 Indigo Ballroom
6.2.7 Brain-Machine Interface Posters I (Oral Session)

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

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

WeD15: 15:00-16:30 Indigo Ballroom
6.3.4 Motor Neuroprostheses Posters II (Oral Session)

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); Wojtusch, Janis Nikolas Harald (Technische Universität Darmstadt); Beckerle, Philipp (Technische Universität Darmstadt, InstituteforMechatronicSystems 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)

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

WeD21: 15:00-16:30 Indigo Ballroom
9.2.4 Patient Monitoring Devices and Systems III (Oral Session)

WeD22: 15:00-16:30 Indigo Ballroom
9.2.5 Diagnostic and Therapeutic Devices (Oral Session)

WeD23: 15:00-16:30 Indigo Ballroom
10.1.1 Personal Health Systems (Oral Session)

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

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

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

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 *(Pol. di Milano)*
Co-Chair: Yamamoto, Yoshiharu *(The Univ. of Tokyo)*

WeE03: 16:30-18:00 Sapphire E
1.4.2 Biomedical Signal Classification II (Oral Session)
Chair: Cerutti, Sergio *(Pol. di Milano)*
Co-Chair: Yana, Kazuo *(Hosei Univ.)*

WeE04: 16:30-18:00 Sapphire 412
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 Gnocchi ONLUS – IRCCS S. Maria Nascente, Milano); Westin, Carl-Fredrik (Brigham and Women's Hosptial, 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)*

WeE05: 16:30-18:00 Sapphire I
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)*

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
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)*

17:15-17:30 WeE05.4
Source Effects in SWIPE: Shear-Wave-Assisted Ultrasound Imaging 2314-2317
McAleavey, Stephen (University of Rochester)*

17:30-17:45 WeE05.5
Volumetric Ultrasound and Computer-Assisted Analysis at the Point-Of-Care: A Musculoskeletal Exemplar 2318-2322
Mills, David (GE Global Research); Cao, Kunlin (GE Global Research); Thiele, Ralf (University of Rochester Medical Center); Patwardhan, Kedar (GE Global Research)*

17:45-18:00 WeE05.6
Multi-Push (MP) Acoustic Radiation Force (ARF) Ultrasound for Assessing Tissue Viscoelasticity, in Vivo 2323-2326
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)*

WeE06: 16:30-18:00 — Sapphire M

2.7.5 Image Segmentation I (Oral Session)
Chair: Dillenseger, Jean-Louis *(Univ. de Rennes 1)*
Co-Chair: Alirezaie, Javad *(Ryerson Univ. Univ. of Waterloo)*

16:30-16:45 WeE06.1
Fully Automatic 3D Segmentation of Iceball for Image-Guided Cryoablation 2327-2330
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)*

16:45-17:00 WeE06.2
Semi-Automatic Vessel Tracking and Segmentation Using Epicardial Ultrasound in Bypass Surgery 2331-2334
Jørgensen, Alex Skovsbo (Aalborg University); Schmidt, Samuel Emil (Aalborg University); Staalsen, Niels-Henrik (Aalborg Hospital); Østergaard, Lasse Riis (Aalborg University)*

17:00-17:15 WeE06.3
Spectral Clustering of Shape and Probability Prior Models for Automatic Prostate Segmentation in Ultrasound Images 2335-2338
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)*

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
Ziming, Zeng (Aberystwyth University); Shepherd, Tony (Turku University Hospital); Zwiggelaar, Reyer (Aberystwyth University)*

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
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)*

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 Dermally-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, Esmaiel *(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)*

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.)*

WeE14**:** 16:30-18:00 Aqua 308
10.2.1 Body Sensor Networks (Oral Session)
Chair: Kaiser, William *(Univ. of California, Los Angeles)*
Co-Chair: Wang, Lei *(Shenzhen Inst. of Advanced Tech.)*

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

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)*

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

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)*

17:15-17:30 WeE16.4
Nonlocal Two Dimensional Denoising of Frequency Specific Chirp Evoked ABR Single Trials 2527-2530
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)*

17:30-17:45 WeE16.5
Locating Spatial Patterns of Waveforms During Sensory Perception in Scalp EEG 2531-2534
Brockmeier, Austin (University of Florida); Khodam Hazrati, Mehrnaz (University of Luebeck); Freeman, Walter J. (University of California at Berkeley); Principe, Jose (University of Florida)*

17:45-18:00 WeE16.6
Detection of Thermal Pain in Rodents through Wireless Electrocorticography 2535-2538
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)*

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.)*

16:30-16:45 WeE17.1
Point Process Modeling Reveals Anatomical Non-Uniform Distribution across the Subthalamic Nucleus in Parkinson's Disease 2539-2542
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 (Jhons Hopkins University); Sarma, Sridevi V. (Johns Hopkins University)*

16:45-17:00 WeE17.2
Prediction of Single Neuron Spiking Activity Using an Optimized Nonlinear Dynamic Model 2543-2546
Mitra, Anish (George Mason University); Manitius, Andre (George Mason University); Sauer, Timothy (George Mason University)*

17:00-17:15 WeE17.3
Describing Relevant Indices from the Resting State Electrophysiological Networks 2547-2550
Toppi, Jlenia (University of Rome "Sapienza"); Astolfi, Laura (University of Rome Sapienza)*

17:15-17:30 WeE17.4
Modeling of Visuospatial Perspectives Processing and Modulation of the Fronto-Parietal Network Activity During Action Imitation 2551-2554
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)*

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
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)*

17:45-18:00 WeE17.6
Effects of ECT Stimulus Pulsewidth and Amplitude Computed with an Anatomically-Realistic Head Model 2559-2562
Bai, Siwei (University of New South Wales); Loo, Colleen (School of Psychiatry, University of New South Wales); Dokos, Socrates (University of New South Wales)*

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

16:30-16:45 WeE18.1
Versatile Broadband Electrode Assembly for Cell Electroporation 2563-2566
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)*

16:45-17:00 WeE18.2
Effects of Nanosecond Pulsed Electric Fields on the Activity of a Hodgkin and Huxley Neuron Model ... 2567-2570
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)*

17:00-17:15 WeE18.3
Automatic System for Electroporation of Adherent Cells Growing in Standard Multi-Well Plates 2571-2574
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 Mª (University of Barcelona)*

17:15-17:30 WeE18.4
Towards a Predictive Model of Electroporation-Based Therapies Using Pre-Pulse Electrical Measurements 2575-2578
Garcia, Paulo, A. (Virginia Tech – Wake Forest University); Arena, Christopher (Virginia Tech); Davalos, Rafael (Virginia Tech)*

17:30-17:45 WeE18.5
Gene Delivery by Microfluidic Flow-Through Electroporation Based on Constant DC and AC Field 2579-2582
Geng, Tao (Purdue University); Zhan, Yihong (University of South Carolina); Lu, Chang (Virginia Tech)*

17:45-18:00 WeE18.6
On-Chip Electroporation: Characterization, Modeling and Experimental Results 2583-2586
Ghafar-Zadeh, Ebrahim (Ecole Polytechnique)*

Thursday, 30 August 2012

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

08:00-08:15 ThA01.1
Pulse Rate Estimation Using Hydraulic Bed Sensor 2587-2590
Su, Bo-Yu (University of Missouri-Columbia); Ho, K.C. (University of Missouri); Skubic, Marjorie (University of Missouri); Rosales, Licet (University of Missouri)*

08:15-08:30 ThA01.2
Estimation of Central Aortic Pressure Waveform Features Derived from the Brachial Cuff Volume Displacement Waveform 2591-2594
Butlin, Mark (Macquarie University); Qasem, Ahmad (Macquarie University); Avolio, Alberto P (Macquarie University)*

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)*

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 Ubelandia)*

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
Hegyi, 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
Athanasiou, Lambros (University of Ioannina); Bourantas, Christos (Dept. of Academic Cardiology, Castle HillHospital,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 Minjoz); Angoué, Orland (University hospital of Besançon); Boulahdour, Hatem (Jean Minjoz 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); Nicolaides, 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)*

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.)*

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)*

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)*

08:30-08:45 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)*

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)*

ThB02: 09:30-11:00 Indigo Ballroom
1.1.7 Nonstationary and Multivariate Signal Processing II (Poster Session)

ThB06: 09:30-11:00 Indigo Ballroom
6.4.5 Sensory Neuroprostheses Posters II (Poster Session)

ThB07: 09:30-11:00 Indigo Ballroom
8.2.2 Robotics: Prosthetics II (Poster Session)

ThB08: 09:30-11:00 Indigo Ballroom
8.7.3 Hardware and Control Developments in Robotics II (Poster Session)

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

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 Semg 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)*

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

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)*

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)*

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)*

ThC05: 13:30-15:00 Sapphire I
2.2.2 Ultrasonic Imaging II (Oral Session)
Chair: Shung, K. Kirk *(Univ. of Southern California)*
Co-Chair: Tavakoli, Vahid *(Univ. of Louisville)*

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); Nicolaides, 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); Bogónez-Franco, Paco (Technical University of Catalonia, Electronic Engineering Department,); Gálvez-Montón, Carolina (ICREC, IGTP, Hospital Universitari Germans Tries 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)*

ThC09: 13:30-15:00 Sapphire 411
9.3.2 Impedance-Based Monitoring and Diagnosis Techniques (Oral Session)
Chair: Halter, Ryan *(Dartmouth Coll.)*
Co-Chair: Bashir, Rashid *(Univ. of Illinois at Urbana-Champaign)*

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

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
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)*

13:45-14:00 ThC15.2
Adaptive Classification in a Self-Paced Hybrid Brain-Computer Interface System 3274-3279
Yong, Xinyi (University of British Columbia); Fatourechi, Mehrdad (University of British Columbia); Ward, Rabab (University of British Columbia); Birch, Gary E. (University of British Columbia)*

14:00-14:15 ThC15.3
Self-Paced Movement Intention Detection from Human Brain Signals: Invasive and Non-Invasive EEG 3280-3283
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)*

14:15-14:30 ThC15.4
Properties of a Temporal Difference Reinforcement Learning Brain Machine Interface Driven by a Simulated Motor Cortex 3284-3287
Tarigoppula, Aditya (SUNY Downstate Medical Center); Rotella, Nick (The Cooper Union); Francis, Joseph Thachil (SUNY Downstate Medical Center)*

14:30-14:45 ThC15.5
Latency Correction of Error Potentials between Different Experiments Reduces Calibration Time for Single-Trial Classification 3288-3291
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)*

14:45-15:00 ThC15.6
Spoken Sentences Decoding Based on Intracranial High Gamma Response Using Dynamic Time Warping 3292-3295
Zhang, Dan (Tsinghua University); Gong, Enhao (Tsinghua University); Wu, Wei (Tsinghua University); Lin, Jiuluan (Tsinghua University); Zhou, WenJing (Tsinghua University,); Hong, Bo (Tsinghua University)*

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

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
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)*

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
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)*

ThC17: 13:30-15:00 Sapphire H
6.13.1 Modern Assistive Technologies for Rehabilitation and Daily Living (Oral Session)
Chair: Ghovanloo, Maysam *(Georgia Inst. of Tech.)*
Co-Chair: Mollazadeh, Mohsen *(Johns Hopkins Univ.)*

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

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 Ospdedale 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)*

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)*

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

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 ofCalifornia 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); Bihr, 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); Beursgens, Luuk (Netherlands); Jong de, Maaike (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)*

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

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

17:30-17:45 ThE01.5
A Novel Method to Assist the Detection of the Cyclic Alternating Pattern (CAP) 3656-3659
Tenorio Orta, José Manuel (Universidad Autónoma de San Luis Potosí); Alba, Alfonso (Universidad Autonoma de San Luis Potosi); Mendez, Martin Oswaldo (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); 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 Autonoma de San Luis Potosi)*

17:45-18:00 ThE01.6
Sleep-Quality Assessment from Full Night Audio Recordings of Sleep Apnea Patients 3660-3663
Dafna, Eliran (Ben-Gurion University of the Negev); Tarasiuk, Ariel (Ben-Gurion University); Zigel, Yaniv (Ben-Gurion University of the Negev)*

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 *(Univ. of Trento)*
Co-Chair: Porta, Alberto *(Univ. degli Studi di Milano)*

16:30-16:45 ThE02.1
Cardiovascular and Cardiorespiratory Coupling in Unmedicated Schizophrenic Patients in Comparison to Healthy Subjects 3664-3667
Schulz, Steffen (University of Applied Sciences Jena); Bär, Karl-Jürgen (Friedrich-Schiller-University of Jena); Voss, Andreas (University of Applied Sciences Jena)*

16:45-17:00 ThE02.2
Expanding the Transfer Entropy to Identify Information Subgraphs in Complex Systems 3668-3671
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)*

17:00-17:15 ThE02.3
Compensating for Instantaneous Signal Mixing in Transfer Entropy Analysis of Neurobiological Time Series 3672-3675
Faes, Luca (University of Trento); Erla, Silvia (University of Trento); Nollo, Giandomenico (University of Trento)*

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
Wibral, Michael (Goethe University); Patricia, Wollstadt (Meg Unit, Brain Imagning Center, Goethe UniversityFrankfurt); 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 forBrain Research, Frankfurt); Vicente, Raul (Frankfurt Institute for Advanced Studies, GoetheUniversity, Frankfurt)*

17:30-17:45 ThE02.5
Joint Symbolic Dynamics As a Model-Free Approach to Study Interdependence in Cardio-Respiratory Time Series 3680-3683
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)*

17:45-18:00 ThE02.6
Granger Causality in Cardiovascular Variability Series: Comparison between Model-Based and Model-Free Approaches 3684-3687
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)*

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

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)*

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

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, Nitaro (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)*

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)*

17:15-17:30 ThE09.4
Seismocardiography While Sleeping at High Altitude 3793-3796
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)*

17:30-17:45 ThE09.5
Seismocardiographic Adjustment of Diastolic Timed Vibrations 3797-3800
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)*

17:45-18:00 ThE09.6
Myocardial Contractility: A Seismocardiography Approach 3801-3804
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)*

ThE13: 16:30-18:00 Aqua 306B

5.9.1 Autonomic Nervous System/Heart Rate Variability (Oral Session)
Chair: Sunagawa, Kenji *(Kyushu Univ.)*
Co-Chair: Ansermino, J. Mark *(British Columbia's Children's Hospital)*

16:30-16:45 ThE13.1
Autonomic-Cardiorespiratory Regulation: A Physiology-Based Mathematical Model 3805-3808
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)*

16:45-17:00 ThE13.2
Consideration on Parameter Determination of a New Model Describing Dynamic Vagal Heart Rate Control in Rats 3809-3812
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 (Natl Cardio Center Research Inst); Sunagawa, Kenji (Kyushu University)*

17:00-17:15 ThE13.3
Real-Time Cardiorespiratory Coherence Detects Antinociception During General Anesthesia 3813-3816
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)*

17:15-17:30 ThE13.4
Sleep-Wake and Circadian-Dependent Variation of Cardiorespiratory Coherence 3817-3820
Boudreau, Philippe (McGill University); Brouse, Chris J. (University of British Columbia); Dumont, Guy (University of British Columbia); Boivin, Diane (McGill University)*

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
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)*

17:45-18:00 ThE13.6
Heart Rate Variability and Renal Organ Damage in Hypertensive Patients 3825-3828
Melillo, Paolo (University of Bologna); De Luca, Nicola (University of Naples Federico II); Pecchia, Leandro (University of Nottingham)*

ThE15: 16:30-18:00 Sapphire P
6.2.3 Brain-Machine Interface – III (Oral Session)
Chair: Cauwenberghs, Gert *(Univ. of California San Diego)*

16:30-16:45 ThE15.1
Detection of Anticipatory Brain Potentials During Car Driving 3829-3832
Khaliliardali, 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)*

16:45-17:00 ThE15.2
Poor Performance in SSVEP BCIs: Are Worse Subjects Just Slower? 3833-3836
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)*

17:00-17:15 ThE15.3
Motion Visual Stimulus for SSVEP-Based BCI System 3837-3840
Punsawad, Yunyong (Mahidol Univ); Wongsawat, Yodchanan (Mahidol University)*

17:15-17:30 ThE15.4
A P300-Based EEG-BCI for Spatial Navigation Control 3841-3844
Curtin, Adrian (Drexel University); Ayaz, Hasan (Drexel University); Liu, Yichuan (Drexel University); Shewokis, Patricia A (Drexel University); Onaral, Banu (Drexel University)*

17:30-17:45 ThE15.5
A Subjective Assessment of a P300 BCI System for Lower-Limb Rehabilitation Purposes 3845-3849
Duvinage, Matthieu (University of Mons); Castermans, Thierry (University of Mons); Petieau, Mathieu (Université Libre de Bruxelles); Seetharaman, Karthik (Universite Libre de Bruxelles); HOELLINGER, Thomas (CNRS); Cheron, Guy (Université Libre de Bruxelles); Dutoit, Thierry (Faculté polytechnique de Mons)*

17:45-18:00 ThE15.6
Detection of Attention Shift for Asynchronous P300-Based BCI 3850-3853
Liu, Yichuan (Drexel University); Ayaz, Hasan (Drexel University); Curtin, Adrian (Drexel University); Shewokis, Patricia A (Drexel University); Onaral, Banu (Drexel University)*

ThE16: 16:30-18:00 Sapphire L
6.6.3 Neuromuscular Systems III (Oral Session)
Chair: Agrawal, Sunil *(Univ. of Delaware)*
Co-Chair: Galiana, Henrietta L. *(McGill Univ.)*

16:30-16:45 ThE16.1
The Effects of Locomotor Training with a Robotic-Gait Orthosis (Lokomat) on Neuromuscular Properties in Persons with Chronic SCI 3854-3857
Mirbagheri, Mehdi (Northwestern University/RIC); Niu, Xun (Northwestern University); Kindig, Matthew (Rehabilitation Institute of Chicago); Varoqui, Deborah (Rehabilitation Institute of Chicago; Northwestern University)*

16:45-17:00 ThE16.2
The Effect of Robot-Assisted Locomotor Training on Walking Speed 3858-3861
Niu, Xun (Northwestern University); Varoqui, Deborah (Rehabilitation Institute of Chicago; Northwestern University); Kindig, Matthew (Rehabilitation Institute of Chicago); Mirbagheri, Mehdi (Northwestern University/RIC)*

17:00-17:15 ThE16.3
Effect of Sensory Inputs on the Motor Evoked Potentials in the Wrist Flexor Muscle During the Robotic Passive Stepping in Humans 3862-3865
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)*

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.)*

ThE19: 16:30-18:00 Aqua 304
8.3.1 Rehabilation 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 BritishColumbia); Van der Loos, H. F. Machiel (University of BritishColumbia)*

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)*

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.)*

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))*

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

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.)*

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

FrA13: 08:00-09:30 Aqua 306B
5.4.1 Cardiac Imaging (Oral Session)
Chair: Sands, Gregory *(The Univ. of Auckland)*

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.)*

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

FrA17: 08:00-09:30 Sapphire H
6.5.1 Brain Stimulation II (Oral Session)
Chair: Gross, Robert *(Emory Univ.)*
Co-Chair: Parra, Lucas C. *(City Coll. of New York)*

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, Skyler (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
Wojtusch, Janis Nikolas Harald (Technische Universität Darmstadt); Beckerle, Philipp (Technische Universität Darmstadt, InstituteforMechatronicSystems 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)*

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); Guarin, 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-Roldan, 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 Medicing); 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 Medicing); 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 Tecnologico de Mexicali and CSULB); Druzgalski, Christopher (CSULB); González-Arriaga, Oscar Hugo (Instituto Tecnológico de Mexicali); Lopez-Schraidt, Hernán Silverio (ITM)*

FrB04: 09:30-11:00 Indigo Ballroom
1.4.8 Biomedical Signal Classification Poster II (Poster Session)

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 Poiltècnica 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 (Universite de Montreal); 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 Politecnica de Valencia); Vidal, Vicente (Universidad Politécnica de Valencia); Mayo, Patricia (Universidad Politecnica de Valencia); Rodenas, Francisco (Universidad Politecnica 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)*

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

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

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)*

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

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

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

FrB15: 09:30-11:00 Indigo Ballroom
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)*

FrB16: 09:30-11:00 Indigo Ballroom
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 Pentylenetetrazole-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)*

09:30-11:00 FrB16.4
Spline and Wavelet-Based Models of Neural Activity in Response to Natural Visual Stimulation 4611-4614
Gerhard, Felipe (Ecole Polytechnique Federale de Lausanne); Szegletes, Luca (Budapest University of Technology and Economics)*

09:30-11:00 FrB16.5
Quantification of Listening Effort Correlates in the Oscillatory EEG Activity: A Feasibility Study 4615-4618
Bernarding, Corinna (Saarland University Hospital); Strauss, Daniel J. (Saarland University, Medical Faculty); Hannemann, Ronny (Siemens Audiologische Technik); Corona-Strauss, Farah I. (Saarland University Hospital)*

09:30-11:00 FrB16.6
Analysis of Extrinsic and Intrinsic Factors Affecting Event Related Desynchronization Production 4619-4622
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)*

09:30-11:00 FrB16.7
Robust Movement Direction Decoders from Local Field Potentials Using Spatio-Temporal Qualitative Patterns 4623-4626
Tadipatri, Vijay Aditya (University of Texas, Austin); Tewfik, Ahmed (University of Minnesota); Ashe, James (University of Minnesota); Pellizzer, Giuseppe (VA Medical Center)*

09:30-11:00 FrB16.8
Optimal Stimulus Current Waveshape for a Hodgkin-Huxley Model Neuron 4627-4630
Tahayori, Bahman (University of Melbourne); Dokos, Socrates (University of New South Wales)*

09:30-11:00 FrB16.9
Decoding Our Sense of Touch: Multiple Regression Analysis of Monkey Fingertip Afferent Mechanoreceptor Population Responses 4631-4634
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)*

09:30-11:00 FrB16.10
Upper Alpha Neurofeedback Training Over the Motor Cortex Increases SMR Desynchronization in Motor Tasks 4635-4638
López-Larraz, Eduardo (University of Zaragoza); Escolano, Carlos (University of Zaragoza); Minguez, Javier (Zaragoza University)*

09:30-11:00 FrB16.11
Estimation of Force Direction from Functional Near-Infrared Spectroscopy Signals Using Sparse Logistic Regression 4639-4642
Sato, Takanori (Nagaoka University of Technology); Muto, Yasuyuki (Nagaoka University of Technology); Nambu, Isao (Nagaoka University of Technology); Wada, Yasuhiro (Nagaoka University of Technology)*

09:30-11:00 FrB16.12
Double-Blind Single-Session Neurofeedback Training in Upper-Alpha for Cognitive Enhancement of Healthy Subjects 4643-4647
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)*

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
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)*

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, viaCeloria11, Milano, Italy); Gilioli, Isabella (Fondazione IRCSS 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)*

FrB19: 09:30-11:00 Indigo Ballroom
6.13.5 Human Performance (Poster Session)

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-Dimentional 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 Universtiy 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 Affilated 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 (Universite 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)*

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

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

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

13:45-14:00 FrC01.2
Consistency and Validity of Self-Reporting Scores in Stress Measurement Surveys 4895-4898
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)*

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

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
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)*

14:30-14:45 FrC01.5
Role of Vestibular Sensor on Body Sway Control: Coherence between Head Acceleration and Stabilogram 4907-4910
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)*

14:45-15:00 FrC01.6
Using NIRS As a Predictor for EEG-Based BCI Performance 4911-4914
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)*

FrC03: 13:30-15:00 Sapphire E
1.7.1 Support Vector Machine (SVM) Applied to Biosignal Classification (Oral Session)
Chair: Parhi, Keshab *(Univ. of Minnesota)*
Co-Chair: Cole, Bryan *(Draeger Medical Systems)*

13:30-13:45 FrC03.1
Temporal Evolution of Seizure Burden for Automated Neonatal EEG Classification 4915-4918
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)*

13:45-14:00 FrC03.2
Dynamic Time Warping Based Neonatal Seizure Detection System 4919-4922
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)*

14:00-14:15 FrC03.3
Selection of Abnormal Neural Oscillation Patterns Associated with Sentence-level Language Disorder in Schizophrenia 4923-4926
Xu, Tingting (University of Minnesota, Twin Cities); Stephane, Massoud (Minneapolis VA Medical Center); Parhi, Keshab (University of Minnesota)*

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.)*

FrC06: 13:30-15:00 Sapphire M
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)*

FrC07: 13:30-15:00 Sapphire 410
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)*

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)*

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.)*

FrC11: 13:30-15:00 Cobolt 520
11.1.1 Novel Approaches to BME Education (Oral Session)
Chair: Zhao, Weizhao *(Univ. of Miami)*
Co-Chair: Douglas, Tania S *(Univ. of Cape Town)*

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)*

14:15-14:30 FrC14.4
Safe Trajectory Estimation at a Pedestrian Crossing to Assist Visually Impaired People 5114-5117
Alghamdi, Saleh (RMIT University); van Schyndel, Ron G (RMIT University); Khalil, Ibrahim (RMIT University)*

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
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 ofEngineering, 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)*

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
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)*

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
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)*

13:45-14:00 FrC16.2
Parylene-Coated Metal Tracks for Neural Electrode Arrays – Fabrication Approaches and Improvements Utilizing Different Laser Systems 5130-5133
Kohler, Fabian (University of Freiburg); Schuettler, Martin (University of Freiburg); Stieglitz, Thomas (University of Freiburg)*

14:00-14:15 FrC16.3
Improved Polyimide Thin-Film Electrodes for Neural Implants 5134-5137
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)*

14:15-14:30 FrC16.4
Reduction of Current Density at Disk Electrode Periphery by Shaping Current Pulse Edges 5138-5141
Wang, Boshuo (University of Southern California); Weiland, James (University of Southern California)*

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
Negi, Sandeep (University); Bhandari, Rajmohan (Blackrock Microsystems); Solzbacher, Florian (University of Utah)*

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)*

FrD01: 15:00-16:30 Indigo Ballroom
1.5.2 Coherence, Causality and Connectivity (Poster Session)

15:00-16:30 FrD01.2
Information Transfer Along the Ventral Auditory Processing Stream in the Awake Macaque 5178-5181
Smith, Elliot (University of Utah); Kellis, Spencer (California Institute of Technology); House, Paul (University of Utah); Greger, Bradley (University of Utah)*

15:00-16:30 FrD01.3
Functional Connectivity Analysis of Cortical Networks in Functional Near Infrared Spectroscopy Using Phase Synchronization 5182-5185
Molavi, Behnam (University of British Columbia); Gervain, Judit (Laboratoire Psychologie de la Perception, CNRS-Paris Descartes); Dumont, Guy (University of British Columbia)*

15:00-16:30 FrD01.4
Functional Brain Connectivity As Revealed by Singular Spectrum Analysis 5186-5189
Seghouane, Abd-krim (National ICT Australia); Shah, Adnan (National ICT Australia, Canberra, The Australian National University Canberra)*

15:00-16:30 FrD01.5
Estimating Correlation for a Real-Time Measure of Connectivity 5190-5193
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)*

15:00-16:30 FrD01.6
EEG Theta Rhythm Analysis using Nonlinear Granger Causality and Approximate Decomposition for Decoding of Motor Intention 5194-5197
Liu, MengTing (Louisiana Tech University); Kuo, Ching-Chang (Louisiana Tech University); Chiu, Alan Wing Lun (Louisiana Tech University)*

15:00-16:30 FrD01.7
Correlation between Intra and Extracranial Background EEG 5198-5201
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)*

15:00-16:30 FrD01.8
Effect of Latency on Clustering of P300 Recordings for ADHD Discrimination 5202-5205
Peluffo-Ordóñez, Diego Hernán (National University, Colombia – Manizales); Martínez-Vargas, Juan David (Universidad Nacional de Colombia); Castellanos-Dominguez, Germán (Universidad Nacional de Colombia)*

15:00-16:30 FrD01.9
Music and Emotion: An EEG Connectivity Study in Patients with Disorders of Consciousness 5206-5209
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)*

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
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.)*

15:00-16:30 FrD02.2
Power Line Interference Cancellation in In-Vivo Neural Recording 5214-5217
Keshtkaran, Mohammad Reza (National University of Singapore); Yang, Zhi (Natioanl University of Singapore)*

FrD03: 15:00-16:30 Indigo Ballroom
1.9.3 Pattern Recognition Methods for Data Mining in Biosignals I (Poster Session)

FrD04: 15:00-16:30 Indigo Ballroom
1.9.4 Pattern Recognition Methods for Data Mining in Biosignals II (Poster Session)

FrD05: 15:00-16:30 Indigo Ballroom
2.7.2 Image Registration Posters I (Poster Session)

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 Nasopharingeal 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
BI, LEI (University of Sydney); Kim, Jinman (University of Sydney); Wen, Lingfeng (University of Sydney); Feng, Dagan (The University of Sydney)*

FrD07: 15:00-16:30 Indigo Ballroom
2.7.7 Image Segmentation Posters II (Poster Session)

FrD08: 15:00-16:30 Indigo Ballroom
2.7.9 Image Analysis, Compression and Fusion (Poster Session)

FrD09: 15:00-16:30 Indigo Ballroom
4.1.1 Biological Networks (Poster Session)

FrD10: 15:00-16:30 Indigo Ballroom
4.5.5 Parameter Estimation and Inverse Modeling (Poster Session)

FrD11: 15:00-16:30 Indigo Ballroom
4.5.6 Models of Cells and Physiological Systems (Poster Session)

FrD12: 15:00-16:30 Indigo Ballroom
4.6.3 Bioinformatics Models and Algorithms (Poster Session)

FrD13: 15:00-16:30 Indigo Ballroom
4.7.1 Medical Devices and Decision Making (Poster Session)

FrD14: 15:00-16:30 Indigo Ballroom
5.1.2 Ventricular Mechanics/Assist Devices (Poster Session)

FrD15: 15:00-16:30 Indigo Ballroom
5.2.2 Vascular Mechanics (Poster Session)

FrD16: 15:00-16:30 Indigo Ballroom
5.11.1 Cardiorespiratory Variability (Poster Session)

FrD17: 15:00-16:30 Indigo Ballroom
7.1.1 Cellular and Tissue Engineering and Biomaterials (Poster Session)

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 Technolgy)*

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 Electrocution: 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)*

FrD21: 15:00-16:30 Indigo Ballroom
9.7.1 Product Development (Poster Session)

FrD22: 15:00-16:30 Indigo Ballroom
10.5.3 Smart Home Technology and Ambient Assisted Living II (Poster Session)

FrD23: 15:00-16:30 Indigo Ballroom
10.5.4 Smart Home Technology and Ambient Assisted Living III (Poster Session)

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 Behavoir 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)*

FrD24: 15:00-16:30 Indigo Ballroom
10.6.2 Health Information Systems II (Poster Session)

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)*

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.)*

FrE03: 16:30-18:00 Sapphire E
1.9.1 Data Mining in Biosignals (Oral Session)
Chair: Yousefi Mesri, Hamed *(Univ. of Melbourne)*

FrE04: 16:30-18:00 Sapphire I
2.3.2 Retinal Image Analysis II (Oral Session)
Chair: Ruggeri, Alfredo *(Univ. of Padua)*
Co-Chair: Quellec, Gwenole *(Inserm)*

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.)*

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)*

FrE09: 16:30-18:00 Sapphire 400
9.2.6 Advancement of Cyber-medicine: Intelligent ICT Care (Oral Session)
Chair: Yoshizawa, Makoto *(Tohoku Univ.)*
Co-Chair: Homma, Noriyasu *(Cyberscience Center, Tohoku Univ.)*

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)*

FrE11: 16:30-18:00 Cobolt 520
11.3.1 Global Health, Instruction, and Career Development (Oral Session)
Chair: Wagholikar, Amol *(The Australian e-Health Res. Centre, ICT Centre, CSIRO)*
Co-Chair: Saldivar, Enrique *(West Wireless Health Inst.)*

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 Sofía 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
Wagholikar, 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 (Intelesesns); 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 (UERN 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, maziyar (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)*

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. *(Univ. of Michigan)*
Co-Chair: Loughlin, Patrick *(Univ. of Pittsburgh)*

16:30-16:45 FrE17.1
Longitudinal Performance of a Vestibular Prosthesis As Assessed by Electrically Evoked Compound Action Potential Recording 6128-6131
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)*

16:45-17:00 FrE17.2
Strategies and Synergies Underlying Replacement of Vestibular Function with Prosthetic Feedback 6132-6136
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)*

17:00-17:15 FrE17.3
Use of Galvanic Vestibular Feedback for a Balance Prosthesis 6137-6140
Peterka, Robert (Oregon Health & Science University)*

17:15-17:30 FrE17.4
Vestibular Physical Therapy Intervention: Utilizing a Computer Assisted Rehabilitation Environment in Lieu of Traditional Physical Therapy 6141-6144
Gottshall, Kim (Naval Medical Center San Diego); Sessoms, Pinata (Naval Health Research Center); Bartlett, Jaime (Naval Health Research Center)*

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
Wall, Conrad (Harvard Medical School); Wrisley, Diane (Lynchburg College); Oddsson, Lars (Sister Kenny Rehabilitation Institute)*

17:45-18:00 FrE17.6
Effects of Co-Vibrotactile Stimulations Around the Torso on Non-Volitional Postural Responses 6149-0
Lee, Beom-Chan (University of Michigan); Ho, Allison (University of Michigan); Martin, Bernard (University of Michigan); Sienko, Kathleen H. (University of Michigan)*

Saturday, 1 September 2012

SaA01: 08:00-09:30 Sapphire A
1.2.2 Multivariate Biosignal Processing (Oral Session)
Chair: Heldt, Thomas *(Massachusetts Inst. of Tech.)*
Co-Chair: Signorini, Maria G. *(Pol. di Milano)*

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
Caicedo Dorado, Alexander (Katholieke Universiteit Leuven); Papademetriou, Maria (University College London); Tachtsidis, Ilias (University College London); Van Huffel, Sabine (Katholieke Universiteit Leuven)*

08:15-08:30 SaA01.2
Space-Time Adaptive Processing for Improved Estimation of Preictal Seizure Activity 6157-6160
Stamoulis, Catherine (Harvard Medical School); Chang, Bernard (Harvard Medical School/Beth Israel Deaconess Medical Center)*

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)*

SaA03: 08:00-09:30 Sapphire E
1.9.2 Pattern Recognition Methods for Biosignals Processing (Oral Session)
Chair: Clifton, Lei *(Univ. of Oxford)*
Co-Chair: Kant Kumar, Dinesh *(RMIT Univ.)*

SaA04: 08:00-09:30 Sapphire 412
2.5.1 Electrical Impedance Imaging (Oral Session)
Chair: Shung, K. Kirk *(Univ. of Southern California)*
Co-Chair: Khraiche, Massoud *(Univ. of California, San Diego)*

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)*

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, Aytekin (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)*

SaA07: 08:00-09:30 Sapphire 410
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)*

SaA10: 08:00-09:30 Cobalt 500
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, Eunyong (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, Ferdinando (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, Phyo Phyo (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)*

SaA13: 08:00-09:30 Indigo 206
5.8.1 Cardiac Electrophysiology I (Oral Session)
Chair: Kroll, Mark *(Univ. of Minnesota)*
Co-Chair: Sands, Gregory *(The Univ. of Auckland)*

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)*

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.)*

SaA17: 08:00-09:30 Sapphire H
6.13.3 Human Performance I (Oral Session)
Chair: Babiloni, Fabio *(Univ. of Rome)*
Co-Chair: Stepp, Cara *(Boston Univ.)*

08:00-08:15 SaA17.1
Assessment of Mental Fatigue During Car Driving by Using High Resolution EEG Activity and Neurophysiologic Indices 6442-6445
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)*

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
Inoue, Jun (Waseda Univ.); Kawamura, Kazuya (Chiba University); Fujie, Masakatsu G. (Waseda University)*

08:30-08:45 SaA17.3
Classification of Human Physical Activity and Energy Expenditure Estimation by Accelerometry and Barometry 6451-6454
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)*

08:45-09:00 SaA17.4
Influence of Sound Source Width on Human Sound Localization 6455-6458
Greene, Nathaniel (University of Rochester); Paige, Gary (University of Rochester)*

09:00-09:15 SaA17.5
Normalization Strategies for Nasal Acceleration to Assess Velopharyngeal Function 6459-6462
Thorp, Elias (Boston University); Virnik, Boris (Boston University); Stepp, Cara (Boston University)*

09:15-09:30 SaA17.6
Analysis of Muscle Fatigue Induced by Isometric Vibration Exercise at Varying Frequencies 6463-6466
Mischi, Massimo (Eindhoven University of Technology); Rabotti, Chiara (Eindhoven University of Technology); Cardinale, Marco (British Olympic Association)*

SaA19: 08:00-09:30 Aqua 304
8.7.2 Hardware and Control Developments in Robotics I (Oral Session)
Chair: Rosen, Jacob *(Univ. of California – Santa Cruz)*
Co-Chair: Howard, Ayanna *(Georgia Inst. of Tech.)*

08:00-08:15 SaA19.1
Admittance Control of an Upper Limb Exoskeleton – Reduction of Energy Exchange 6467-6470
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)*

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
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)*

08:30-08:45 SaA19.3
Robots and Therapeutic Play: Evaluation of a Wireless Interface Device for Interaction with a Robot Playmate 6475-6478
Roberts, Luke (University of Maryland Baltimore County); Park, Hae Won (Georgia Institute of Technology); Howard, Ayanna (Georgia Institute of Technology)*

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
Pospisil, Eric Robert (The University of British Columbia); luu, billy Liang (University of British Columbia); Blouin, Jean-Sébastien (University of British Columbia); Van der Loos, H. F. Machiel (University of BritishColumbia); 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 Brasília); 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 Saúde); Nadal, Jurandir (Federal University of Rio de Janeiro)*

SaC03: 11:00-12:30 Sapphire E
1.6.2 Kalman Filter and Markov Model (Oral Session)
Chair: Kearney, Robert Edward *(McGill Univ.)*
Co-Chair: Nemati, Shamim *(Harvard Medical School)*

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)*

SaC06: 11:00-12:30 Sapphire M
2.8.3 Image Feature Extraction I (Oral Session)
Chair: Hamitouche, Chafiaâ *(Télécommunications Bretagne)*

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 (Polythecnic University of Milan); Tresoldi, Daniele (Polythecnic 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)*

SaC07: 11:00-12:30 Sapphire 410
3.9.1 Micro- and Nano-Technology (Oral Session)
Chair: Seker, Erkin *(Univ. of California, Davis)*
Co-Chair: Rao, Masaru P. *(Univ. of California, Riverside)*

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)*

SaC09: 11:00-12:30 Sapphire 400
9.8.1 Stimulation Techniques and Devices (Oral Session)
Chair: Parra, Lucas C. *(City Coll. of New York)*
Co-Chair: Mohseni, Pedram *(Case Western Res. Univ.)*

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
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)*

11:15-11:30 SaC09.2
Moving Coil Pressure Algometer Produces Consistent Force Gradient and Repeated Stimulation 6591-6594
Adnadjevic, Djordje (Aalborg University); Graven-Nielsen, Thomas (Center for Sensory-Motor Interaction (SMI, Aalborg University)*

11:30-11:45 SaC09.3
A Wirelessly Programmable Chip for Multi-Channel Neural Stimulation 6595-6599
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)*

11:45-12:00 SaC09.4
Percutaneously Injectable Fetal Pacemaker: Electrodes, Mechanical Design and Implantation 6600-6603
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 ofBiomedical Engineering, Viterbi School of Engineering, USC); Loeb, Gerald (University of Southern California)*

12:00-12:15 SaC09.5
Magnetic Resonance Based Noninvasive RF Nerve Stimulator 6604-6607
C V, Ganesh Bharadwaj (Nanyang Technological University); Zheng, Yuanjin (ICS Lab, Institute of Microelectronics)*

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
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)*

SaC10: 11:00-12:30 Cobalt 500
4.5.4 Multiscale Modeling (Oral Session)
Chair: Bouteiller, Jean-Marie Charles *(Univ. of Southern California)*
Co-Chair: Zhan, Ming *(The Methodist Hospital Res. Inst.)*

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
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)*

11:15-11:30 SaC10.2
Integrating Degenerative Mechanisms in Bone and Cartilage: A Multiscale Approach 6616-6619
Fernandez, Justin (The University of Auckland); Shim, Vickie (University of Auckland, New Zealand); Hunter, Peter (University of Auckland)*

SaC12: 11:00-12:30 Cobolt 520
5.1.1 Heart Valves (Oral Session)
Chair: Sprouse, Chad *(Johns Hopkins Univ.)*
Co-Chair: Shah, Sameer *(UCSD)*

SaC13: 11:00-12:30 Indigo 206
5.5.1 Cardiopulmonary Modeling (Oral Session)
Chair: Tawhai, Merryn *(The Univ. of Auckland)*
Co-Chair: Diekman, Casey *(The Ohio State Univ.)*

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)*

SaC14: 11:00-12:30 Aqua 308
10.1.4 Personal Health Systems II (Oral Session)
Chair: Poon, Carmen CY *(The Chinese Univ. of Hong Kong)*
Co-Chair: Khraiche, Massoud *(Univ. of California, San Diego)*

11:00-11:15 SaC14.1
Detecting Stumbles with a Single Accelerometer 6681-6686
Hajj Chehade, Nabil (UCLA); Ozisik, 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)*

11:45-12:00 SaC14.4
Vital Analysis: Annotating Sensed Physiological Signals with the Stress Levels of First Responders in Action 6695-6698
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)*

12:00-12:15 SaC14.5
Limb Joint Effects on Signal Transmission in Capacitive Coupled Intra-Body Communication Systems 6699-6702
Seyedi, MirHojjat (Victoria University); Lai, Tze Huei, Daniel (Victoria University); Faulkner, Michael (Victoria University)*

12:15-12:30 SaC14.6
Instantaneous Heart Rate Detection Using Short-Time Autocorrelation for Wearable Healthcare Systems 6703-6706
Nakano, Masanao (Kobe University); Konishi, Toshihiro (Kobe University); Izumi, Shintaro (Kobe University); Kawaguchi, Hiroshi (Kobe University); Yoshimoto, Masahiko (Kobe University)*

SaC15: 11:00-12:30 Sapphire P
6.2.6 Brain-Machine Interface – VI (Oral Session)
Chair: Slutzky, Marc *(Northwestern Univ.)*
Co-Chair: Lin, Chin-Teng *(National Chiao-Tung Univ.)*

11:00-11:15 SaC15.1
Exploring the Use of Tactile Feedback in an ERP-Based Auditory BCI 6707-6710
Schreuder, Martijn (Berlin Institute of Technology); Thurlings, Marieke (TNO & Utrecht University); Brouwer, Anne-Marie (TNO); van Erp, Jan (TNO); Tangermann, Michael (Berlin Institute of Technology)*

11:15-11:30 SaC15.2
Learning to Modulate Sensorimotor Rhythms with Stereo Auditory Feedback for a Brain-Computer Interface 6711-6714
McCreadie, Karl (University of Ulster, Magee); Coyle, Damien (University of Ulster); Prasad, Girijesh (University of Ulster)*

11:30-11:45 SaC15.3
Simultaneous Brain-Computer Interfacing and Motor Control: Expanding the Reach of Non-Invasive BCIs 6715-6718
Cheung, Willy (University of Washington); Sarma, Devapratim (University of Washington); Scherer, Reinhold (Graz University of Technology); Rao, Rajesh PN (University of Washington)*

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
Flint, Robert (Northwestern University); Wright, Zachary (Northwestern University); Slutzky, Marc (Northwestern University)*

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
Chavarriaga, Ricardo (Ecole Polytechnique Federale de Lausanne); Perrin, Xavier (ETH Zurich); Siegwart, Roland (ETH Zurich); Millán, José del R. (Swiss Federal Institute of Technology, Lausanne)*

12:15-12:30 SaC15.6
Control of a Simulated Wheelchair Based on a Hybrid Brain Computer Interface 6727-6730
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)*

SaC16: 11:00-12:30 Sapphire L
6.12.1 Brain Functional Imaging – EEG/MEG (Oral Session)
Chair: Purdon, Patrick L *(Massachusetts General Hospital)*
Co-Chair: Makeig, Scott *(Univ. of California San Diego)*

11:00-11:15 SaC16.1
A Beamforming Approach to Phase-Amplitude Modulation Analysis of Multi-Channel EEG 6731-6734
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)*

11:15-11:30 SaC16.2
Stability of ICA Decomposition across Within-Subject EEG Datasets 6735-6739
Grandchamp, Romain (Brain and Cognition Research Center (CerCo), Paul SabatierUniversity, 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)*

11:30-11:45 SaC16.3
Improve the Performance of Error Monitoring by Brain Connectivity Features 6740-6743
Zhang, Huaijian (École Polytechnique Fédérale de Lausanne); Chavarriaga, 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)*

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
Zhu, Min (University of Oklahoma); Zhang, Wenbo (Minnesota Epilepsy Group); Dickens, Deanna (Minnesota Epilepsy Group); Ding, Lei (University of Oklahoma)*

12:00-12:15 SaC16.5
A Fast Iterative Greedy Algorithm for MEG Source Localization 6748-6751
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)*

12:15-12:30 SaC16.6
A Spatially-Regularized Dynamic Source Localization Algorithm for EEG 6752-6755
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)*

SaC17: 11:00-12:30 Sapphire H
6.13.4 Human Performance II (Oral Session)
Chair: Tong, Shanbao *(Shanghai Jiao Tong Univ.)*
Co-Chair: Tan, Jindong *(Michigan Tech. Univ.)*

11:00-11:15 SaC17.1
Electrodermal Response Propagation Time as a Potential Psychophysiological Marker 6756-6759
Plácido da Silva, Hugo (IST – Instituto Superior Técnico); Fred, Ana (IT – Instituto de Telecomunicações); Lourenço, André (Instituto Superior de Engenharia de Lisboa)*

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
Tian, Ya (The University of Tennessee); Tan, Jindong (University of Tennessee, Knoxville)*

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
Kishi, Takuya (Kyushu University Graduate School of Medical sciences); Sunagawa, Kenji (Kyushu University)*

SaC19: 11:00-12:30 Aqua 304
8.9.1 Human Movement Analysis I (Oral Session)
Chair: Dubey, Rajiv *(Univ. of South Florida)*
Co-Chair: de Vlugt, Erwin *(Delft University of Technology)*