



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

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

Transactions on Biomedical Circuits and Systems

**New in 2008** - Reviews on Biomedical Engineering

### **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 Biomechatronics (BIOROB)

### **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

International Summer School on Information Technology in Biomedicine



# IEEE Engineering in Medicine & Biology Society

## 2007 Award Recipients

### 2007 EMBS Career Achievement Award

**Jose Principe**, University of Florida, USA

“For an outstanding career in biomedical engineering as exemplified by pioneering technical innovation, mentorship and publication of innovative textbooks.”

### 2007 EMBS Early Career Achievement Award

**Tejal Desai**, University of California, San Francisco, USA

“For pioneering work in the field of bioMEMS focusing on implantable therapeutic microtechnology, drug delivery, tissue engineering, and cell-based sensing, and for advancing biomedical engineering education in micro-to-nano biotechnologies.”

### 2007 EMBS Service Award

**Nathalie Gosset**, University of Southern California, Los Angeles, USA

“For visionary leadership in EMBS chapter development.”

### 2007 EMBS Outstanding Performance Award for New Student Branch Chapter or Club

U of Alberta Student Chapter

### 2007 EMBS Outstanding Performance Award for Student Branch Chapter or Club

EMBS Bombay Student Branch Chapter at TSEC

### 2007 EMBS Best New Chapter Award

EMBS Greece Chapter

### 2007 EMBS Outstanding Chapter Award

EMBS Colombia Chapter

### EMBS Members who have been elected for the IEEE Fellow Award for 2007

**Amir Amini**, University of Louisville, Kentucky, USA  
*for contributions to cardiovascular imaging and medical image analysis*

**Ronald Aarts**, Philips Research Labs, The Netherlands  
*for research and application in signal processing for acoustics and sound reproduction*

**Zeungnam Bien**, Korea Advanced Institute of Science and Technology, Korea  
*for contributions to development of assistive robots and human-robot interaction systems*

**Shangai Gao**, Tsinghua University, China  
*for contributions to the study of brain-computer interface*

**Dmitry Goldgof**, University of South Florida, Florida, USA  
*for contributions to computer vision and biomedical applications*

**Jerome Liang**, State University of New York at Stony Brook, New York, USA  
*for contributions to medical image reconstruction and virtual colonoscopy*

**Jaakko Malmivuo**, Ragnar Granit Institute, Finland  
*for contributions to theoretical and experimental aspects of bioelectromagnetic phenomena*

**Xiaochuan Pan**, University of Chicago, Illinois, USA  
*For contributions to nuclear and non-invasive imaging*

**Alan Sahakian**, Northwestern University, Illinois, USA  
*for contributions to electrophysiology of atrial cardiac arrhythmias*

**Maximus Viergever**, University Medical Center Utrecht, The Netherlands  
*for leadership and contributions to medical imaging*

**Yuang-Ting Zhang**, The Chinese University of Hong Kong, Hong Kong  
*for contributions to the field of wearable devices and signal processing algorithms for mobile healthcare*

# EMBS Student Paper Competition Finalists

## Geographic Finalists

### North America

**Justin Haldar**, University of Illinois Urbana-Champaign, USA

### Asia Pacific

**Louis Hyunsuk Jung**, University of New South Wales, Australia

### Europe

**Javier Escudero**, University of Valladolid, Spain

Note: The minimum requirement for nominations was not met for the Geographic Units Middle East & Africa and Latin America; therefore the Student Paper Competition Committee chose to include 2 additional Open Finalists

## Open Finalists

**Samuel Au**, Massachusetts Institute of Technology, USA

**Sebastian Aron Kisban**, University of Freiburg, Germany

**Stephen Joseph Ball**, Queen's University, Canada

**Federico Aletti**, Politecnico di Milano, Italy

**Valentina Corino**, Politecnico di Milano, Italy

**Faraz Oloumi**, University of Calgary, Canada

**Chang Won Lee**, University of California, Irvine, USA

**Julien Cohen-Adad**, University of Montreal, Canada

**Disha Gupta**, University of Southampton, United Kingdom

**Chung Chan**, University of Sydney, Australia

**Guillermo Medrano**, Aachen University, Germany

**Yan Tat Wong**, University of New South Wales, Australia

## Publications Forum – Question the Editors

**Chair: Bin He, EMBS VP for Publications**

**Friday, August 24, 17:30 – 19:00, Rhône 1**

This special forum is organized to provide an opportunity to meet and question the editors of EMBS journals in an interactive environment. EMBS publishes leading journals in the field of biomedical engineering. Due to tremendous efforts and dedications of our editors, editorial boards, reviewers, and all the volunteers, EMBS publications have exhibited significant improvement and enhancement in the past years. The 2006 Impact Factors of EMBS published transactions exhibited an overall historic record, in addition to the highly rigorous peer review process. Our award-winning Magazine provides important membership service and generate, for the first time, financial surplus in 2006. To further serve the field of biomedical engineering, in 2008 EMBS will launch a new review journal – IEEE Reviews in Biomedical Engineering, to provide comprehensive review of the state of arts in important areas of biomedical engineering. In this publications forum, Editors-in-Chief (EiC) of EMBS journals will introduce each journal, and have round-table discussions on issues of interest to the prospective authors. The questions to be addressed would include: how to write a successful article; what are the major reasons for rejection; what to do if I get tough review comments; how do I chose the right journal to publish my work; should I submit a Letter or regular article; etc. The audience will be able to question the editors directly or make suggestions on EMBS publications. The forum panelists are as follows:

Dr. Bruce Wheeler, EiC, IEEE Transactions on Biomedical Engineering

Dr. John Enderle, EiC, IEEE Engineering in Medicine and Biology Magazine

Dr. Max Viergever, EiC, IEEE Transactions on Medical Imaging

Dr. Nitish Thakor, EiC, IEEE Transactions on Neural Systems and Rehabilitation Engineering

Dr. Niilo Saranummi, EiC, IEEE Transactions on Information Technology in Biomedicine

Dr. Robert Butera, Deputy EiC, IEEE Transactions on Biomedical Circuits and Systems

Dr. Bin He, EMBS Vice President for Publications



**Dr. Bruce Wheeler** serves as the Editor-in-Chief of the IEEE Transactions on Biomedical Engineering. Dr. Wheeler is Professor of Bioengineering, of Electrical and Computer Engineering, and of the Beckman Institute at the University of Illinois. He currently serves as the Interim Head of the Bioengineering Department. He received the B.S. degree from MIT, and the M.S. and Ph.D. in Electrical Engineering from Cornell. He has been with the University of Illinois since 1980, serving for six years as the Associate Head of the Department of Electrical and Computer Engineering, and three years as Neuroscience Program Chair. Prof. Wheeler's research aims to develop technology, especially signal processing and microfabrication, for studying the nervous system, including cultured networks neurons patterned using microlithography and stimulated/recorded with microelectrode arrays. He also has had involvement in algorithm development for directional hearing aids.



**Dr. John D. Enderle** is the current Editor-in-Chief of the Engineering in Medicine and Biology Magazine. He is the Biomedical Engineering Program Director and Professor of Electrical & Computer Engineering at the University of Connecticut. Dr. Enderle is a Fellow of the IEEE, the 2004 EMBS Service Award Recipient, Past-President of the IEEE-EMBS, and EMBS Conference Chair for the 22<sup>nd</sup> Annual International Conference of the IEEE EMBS and World Congress on Medical Physics and Biomedical Engineering in 2000. He is a Fellow of AIMBE, and of the Biomedical Engineering Society, and received the ASEE National Fred Merryfield Design Award in 2007. He is Editor of the NSF Book Series on NSF Engineering Senior Design Projects to Aid Persons with Disabilities, and an author of the

book Introduction to Biomedical Engineering, published by Elsevier in 2000 (first edition) and 2005 (second edition). Dr. Enderle's current research interest involves characterizing the neurosensory control of the human visual and auditory system.



**Dr. Max A. Viergever** serves as the Editor-in-Chief of the IEEE Transactions on Medical Imaging. He is Professor and Head of the Department of Medical Imaging at Utrecht University, and Scientific Director of the Image Sciences Institute of the University Medical Center Utrecht. He is (co)author of more than 400 refereed scientific articles on biophysics and medical imaging, guest editor of eight journal issues, (co)author/editor of 15 books, and has served as supervisor of 79 PhD theses and >100 MS theses. His research interests comprise all aspects of medical imaging. Max Viergever has been a board member of IAPR, IPMI and MICCAI, is editor of the Springer book series Computational Imaging and Vision, editor of the Journal of Mathematical Imaging and Vision, and has acted as associate editor, guest editor or

editorial board member of eleven more international journals. He is an Elected Fellow of the Institute of Physics IOP (1999), of the International Association of Pattern Recognition IAPR (2002), and of the IEEE (2007), a recipient of the Catharijne Award (2002), and an honorary member of the Dutch Society for Pattern Recognition and Image Processing (2003).



**Dr. Nitish V. Thakor** is the Editor-in-Chief of IEEE Transactions on Neural Systems and Rehabilitation Engineering. He received Ph.D. degree in electrical and computer engineering from the University of Wisconsin, Madison, in 1981. He is with the Johns Hopkins University, School of Medicine, where he is currently serving as a Professor of Biomedical Engineering. He conducts research on neurological instrumentation, biomedical signal processing, micro and nanotechnologies, neural prosthesis, and clinical applications of neural and rehabilitation technologies. He has authored more than 165 peer-reviewed publications on these subjects. Currently he directs the Laboratory for Neuroengineering and is also the Director of the NIH Training Grant on Neuroengineering. Dr. Thakor is a recipient of a Research Career Development

Award from the National Institutes of Health and a Presidential Young Investigator Award from the National Science Foundation. He is a Fellow of the American Institute of Medical and Biological Engineering, IEEE and Founding Fellow of the Biomedical Engineering Society.



**Dr. Niilo Saranummi** is the Editor-in-Chief of IEEE Transactions on Information Technology in Biomedicine. He is a research professor in health technology at the Technical Research Centre of Finland. His current research interests include system architectures, middleware, IST for personalised health and disease management, in one concept “pervasive healthcare”. He is elected leader of a European Ambient Intelligence community “Well-being Services @ Work”. In 1991-94 he was President of the International Federation for Medical and Biological Engineering (IFMBE) and in 1994-97 President of the International Union for Physical and Engineering Sciences in Medicine. In 2003, he was elected interim President of the European Alliance for Medical and Biological Engineering and Science (EAMBES) in the inauguration meeting of that

organisation and became Past-President of EAMBES for 2005. He is Fellow of Finnish Academies of Technology, IFMBE and AIMBE. He is also secretary of the International Academy of Medical and Biological Engineering. He has published over 100 papers and chapters in peer-reviewed publications.



**Dr. Robert Butera** is the Deputy Editor-in-Chief of the IEEE Transactions on Biomedical Circuits and Systems. He is an Associate Professor in the School of Electrical and Computer Engineering and Chair of the Interdisciplinary Bioengineering Graduate Program at the Georgia Institute of Technology in Atlanta, GA USA. His research is in the area of neural engineering, computational neuroscience, and bioelectrical/ bioimpedance modeling and measurements. His research is actively supported by NSF and NIH, and he is a recipient of the NSF CAREER award and a McDonnell Foundation 21st Century Scientist Award. He is member of the AdCom of IEEE-EMBS. He also serves on numerous grant review panels and as an Associate Editor of the Journal of Theoretical Biology.



**Dr. Bin He** serves as the Vice President for Publications of EMBS. He is Professor of Biomedical Engineering, Electrical Engineering and Neuroscience, and Interim Director of Center for Neuroengineering at the University of Minnesota. His research interests include functional biomedical imaging, neuroengineering, bioelectromagnetism, and has published over 115 articles in peer-reviewed journals. Dr. He is the recipient of NSF CAREER Award, American Heart Association Established Investigator Award, and University of Illinois University Scholar Award where he was on faculty. He has served as an associate/guest editor for 11 international journals. Dr. He has also been active in a number of program committees of conferences, and is appointed as the Conference Chair of EMBS Annual Conference in 2009. Dr. He is a Fellow of IEEE and AMBIE, served as the President of International Society of Bioelectromagnetism from 2002-2005, and listed in Who’s Who in America, and Who’s Who in the World.





# EMBC'08

August 20-24, 2008  
Vancouver, Canada

**Conference Chair**  
*Guy Dumont, UBC*

**Conference Co-Chair**  
*Henrietta Galiana, McGill*

**Program Chair**  
*Paolo Vicini, U. Washington*

**Program Co-Chair**  
*Jose Principe, U. Florida*

**Finance Chair**  
*Anthony Hodgson, UBC*

**Publicity Chair**  
*Bin He, U. Minnesota*

**Exhibits Chair**  
*Judy Findlay, BCIT*

## Important Dates

**February 1, 2008**  
*Mini-Symposia/ Special Session Request*

**April 7, 2008**  
*Four Page Paper Submission*

**April 29, 2008**  
*Exhibition Booth/Table Reservation*

**June 13, 2008**  
*Notification of Acceptance*

**July 11, 2008**  
*Author Final Submission*

**July 18, 2008**  
*Early Registration / Hotel Reservation*

## ***“Personalized Healthcare through Technology”***

The 30<sup>th</sup> Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC'08) will be held from August 20 to 24, 2008 at the Vancouver Convention and Exhibition Centre in Vancouver, BC, Canada.

The general theme of EMBC'08 is “Personalized Healthcare through Technology”, covering a broad spectrum of topics from biomedical and clinical engineering and physics to medical and clinical applications. Transfer of research results from academia to industry will 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 Commercialization; Education, Industry & Society

For more details, visit the EMBC'08 Website:  
<http://www.embc2008.com>

