



The Engineering in Medicine and Biology Society of the IEEE advances the application of engineering sciences and technology to medicine and biology, promotes the profession, and provides global leadership for the benefit of its members and humanity by disseminating knowledge, setting standards, fostering professional development, and recognizing excellence.

The field of interest of the IEEE Engineering in Medicine and Biology Society is the application of the concepts and methods of the physical and engineering sciences in biology and medicine. This covers a very broad spectrum ranging from formalized mathematical theory through experimental science and technological development to practical clinical applications. It includes support of scientific, technological and educational activities.

Engineering in Medicine and Biology Society

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PUBLICATIONS

Engineering in Medicine and Biology Magazine

IEEE Security & Privacy Magazine

Transactions on Biomedical Engineering

Transactions on Information Technology In Biomedicine

Transactions on Neural Systems and Rehabilitation Engineering

Transactions on Medical Imaging

Transactions on NanoBioscience

Transactions on Computational Biology and Bioinformatics

New in 2007: Transactions on Biomedical Circuits and Systems

ELECTRONIC PRODUCTS

EMBS Electronic Resource

CONFERENCES

Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)

IEEE EMBS Special Topic Conference on Neural Engineering (NER)

International Symposium on Biomedical Imaging (ISBI)

International Conference on Biomedical Robotics and Biomechanics (BIOROB)

ASM/IEEE EMBS Bio, Micro and Nanosystems Conference

SUMMER SCHOOLS Sponsored by EMBS

International Summer School on Biomedical Imaging

International Summer School on Biomedical Signal Processing

International Summer School on Biocomplexity

International Summer School on Medical Devices and Biosensors



IEEE Engineering in Medicine and Biology Society

2006 Award Recipients

2006 EMBS Career Achievement Award

Jean-Louis Coatrieux, Laboratoire Traitement du Signal et de l'Image, INSERM Unité 642 - Université de Rennes 1

"For outstanding research contributions to biomedical signal processing and modeling, medical imaging and computer graphics."

2006 EMBS Early Career Achievement Award

Alejandro Frangi Caregnato, Pompeu Fabra University

"For outstanding contributions to medical image computing, especially, cardiovascular and cerebrovascular image analysis using model- and registration-based methods."

2006 EMBS Service Award

Yuanting Zhang, Chinese University of Hong Kong

"For exceptional and meritorious service to the Engineering in Medicine and Biology Society (EMBS) with outstanding contributions to the development and promotion of EMBS' conferences, educational activities, and international collaboration."

EMBS Members who have been elected for the IEEE Fellow Award for 2006

Andreas Andreou, Johns Hopkins University, USA
for contributions to energy efficient sensory microsystems

Mary Capelli-Schellpfeffer, CapSchell, Inc., USA
for contributions to the prevention and treatment of electric shock and arc blast injury

Jeffrey Fessler, University of Michigan, USA
for contributions to theory and practice of image reconstruction

Swamy Laxminarayan (posthumous), Idaho State University, USA
for leadership in social and ethical implications to biomedical engineering

Raphael Lee, University of Chicago, USA
for contributions to biophysics of cellular and tissue injury by electric currents and development of polymers for repair of cellular damage

Zhi-Pei Liang, University of Illinois at Urbana-Champaign, USA
for contributions to biomedical applications of magnetic resonance imaging

Reese Terry, Cyberonics, Inc., USA
for contributions to design and application of active implantable medical devices

Lihong Wang, Texas A&M University, USA
for contributions to biomedical optics and imaging

2006 Outstanding Performance Award for a Student Chapter or Club

University of Connecticut

"For outstanding performance in promoting student interest and involvement in Biomedical Engineering through seminars, career fair, and other social activities".

EMBS Student Paper & Design Competition Finalists

Geographic Finalists

North America

Song Wang, NJIT, USA

Latin America

Miguel Altuve, Simon Bolivar University, Venezuela

Asia Pacific

Spencer Chin-Yu Chen, University of New South Wales, Australia

Europe

Valentina Magagnin, Polytechnic of Milan, Italy

Middle East/Africa

Ershad SharifAhmadian, Shahed University, Iran

Open Finalists

Makarand Deo, University of Calgary, Canada

Israel Byrd, University of Alabama at Birmingham, USA

Natalia Arzeno, Massachusetts Institute of Technology, USA

Ashutosh Chaturvedi, Case Western Reserve University, USA

Zhongming Liu, University of Minnesota, USA

Martin Bishop, University of Oxford, UK

Eric Aboussouan, École Polytechnique de Montreal, Canada

David Fitch, University of Memphis, USA

Dean Michael Karantonis, University of New South Wales, Australia

Katrina Wendel, Tampere University of Technology, Finland

Design Finalists

Norbert Brian Dommel, Yan Tat Wong, Phil J. Byrnes-Preston, Torsten Lehmann
University of New South Wales, Australia

Vikram Aggarwal, Aniruddha Chatterjee, Yoonju Cho
Johns Hopkins University, USA

Armen Kherlopian, Joseph Gerrein, Minerva Yue, Kristina Kim, Ji Won Kim, Madhav Sukumaran
Columbia University, USA

Student Activities

BME Careers at a Glance – I & II

Session Co-Chairs: Guruprasad Madhavan (State University of New York) and Barbara Oakley (Oakland University)

Location: Astor Ballroom, Times Square Marriot Marquis

Date & Time: Thursday, August 31, 2006, 9:00 to 12:15; Break: 10:30 to 10:45

	Welcome and Introduction
9:00 to 9:20	Academia (University Research and Teaching) Nitish Thakor, PhD., Johns Hopkins University
9:20 to 9:40	Academia (Teaching Colleges) Maria Squire, PhD., University of Scranton
9:40 to 10:00	Industry Research and Management George Makris, PhD., Nexgen Spine, Inc
10:00 to 10:20	Science and Public Policy Semahat Demir, PhD., National Science Foundation
10:20 to 10:30	Q&A
10:30 to 10:45	Break & Networking
10:45 to 11:05	Intellectual Property Law Kenneth Sonnenfeld, PhD., JD., Morgan Finnegan, LLP
11:05 to 11:25	Federal Government Jove Graham, PhD., US Food and Drug Administration
11:25 to 11:45	Clinical Engineering and Health Information Systems Elliot Sloane, PhD., Villanova University
11:45 to 12:05	Entrepreneurship Kenneth McLeod, PhD., Sonostics, Inc
12:05 to 12:15	Q&A

BME Careers at a Glance – III & IV

Session Co-Chairs: Guruprasad Madhavan (State University of New York) and Barbara Oakley (Oakland University)

Location: Astor Ballroom, Times Square Marriot Marquis

Date & Time: Saturday, September 2, 2006, 9:00 to 12:15; Break: 10:30 to 10:45

	Welcome and Introduction
9:00 to 9:20	Regulatory Affairs Alan McEmber, Pfizer Global Pharmaceuticals
9:20 to 9:40	Military and Defense Services Barry Shoop, PhD., United States Military Academy
9:40 to 10:00	Clinical Medicine and Healthcare Leann Lesperance, MD., PhD., United Health Services
10:00 to 10:20	Marketing and Sales Jason Alter, PhD., Turboworx, Inc.
10:20 to 10:30	Q&A
10:30 to 10:45	Break & Networking
10:45 to 11:05	Technology Transfer Eugene Krentsel, PhD., State University of New York
11:05 to 11:25	Non-Profit International Services Robert Malkin, PhD., Engineering World Health
11:25 to 11:45	Consulting Guruprasad Madhavan, State University of New York
11:45 to 12:05	Alternative Careers and Concluding Remarks
12:05 to 12:15	Q&A

Survival 101 for BME Graduate Research

Session Co-Chairs: *Aimee Betker (University of Manitoba) and Guruprasad Madhavan (State University of New York)*

Location: *Astor Ballroom, Times Square Marriot Marquis*

Date & Time: *Saturday, September 2, 2006, 14:00 to 15:30*

	Welcome and Introduction
14:00 to 14:15	A Word for Teaching Assistants Lisa Lazareck, University of Oxford
14:15 to 14:30	On Time Management Anant Madabhushi, PhD., Rutgers University
14:30 to 14:45	Choosing the Right Mentor and Project Guruprasad Madhavan, State University of New York
14:45 to 15:00	Training, Internships, and Networking Aimee Betker, University of Manitoba
15:00 to 15:15	Achieving Excellence in Publications & Dissertation Tara Alvarez, PhD., New Jersey Institute of Technology
15:15 to 15:30	Professional Organizations and Development Winston Tran, University of Southern California

Students: The Movers and Shakers of EMBS

Session Co-Chairs: *Winston Tran (University of Southern California) and Lisa Lazareck (University of Oxford)*

Location: *Astor Ballroom, Times Square Marriot Marquis*

Date & Time: *Saturday, September 2, 2006, 15:45 to 17:15*

	Welcome and Introduction
	Faculty Advisor Panelists Jorge Monzon, PhD., Universidad Nacional del Nordeste Steve Warren, PhD., Kansas State University
15:45 to 17:00	Student Leader Panelists Jennifer Flexman, University of Washington Lisa Lazareck, University of Oxford Aimee Betker, University of Manitoba Winston Tran, University of Southern California Jiang Jiehui, Shanghai University
17:00 to 17:15	Q&A

Student Paper Competition- Session I

Location: *Belasco, Times Square Marriot Marquis*

Date & Time: *Thursday, August 31, 2006, 10:45 to 12:15*

10:45 to 11:00	Non-Invasive Diagnosing Malignant Melanoma by Multi-Spectral Optical Nevoscope
11:00 to 11:15	Psychophysics of Prosthetic Vision: I. Visual Scanning and Visual Acuity
11:30 to 11:45	Wavelet Compression of Multichannel ECG Data by Enhanced Set Partitioning in Hierarchical Trees Algorithm
11:45 to 12:00	Semi-Automated Analysis of Coronary Flow Doppler Images: Validation with Manual Tracings
12:00 to 12:15	LF/(LF+HF) Index in Ventricular Repolarization Variability Related and Unrelated to Heart Rate Variability

Student Paper Competition- Session II

Location: *Belasco, Times Square Marriot Marquis*

Date & Time: *Thursday, August 31, 2006, 14:00 to 15:30*

14:00 to 14:15	Accelerating Large Cardiac Bidomain Simulations by Arnoldi Preconditioning
14:15 to 14:30	Delayed Termination Following Pacing Induced Shifts from Monomorphic to Polymorphic Ventricular Tachycardia: Implications for Antitachycardia Pacing
14:30 to 14:45	Quantitative Analysis of QRS Detection Algorithms Based on the First Derivative of the ECG
14:45 to 15:00	Subthalamic Nucleus Deep Brain Stimulation: Accurate Axonal Threshold Prediction with Diffusion Tensor Based Electric Field Models
15:00 to 15:15	Three-Dimensional Ventricular Activation Imaging by Means of Equivalent Current Source Modeling and Estimation

Student Paper Competition- Session III

Location: *Belasco, Times Square Marriot Marquis*

Date & Time: *Friday, September 1, 2006, 9:00 to 10:15*

9:00 to 9:15	Modulation of Shock-End Virtual Electrode Polarisation As a Direct Result of 3D Fluorescent Photon Scattering
9:15 to 9:30	High-Precision Absolute Positioning of Medical Instruments in MRI Systems
9:30 to 9:45	Esophageal Electric Fields Are Correlated to Atrial Defibrillation Thresholds: Towards Patient-Specific Optimization of External Atrial Defibrillation
9:45 to 10:00	Automated Non-Invasive Detection of Pumping States in an Implantable Rotary Blood Pump
10:00 to 10:15	Correlation between Live and Post Mortem Skull Conductivity Measurements

Student Design Competition

Location: *Belasco, Times Square Marriot Marquis*

Date & Time: *Friday, September 1, 2006, 10:45 to 11:30*

10:45 to 11:00	The Design and Testing of an Epi-Retinal Vision Prosthesis Neurostimulator Capable of Concurrent Parallel Stimulation
11:00 to 11:15	Ultrasound-Guided Noninvasive Measurement of a Patient's Central Venous Pressure
11:15 to 11:30	Electrooculogram Based System for Computer Control Using a Multiple Feature Classification Model

University Visits

Wednesday, August 30, 2006 – **Columbia University** (11:00 to 16:00) Meet at 10:30 in the Registration area, 1st Floor Broadway Level, to go by subway to Columbia University.

Thursday, August 31, 2006 – **New Jersey Institute of Technology** (10:00 to 15:00) Meet at 8:30 in the Registration area, 1st Floor Broadway Level, to board busses.

Friday, September 1, 2006 – **Rutgers University** (10:00 to 15:00) Meet at 8:30 in the Registration area, 1st Floor Broadway Level, to board busses.

GOLD Reception

Location: Ziegfeld, Times Square Marriot Marquis

Date & Time: Wednesday, August 30, 2006, 19:00 to 21:00

If you are an IEEE Member who graduated with your first professional degree within the last ten years; e.g., you are a Graduate of the Last Decade (GOLD), you are cordially invited to the EMBS GOLD networking reception sponsored by EMBS, GOLD Region 1, and GOLD New York Section.

Student Reception — New York Skyline View Cruise

Thursday, August 31, 2006 – ***Majestic Hudson River Cruise (19:00 onward from Chelsea Pier)***



29th Annual International Conference of the IEEE Engineering in Medicine and Biology Society

in conjunction with the

Biennial Conference of the French Society of Biological and Medical Engineering (SFGBM)

August 23-26, 2007

« Centre de Congrès », Lyon, France

Conference Chair:

André Dittmar
CNRS Lyon

Conference Co-Chair:

John Clark
Rice University

Program Co-Chairs:

Eric McAdams
Ulster University

Nigel Lovell
University of New South Wales

Finance Chair:

Guy Cazuguel
ENST Bretagne

Publication Co-Chairs:

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CHU Lille

Georges Delhomme
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Metin Akay
Arizona State University

Local Arrangement Chairs:

Claudine Gehin
INSA Lyon

Catherine Marque
UTC Compiègne

Student Activities Chair:

Joaquin Azpiroz-Leehan
UAM-IZTAPALAPA

Student Activity Co-Chairs:

Laurent Quiquerez
UCB Lyon

Bruno Allard
INSA Lyon

"Sciences and Technologies for Health"

First Announcement

The 29th Annual Conference of the IEEE Engineering in Medicine and Biology Society will be held, jointly with the 14th Conference of the French Society of Biological and Medical Engineering (SFGBM), from August 23 to 26, 2007 at the Convention Centre "Cité Internationale" in Lyon, France.

The general theme of the IEEE EMBS 2006 Conference is "Sciences and Technologies for Health" covering the broad spectrum of biomedical and clinical engineering and physics, to medical and clinical applications. Aspect of transfer from research to industry will be also be a focus of the conference.

Specific themes include:

1. Biomedical Signal Processing
2. Biomedical Imaging & Image Processing
3. Bioinstrumentation; Sensors; Micro, Nano & Wearable Technologies
4. Bioinformatics & Computational Biology; Systems Biology; Modeling Methodologies
5. Cardiovascular & Respiratory Systems Engineering
6. Neural Engineering; Neuromuscular Systems; Rehabilitation Engineering
7. Molecular & Cellular Biomechanics; Tissue Engineering; Biomaterials
8. Bio-robotics; Surgical Planning & Orthopedic Biomechanics
9. Therapeutic & Diagnostic Systems, Devices & Technologies; Clinical Engineering
10. Healthcare Information Systems; Telemedicine
11. Technology Commercialisation; Education, Industry & Society

IEEE EMBS International Conference 2007 Website:
<http://www.embc07.ulster.ac.uk>



Lyon Convention Center



Lyon City :

Lyon is in the center of the dynamic Rhône-Alpes region, close to the world-renowned Beaujolais and Rhone valley vineyards, as well as the Alps and "Mont Blanc". Lyon is a major European city of 1.5 M people. This historic city is more than 2000 years old (Lyon was recently added to the UNESCO World Heritage site) and as a consequence has exceptional cultural and tourist sites to see and activities to experience. Lyon boasts many advantages: it is the 'world capital of gastronomy' with an estimated 1500 restaurants (including Bocuse restaurant); it is the birthplace of the cinema; it is an international venue for leading-edge artistic events (dance festivals, contemporary art festivals and ...)

<http://www.lyon-france.fr>

Program Highlights

Keynote Speakers

August 23, 2007

JC Healy, Information Society Directorate General of the European Commission
 "Technology and health, research and trends in Europe"

D. Beebe, Microtechnology Medicine Biology Lab, College of Engineering, University of Wisconsin-Madison
 "The bioinspired approach in biomedical engineering research"

Paper Submission

Authors are requested to submit a four page paper through the conference website before April 2th 2007 for consideration for presentation in oral and poster sessions for one of the program themes (first page)

Important Dates

Four Page Paper Submission: April 2, 2007
 Notification of Acceptance: June 15, 2007
 Final Program Available: July 1, 2007
 Exhibition Booth/Table Reservation: April 1, 2007
 Early Conference Registration: July 15, 2007
 Hotel Reservation: August 1, 2007

Contact Information EMB Society Executive Office:

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International Committee:

- Adam, Dan (Israel)
- Aguilo, Jordi (Spain)
- Akay, Metin (USA), Chair
- Amirouche, Farid (USA)
- Ask, Per (Sweden)
- Aspiroz, Joaquin (Mexico), co-chair
- Beebe, David (USA)
- Beuscart, Régis (France)
- Bonato, Paolo (USA)
- Carson, Ewart (UK)
- Cerutti, Sergio (Italy)
- Coatrieux, Jean-Louis (France)
- Cohen, Maurice (USA)
- Dario, Paolo (Italy)
- Depeursinge, Christian (Switzerland)
- De Rossi, Danilo (Italy)
- Dhawan, Atam (USA)
- Dumont, Guy (Canada)
- Esashi, Masayoshi (Japan)
- Frangi, A (Spain)
- Fujii, Teruo (Japan)
- Galiana, Henrietta (Canada)
- Gilson, (Sweden)
- Hinrikus, Hiie (Estonie)
- Holcik, Jiri (Czech Republic)
- Hudson, Donna (USA)
- Hunter, Peter (New Zealand)
- Jan, Jiri (Czech Republic)
- Jones, Richard (New Zealand)
- Jovanov, Emil (USA)
- Jun-Horng, Chen (Taiwan)
- Kahya, Yasemin (Turkey)
- Karp, Peka (EC)
- Kim, Yongmin (USA)
- Kimmel, Eitan (Israel)
- Kotrotsios Geogres (Switzerland)
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- Laine, Andrew (USA)
- Liang, Zhi-Pei (USA)
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- Lymeris, Andreas (EC)
- Marques de Sa, Joaquim (Portugal)
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- Miklavcic, Damijan (Slovenia)
- Monzon, Jorge E. (Argentina)
- Newman, William (USA)
- Oakley, Barbara, (USA)
- Principe, Jose (USA)
- Roa, Laura M (Spain)
- Robinson, Charles (USA)
- Roux, Christian (France)
- Rutten, Wim (Netherlands)
- Sansen, William (Belgium)
- Saranummi, Niilo (Finland)
- Schima, Heinrich (Austria)
- Sousa Pereira, António (Portugal)
- Spyrou, Spyros (Cyprus)
- Summers, Ron (UK)
- Teoh, Swee-Hin (Singapore)
- Thiran, JP. (Switzerland)
- Udupa, Jay (USA)
- Ueno, Shoogo (Japan)
- Unser, Michael (Switzerland)
- Wojcicki, Jan (Poland)
- Yoon, Young (Korea)
- Zhang, Y.T. (Hong Kong), Co-chair