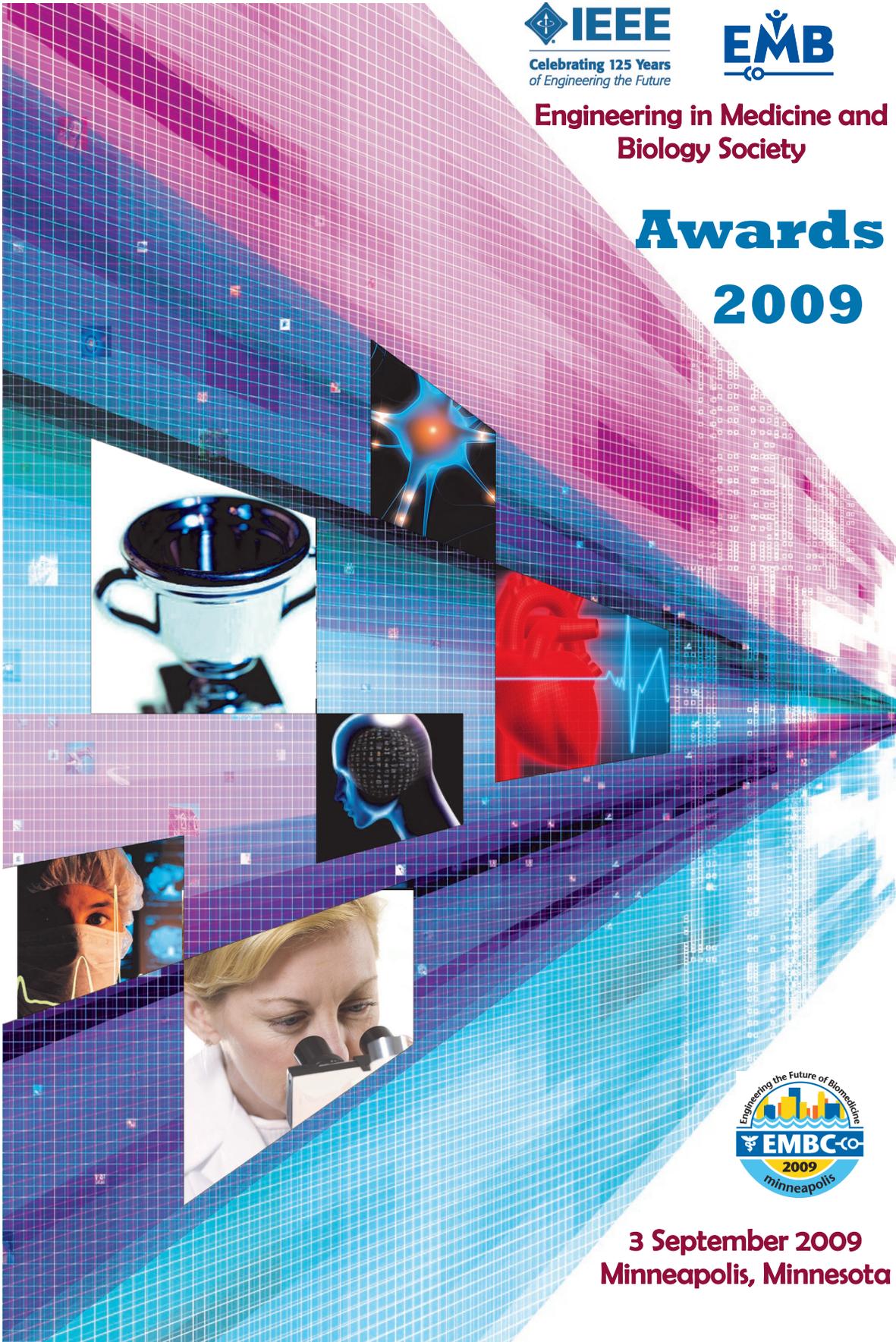




**Engineering in Medicine and
Biology Society**

Awards 2009



**3 September 2009
Minneapolis, Minnesota**

*Please join us in congratulating EMBS Members elected for the
IEEE Fellow for 2009*

Tulay Adali, University of Maryland, USA

“for contributions to nonlinear and complex-valued statistical signal processing”

Metin Akay, Arizona State University, USA

“for contributions to biomedical signal modeling and processing”

Rashid Bashir, University of Illinois at Urbana-Champaign, USA

“for contributions to development of micro-systems and nanotechnology for medical applications”

Louis Durand, IRCM, Canada

“for contributions to instrumentation and methods for assessing cardiovascular and respiratory diseases”

Lars Eriksson, Siemens Molecular Imaging, USA

“for development of instrumentation and methodologies for molecular imaging”

Paolo Fiorini, University of Verona, Italy

“for contributions to mobile robot navigation in dynamic environments”

Susan Hagness, University of Wisconsin-Madison, USA

“for contributions to time-domain computational electromagnetics and microwave medical”

Xiaoping Hu, Georgia Institute of Technology & Emory Univ., USA

Sung-Cheng Huang, UCLA David Geffen School of Medicine, USA

“for contributions to kinetic modeling and biological quantification in positron emission tomography”

Gregory Kovacs, Stanford University, USA

“for contributions to fabrication and use of biosensors for medical, environmental and space applications”

Terence Peters, Robarts Research Institute, Canada

“for contributions to medical imaging and image-guided surgery”

Niilo Saranummi, VTT Technical Research Centre of Finland, Finland

“for leadership in biomedical engineering and biomedical information technology”

Kensuke Sekihara, Tokyo Metropolitan University, Tokyo

“for contributions to electromagnetic brain imaging”

Wesley Snyder, North Carolina State Univ. & Army Research Office, USA

“for contributions to education in robotics and computer vision”

Jayaram Udupa, University of Pennsylvania, Philadelphia, USA

“for contributions to medical image processing”

Sabine Van Huffel, Katholieke Universiteit Leuven, Belgium

“for contributions to total least squares fitting and computational biosignal processing”

IEEE Transactions on Biomedical Engineering
2009 Outstanding Paper Award

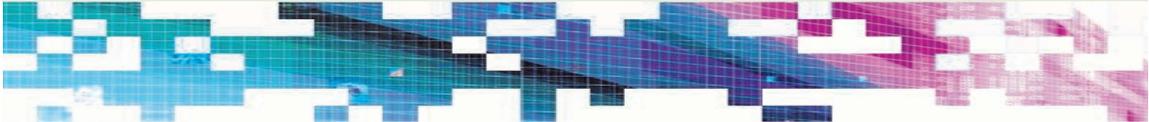
Please join us in congratulating:

Paper

Authors:

This paper describes

The authors' affiliations at the time of publication:



A monetary award of \$500 will be given to the author group and individual certificates of merit will be given to each author.

*IEEE Transactions on Information Technology in
Biomedicine, 2009 Outstanding Paper Award*

Please join us in congratulating:

Paper

Authors:

This paper describes

The authors' affiliations at the time of publication:



A monetary award of \$500 will be given to the author group and individual certificates of merit will be given to each author.

*IEEE Transactions on Neural Systems and
Rehabilitation Engineering 2009 Outstanding Paper Award*

There are joint recipients to represent the technical areas of Neural Systems and Rehabilitation Engineering

Please join us in congratulating the first recipient:

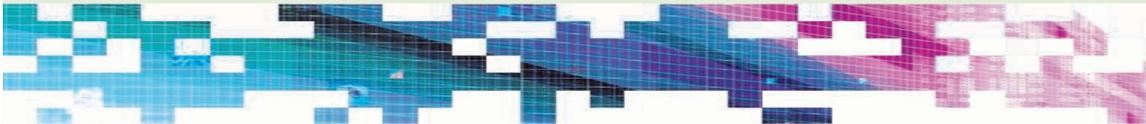
**Linear and Nonlinear Methods for Brain-Computer Interfaces
(T-NSRE, vol. 11, no. 2, pp.165-169, June 2003)**

Authors:

K-R Muller, Charles W. Anderson, G.E. Birch

This paper describes

The authors' affiliations at the time of publication:



Please join us in congratulating the second recipient.

**Adaptive Control of a Variable-Impedance Ankle-Foot Orthosis to Assist Drop-Foot Gait
(T-NSRE, vol. 12, no. 1, pp.24-31, March 2004)**

Authors:

Joaquin A. Blava, Hugh Herr

This paper describes

The authors' affiliations at the time of publication:

A monetary award of \$500 will be given to the author group and individual certificates of merit will be given to each author.

2008 EMBS Student Paper Competition Award Winners

First Place



Kayan Ma

Robarts Research Institute, Canada

"A New Lateral Guidance Device for Stereotactic Breast Biopsy Using an Add-on Unit to an Upright Mammography System"

Second Place



Debra Strick

University of California Los Angeles, USA

"Towards a Microcoil for Intracranial and Intraductal MR Microscopy"

Third Place



Raz Miri

University of Karlsruhe, Germany

"Comparison of the Electrophysiologically Based Optimization Methods with Different Pacing Parameters in Patient Undergoing Resynchronization Treatment"



2008 Student Paper Competition Finalists

For outstanding student achievement on a level of international competition in the field of Biomedical Engineering. The three most outstanding student competitors at the Annual International Conference of the EMBS will be recognized based on the quality and presentation of their research at that Conference. The First, Second and Third place winners will receive \$300, \$200, and \$100 respectively.

*2009 EMBS Student Paper Competition
Geographic Finalists*

North America

Paulo A. Garcia

Virginia Tech, USA

Pilot Study of Irreversible Electroporation for Intracranial Surgery

Europe

Johnny L.G. Nielsen

Aalborg University, Denmark

Enhanced EMG Signal Processing for Simultaneous and Proportional Myoelectric Control

Asia Pacific

Peng Du

Auckland Bioengineering Institute, New Zealand

Automated Detection of Gastric Slow Wave Events and Estimation of Propagation Velocity Vector Fields from Serosal High-Resolution Mapping

Latin America

Julián D. Arias-Londoño

Universidad Politecnica de Madrid, Spain

Complexity Analysis of Pathological Voices by Means of Hidden Markov Entropy Measurements

**2009 EMBS Student Paper Competition
Open Finalists**

Natasha Alves, University of Toronto, Canada

Classification of the Mechanomyogram: Its Potential As a Multifunction Access Pathway

Justin Baker, University of Utah, USA

Multi-Scale Recordings for Neuroprosthetic Control of Finger Movements

Alper Bozkurt, Cornell University, USA

Aerial and Terrestrial Locomotion Control of Lift Assisted Insect Biobots

Shan Hu, University of Minnesota Duluth, USA

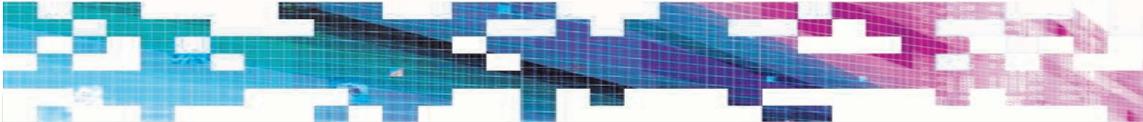
Pulse Wave Sensor for Non-Intrusive Driver's Drowsiness Detection

Ho Chee Keong, University of Newcastle, Australia

Analysis of a Multi-Access Scheme and Asynchronous Transmit-Only UWB for Wireless Body Area Networks

Babak Mahmoudi, University of Florida, USA

An Actor-Critic Architecture and Simulator for Goal-Directed Brain-Machine Interfaces



Seetharam Narasimhan, Case Western Reserve University, USA

A Preferential Design Approach for Energy-Efficient and Robust Implantable Neural Signal Processing Hardware

Yasushi Shiraishi, Tohoku University, Japan

Multi-Neuron Action Potentials Recorded with Tetrode Are Not Instantaneous Mixtures of Single Neuronal Action Potentials

Subramaniam Venkatraman, University of California Berkeley, USA

Exploiting the 1/f Structure of Neural Signals for the Design of Integrated Neural Amplifiers

Marcus Yip, University of British Columbia, Canada

A Flexible Pressure Monitoring System for Pressure Ulcer Prevention

H. Camilia Yousefzadeh, Sherbrooke University, Canada

A Pulse Simulator for Crystal Identification Validation of Phoswich Detectors Used in Positron Emission Tomography

2009 EMBS Outstanding Chapter Award

is presented to

Hong Kong EMBS Chapter



2008-2009 ExCom



2006-2007 ExCom

The IEEE-EMBS Hong Kong Chapter was founded in September 2006 and Paul Cheung was the foundation Chair. Since the foundation, the executive committee have kept a balance to be nominated from different sectors of Hong Kong, including professionals from the university, industry, and hospital. Such a composition of Committee made it possible to organize activities with widely collaboration. The Chapter has been very active from the foundation. In the past three years, the Chapter has jointly organized seminars (7-9 per year), hospital visits, industry visits, and workshops, and technically supported international conferences. Collaborating parties included local universities, companies, hospital, government, and other professional organizations in Hong Kong and mainland.

The activities attracted good numbers of attendance as well as more people to join EMBS. The number of EMBS members in Hong Kong was increased by 68% (from 28

to 47) in the first year after the foundation and the Hong Kong Chapter was rewarded in 2007 as award for the membership increase beyond 10 for one fiscal year. In 2009, the Hong Kong Chapter gained its milestone award – the Outstanding Chapter of EMBS.

The Hong Kong Chapter carefully maintains a homepage from foundation (please see <http://www.ieee.org.hk/EMBS/default.htm>). Everyone can witness its growth from the homepage, which includes not only general information of the Chapter and activities, but also minutes of Committee meetings. Publicizing the Committee's actions let all members have the opportunity to become involved in the Chapter's development.

The EMBS Hong Kong Chapter is still young. It is really exciting and encouraging to accept the Outstanding Chapter Award in its third year from foundation. The Committee is grateful to the appreciation from the EMBS society and confident to lead the Chapter to its next milestone.

PRIOR AWARDEES

2008: *Buenaventura Chapter*

2007: *Columbia Chapter*

2006: *No Nominations*

2005: *Buenaventura Chapter*

2004-2000: *No Nominations*

1999: *Twin Cities Chapter*

1998: *Baltimore Chapter*

1997: *Houston Chapter*

1994: *Dayton Chapter*

1993: *Mexico Chapter*

1992: *Santa Clara Valley Chapter*

2009 EMBS Best New Chapter Award

is presented to
Swiss Chapter



PRIOR AWARDEES

2008: *Romania Chapter*

2007: *Greece Chapter*

2009 EMBS Outstanding Performance Award for Student Branch Chapter or Club

is presented to

University of Connecticut Student Branch Chapter



The IEEE EMBS Branch Chapter at the University of Connecticut is dedicated to informing individuals within our student body and our community about biomedical engineering and new advances within the medical technology industry. This past year we had approximately 90 undergraduate and 15 graduate members. We held various activities and events based on the 5 main pillars promoted by EMBS including Membership Promotion and Retention, Education, Professional Development, Community Service, and Social Activities.

In regard to membership promotion, we hosted an open house both semesters for parents and prospecting students. During the open house, we offered question and answer sessions about the BME program at UConn, provided tours into our laboratories and supplied demonstrations using laboratory equipment and programs such as LabVIEW and BioPac. This connection with prospective students provided a great insight into the BME program at UConn and what the EMBS has to offer.

For education, we provided our members with tutoring sessions three times a week. One of our members created a proposal to begin a mentoring program for the underclassmen in order to assist in the transition into college from high school. Our advisor loved the idea and the program will begin in the fall.

In terms of Professional Development and Community Service, we hold many events. We held informative seminars throughout the year discussing current biomedical topics within the field. We also had a few presentations from industry representatives, in particular Covidien, who work closely with UConn. We held a resume workshop to prepare our members for our main Annual Career Fair. The Annual Career Fair is attended by biomedical engineering companies and students in graduate programs. This is our largest event and it takes roughly the entire year to plan. This past year we contacted over 500 companies to request attendance at no cost. Due to the current state of the economy, only 12 companies were able to attend. We had around 180 students attend the event from UConn and about another 20 from states as far away as IL, NY, NJ and MA. The event was a success and many students received job, internship, or COOP offers.

We also enjoy hosting social events. During the past year, we held ice cream socials, game nights, and movie nights. These events enhanced our society closeness and provided for a certain level of bonding that would not have been reached in our meetings.

In the future, we will continue to promote awareness about the medical industry to our community, while furthering academic, professional, and social development to our members.

PRIOR AWARDEES

2008: *Cairo University Student Branch Chapter*
2007: *Bombay Student Branch Chapter at TSEC*
2006: *Univ of Connecticut Student Branch Chapter*
2005: *Student Branch Chapter at BUPT*
2004: *North Dakota State University Student Club*

*2009 EMBS Best New Student
Branch Chapter or Club Award*

is presented to

University of Western Australia Student Club



The University of Western Australia's EMBS Student Club was formed in 2008. It now supports a fast growing interest in biomedical engineering amongst undergraduate students.

To advertise and encourage membership, we hold lunch time BBQs on campus. At the first BBQ, the response was overwhelming as students from electrical engineering, mechanical engineering, computer science, medicine, zoology, anatomy and physiology attended.

We are actively engaged with the University's academics to promote undergraduate and postgraduate research projects. We have encouraged the creation of a new Masters of Biomedical Engineering course at UWA. It is anticipated this will eventually bring even greater interest in biomedical engineering in the near term.

Engagement with industry has been a priority for us and relationships are emerging with leading international businesses in the biomedical and related fields.

Partnership with the largest ophthalmology research institute in the southern Hemisphere, the Lions Eye Institute, is an indication of the interest we have created in a short time and suggests a positive response may be expected from other organizations. This will provide exciting opportunities for students and assist in

Lion's Eye Institute has been invited to present seminars at the University and UWA students have been offered student internships over the summer.

We have also established connections with Siemens in Australia and hope to explore opportunities with ResMed and Cochlear.

Our community-based aspect has grown rapidly. Under the banner of "Engineering Happiness", we run volunteer activities to support community health groups. We support three leading Australian health groups. These include CanTeen, a nationwide organisation supporting young people living with cancer, the Children's Leukaemia and Cancer Research Foundation, which conducts research in Western Australia, and the Starlight Children's Foundation, a charity dedicated to brightening the lives of seriously ill and hospitalised children across Australia.

Engineering Happiness volunteers conducted an exciting tour of the University campus in May 2009, participated in fundraising activities and visited the Princess Margaret Children's Hospital. Engineering Happiness has been so successful that students from unrelated areas such as law and commerce have participated as associate members of our Club!

The establishment of our Club has demonstrated what interest exists at academic, industry and community levels in the field of biomedical engineering in Western Australia. The supportive approach of students from the UWA EMBS to connect with "Engineering Happiness" has been one of the greatest accomplishments of the Club in its first year.

2009 EMBS Early Career Achievement Award
is presented to
Silvestro Micera



“For contributions on the development of implantable neuroprostheses and biomechatronic devices for the restoration of sensory-motor function

Dr. Silvestro Micera (S'94–M'99–SM'06) received the University degree (Laurea) in Electrical Engineering from the University of Pisa, in 1996, and the Ph.D. degree in Biomedical Engineering from the Scuola Superiore Sant'Anna, in 2000. During 1999, he was a Visiting Student at the Aalborg University. From 2000 to 2008, he has been an Assistant Professor of BioRobotics at the Scuola Superiore Sant'Anna. In 2007 he was a Visiting Scientist at the Massachusetts Institute of Technology, Cambridge, USA with a Fulbright Scholarship. From 2008 he is the Head of the Neuroprosthesis Control group at the Institute for Automation, Swiss Federal Institute of Technology, Zurich, CH.

Dr. Micera's research interests include the development of hybrid neuroprosthetic systems (interfacing the central and peripheral nervous systems with artificial systems) and of mechatronic and robotic systems for function and assessment restoration in disabled and elderly persons.

He is an author of several scientific papers and international patents. He served as Guest Editor of several biomedical engineering journals. He is currently Associate Editor of *IEEE Transactions on Biomedical Engineering* and of *IEEE Transactions on Neural Systems and Rehabilitation Engineering*. He is also member of the Editorial Board of the Journal of Neuroengineering and Rehabilitation and Deputy Editor in Chief of the *IEEE EMB Magazine*.

PRIOR AWARDEES

2008: <i>Ali Khademhosseini</i>	1997: <i>Metin Akay</i>
2007: <i>Tejal Desai</i>	1996: <i>Joan E. Sanders</i>
2006: <i>Alejandro Frangi</i>	1995: <i>Atam P. Dhawan</i>
2005: <i>Stephen Boppart</i>	1993: <i>Rory A. Cooper</i>
2004: <i>Susan Hagness</i>	1992: <i>Yitzhak Mendelson</i>
2003: <i>Paolo Vicini</i>	1991: <i>Blake Hannaford</i>
2002: <i>Dorin Panescu</i>	1990: <i>Janie M. Fouke</i>
2001: <i>David Beebe</i>	1988: <i>Yongmin Kim</i>
2000: <i>James Collins</i>	1986: <i>George V. Kondraske</i>
1999: <i>Zhi-Pei Liang</i>	1985: <i>K. Kirk Shung</i>

2009 EMBS Service Award

is presented to

John Clark



“For outstanding service and contributions to the EMB Society and a meritorious career in biomedical engineering education.”

Dr. John W. Clark, Jr. received a Ph.D. in Biomedical Engineering in 1967 from Case Western Reserve University, Cleveland, OH. He is presently a Professor in the Department of Electrical and Computer Engineering at Rice University in Houston, TX. Dr. Clark is a Fellow of the IEEE and the Alexander von Humboldt Foundation (Germany), and a Founding Fellow of both the Biomedical Engineering Society (BMES) and the American Institute of Medical and Biological Engineering (AIMBE).

His research interests are in the area of biological systems modeling, with a dual emphasis on modeling molecular and cellular dynamics, and developing large-scale integrated models of the human cardiovascular and respiratory systems. Specifically, he and his graduate students

biological processes on several levels of scale: from the nano and micro levels of scale (molecular, cellular and tissue) to the organ and body levels (large multiple-organ systems). Nano-micro level examples include cell models of neurons, cardiac and smooth muscle cells, which contain mechanistic descriptions of ion channels and their modulation via cell signaling systems (e.g., second messengers such as nitric oxide, cAMP and cGMP). At the multiple-organ system levels, his group has developed interactive cardiovascular and pulmonary systems models for a variety of different species (human, canine, ovine). This work has culminated in the development of a neurally controlled human cardiopulmonary (CP) system model, which is used to study the interaction between the cardiovascular and pulmonary systems as mediated by the central nervous system (e.g., prediction of CP dynamics during the Valsalva maneuver, orthostasis, and heart failure).

Dr. Clark served as President of the IEEE Engineering in Medicine and Biology Society (EMBS) in 2003 and has always been interested in fostering the activity of Technical Committees within the IEEE/EMB Society.

PRIOR AWARDEES

2008: *Henrietta Galiana*

2007: *Nathalie Gosset*

2006: *Yuan-Ting Zhang*

2005: *Jose Principe*

2004: *John Enderle*

2003: *Christian Roux*

2002: *Swamy Laxminarayan*

2001: *Metin Akay*

2000: *Jack Iverson*

1999: *Jean-Louis Coatrieux*

1998: *Susan M. Blanchard*

1996: *Michael R. Neuman*

1995: *Charles Robinson*

1994: *Barry Feinberg*

1993: *Eli Fromme*

1992: *Swamy Laxminarayan*

1990: *Alvin Wald*

1983: *Eli Fromme*

2009 EMBS Academic Career Achievement Award

is presented to

Sergio Cerutti



“For a meritorious career in biomedical engineering research in the area of biomedical signal processing and the advancement of biomedical engineering education.”

Dr. Sergio Cerutti has operated in the area of Biomedical Engineering, initially inside the Electrical Engineering Dept, and then inside the Bioengineering Dept of the Polytechnic University in Milan (Politecnico) of which he was a founding member in 1990. He has been the first Professor (Associate) in Italy to take a tenured position in Biomedical Signal Processing in 1982. He became Professor on Biomedical Engineering in 1990 at the University of Rome “La Sapienza” and then back to the Politecnico of Milan. In 2000-2006: Chairman of the Dept of Bioengineering of the Politecnico; in 1995-1998: Chairman of Undergraduate Program in Biomedical Engineering and in the period 1998-2000 Vice-Chairman of the Graduate Program in Biomedical Engineering in the same Politecnico.

He has a strong background in both signal processing techniques and system and control theory and his most important contribution has been to develop research activity and didactical courses in which the modeling aspects of biological systems had a deep interaction with advanced signal processing techniques. He spent more than one year at Harvard School of Public Health, Beth Israel Hospital, and at MIT Health Science and Technology Department, in two periods in the '80's. He was an Elected Member of IEEE-EMBS AdCom 1993-1996. He is a Fellow

Member of IEEE and of EAMBES and Associate Editor of *IEEE Trans on BME*. He is a member of the Steering Committee of the IEEE-EMBS Summer School on Biomedical Signal Processing; he was the local organiser of four Summer Schools held in Siena. He is the author of more than 500 international scientific contributions (more than 220 on indexed scientific journals). His h-index is around 38. His most-cited paper is the Task Force on HRV, 1996, the 3rd most cited paper in Circulation: Camm J, Malik M., Bigger J.T., Breithardt G., Cerutti S. et al., Task Force of the European Society of Cardiology and the North American Society of Pacing and Electrophysiology. Heart rate variability: standards of measurement, physiological interpretation and clinical use.

In his more than 35-year long career at University he has mentored a few hundred PhD students, graduate and undergraduate students in Electrical Engineering and especially in Biomedical Engineering: many of them are working inside the academic research environment in Italy as well as worldwide. Others have followed a career in industry (mainly of electromedical equipments and devices) as well as in the clinical engineering activity or the freelance profession.

PRIOR AWARDEES

2007: <i>Jose Principe</i>	1995: <i>Floyd Dunn</i>
2006: <i>Jean-Louis Coatrieux</i>	1994: <i>Wilson Greatbatch</i>
2005: <i>Ewart Carson</i>	1993: <i>John M. Reid</i>
2004: <i>Michael R. Neuman</i>	1992: <i>Edwin L. Carstensen</i>
2003: <i>Ante Šantic</i>	1991: <i>Walter Welkowitz</i>
2002: <i>Willis J. Tompkins</i>	1990: <i>Richard J. Johns</i>
2001: <i>John G. Webster</i>	1988: <i>R. Stuart Mackay</i>
2000: <i>Max Schaldach</i>	1987: <i>Otto Schmitt</i>
1999: <i>Fernand A. Roberge</i>	1986: <i>Leslie A. Geddes</i>
1997: <i>J. Lawrence Katz</i>	1985: <i>David B. Geselowitz</i>
1996: <i>Max E. Valentinuzzi</i>	

2009 EMBS Professional Career Achievement Award

*is presented to
Dorin Panescu*



“For groundbreaking contributions to the invention and development of medical devices for cardiac ablation, mapping, imaging and cardiac resynchronization therapy.”

Dr. Dorin Panescu graduated with a B.S. degree in Electronics and Telecommunications in 1985 from the “Traian Vuia” Polytechnic Institute, Timisoara, Romania. He earned both his M.S. and Ph.D. degrees in Electrical and Computer Engineering from the University of Wisconsin-Madison in 1991 and 1993, respectively.

Between 1985 and 1990, he worked for IAEM (Enterprise for Electrical Measurement Apparatuses) and for the Institute for Automation, both in Romania. Between 1993 and 1996, he was Sr. R&D Engineer with EP Technologies, in Sunnyvale, CA. Between 1996 and 2004, he was Sr. Director, Systems Development, with Boston Scientific Corporation, the Electrophysiology Division, San Jose, CA. Between 2004 and 2005, he was Vice-President, Research and Development, with Refractec, Inc., Irvine, CA. Between 2005 and 2008, he was Director, Technology Development, with St. Jude Medical, Inc., Cardiac Rhythm Management Division, Sunnyvale, CA. Since 2008, he has been Chief Technical Officer and Vice-President, Research and Development, with NewCardio, Inc., Santa Clara, CA.

Dr. Panescu is inventor or co-inventor on 130 issued US patents, on over 70 filed US patent applications and on over 50 issued international patents related to heart failure treatment, cardiac resynchronization implantable devices, wireless remote patient monitoring, refractive surgery, skin and wrinkle treatment, cardiac mapping, imaging and ablation. Dr. Panescu is author or co-author of over 100 technical publications – book chapters, peer-reviewed journal articles and conference abstracts – related to cardiac pacing, cardiac defibrillation, radiofrequency tissue ablation, cardiac imaging, circuit design, digital signal processing and refractive surgery.

He is the recipient of the 2002 IEEE-EMBS Early Career Achievement Award. In 2007, in recognition for his contributions to the development of medical devices and products, Dr. Panescu was among the eight alumni honored with the Distinguished Achievement Award by the University of Wisconsin-Madison. Two of his previous employers, Boston Scientific Corporation and St. Jude Medical, Inc., have also recognized Dr. Panescu with their highest Scientific and Innovation Awards, in 2001 and 2008, respectively. Presently, he serves as the Chair of the IEEE-EMBS Therapeutic Systems and Technologies Technical Committee. He is a Senior Member of the IEEE and a Fellow of the American Institute of Medical and Biological Engineering (AIMBE).

2009 William J. Morlock Award

is presented to

Luke Lee



“For contributions to the field of BioMEMS/ BioNEMS and for generation of biologically-inspired artificial eyes, and microdevices for cellular analysis.”

Prof. Luke P. Lee is Lester and Lynn Lloyd Distinguished Professor of Bioengineering at UC Berkeley. He is member of Bioengineering Graduate Group, UCSF & UC Berkeley, Biophysics Graduate Group, Applied Science & Technology Group, Nanoscale Science & Engineering Graduate Group, and QB3 at UC Berkeley. He is also Director of Biomolecular Nanotechnology Center and Co-Director of Berkeley Sensor & Actuator Center. He enjoys to find innovative solutions for the problems of current qualitative biology and to find effective and functional systems for diagnostics and therapies in 21st century medicine.

He was Chair Professor in Systems Nanobiology at the Swiss Federal Institute of Technology (ETH, Zurich). He received both his B.A. in Biophysics and Ph.D. in Applied Science & Technology: Applied Physics (major)/Bioengineering (minor) from UC Berkeley. He has more than ten years of industrial experience in integrated optoelectronics, Superconducting Quantum Interference Devices (SQUIDs), and magnetic bioassays. He has authored and co-authored over 220 papers on single cell biophysics, quantitative cell biology, bionanophotonics, label-free biosensors, molecular diagnostics, dynamic cell culture array, optofluidics, Surface Enhanced Raman Spectroscopy (SERS), Plasmonic Resonance Energy Transfer (PRET),

SQUIDs, and nanogap biosensor. His lab has developed biologically inspired optical systems and physiologically relevant microfluidic platform for quantitative cell biology and personalized medicine (<http://biopoets.berkeley.edu>).

Prof. Lee currently has an active laboratory with over 20 post-doctoral fellows and graduate students that focuses on two major areas: (1) satellite nanoscopes for spectroscopic imaging of living cells and molecular optogenetics to control gene regulation and protein expression; (2) Optofluidic Application Specific Integrated Systems (OASIS) for precision biology and personalized medicine. Satellite nanoscopes and OASIS are being applied for cell reprogramming, systematic quantitative biology, molecular diagnostics, and high-speed drug screening. He serves on the editorial board of 4 journals and on the advisory boards of 2 companies. He has received numerous honors including the NSF career award, National Academies Keck Future Initiative Award, SFI Research Professorship, and Siebel Scholar Award. His vision for predictive, preventive, and personalized medicine with a solid foundation on precision biology via innovative engineering solutions is for global healthcare systems both developed and developing countries.

PRIOR AWARDEES

1979: Robert Plonsey
1974: Dean L. Franklin
1973: Donald F. Childers
1968: Wilson Greatbatch
1967: Herman Schwan
1963: Otto Schmitt
1961: Britton Chance
1956: Edward F. MacNichol

Award Descriptions

OUTSTANDING CHAPTER AWARD is presented annually to an EMBS Chapter who demonstrates achievement in member development and delivering services to members of an EMBS chapter during the previous calendar year. Achievement is based on activities, community outreach and promotion of EMB (website and newsletters). The award recipient receives an Honorarium of \$1,000 USD and travel reimbursement of up to \$1,000 USD for a Chapter representative to attend the EMBC awards dinner.

BEST NEW CHAPTER AWARD is presented annually to a new EMBS Chapter (within the first 12 months of Chapter formation) who demonstrates outstanding activities, community outreach and promotion of EMB (website and newsletters). The award recipient receives an Honorarium of \$500 USD and travel reimbursement of up to \$1,000 USD for a Chapter representative to attend the EMBC awards dinner.

OUTSTANDING PERFORMANCE AWARD FOR STUDENT BRANCH CHAPTER OR CLUB AWARD is presented annually to an EMBS Student Branch Chapter or Club who demonstrates achievement in promoting student interest and involvement in biomedical engineering during the previous calendar year. Achievement is based on activities demonstrating initiative; innovation and creativity; areas of progress and improvement; significant impact in biomedical engineering education; and contributions to the profession. The award recipient receives an Honorarium of \$500 USD and travel reimbursement of up to \$1,000 USD for a Chapter/Club representative to attend the EMBC awards dinner.

BEST NEW STUDENT BRANCH CHAPTER OR CLUB AWARD is presented annually to a new EMBS Student Branch Chapter or Club (within the first 12 months of formation) who demonstrates activities demonstrating initiative, innovation, and creativity; areas of progress and improvement; significant impact in biomedical engineering education; and contributions to the profession. The award recipient receives an Honorarium of \$300 USD and travel reimbursement of up to \$1,000 USD for a Chapter/Club representative to attend the EMBC awards dinner.

EARLY CAREER ACHIEVEMENT AWARD is presented annually to an individual who has made significant contributions, technologically or theoretically, to the field of Biomedical Engineering within ten years of completion of his or her highest degree. These contributions must represent meritorious achievement, exemplary technical contribution, or educational contribution to the field as evidenced by innovative research, design, product development, patents or publications. The award recipient receives an Honorarium of \$1,000 USD and travel reimbursement of up to \$1,500 USD to attend the EMBC awards dinner.

SERVICE AWARD is presented annually to individuals who have made significant service contributions to the EMB Society. These contributions must represent uncommon dedication, and a record of exemplary service to the EMB society. The work cited could have appeared in the form of service as an EMBS Officer, AdCom member, editor, associate editor or society member. The award recipient receives an Honorarium of \$1,000 USD and travel reimbursement of up to \$1,500 USD to attend the EMBC awards dinner.

ACADEMIC AND PROFESSIONAL CAREER ACHIEVEMENT AWARDS are each presented annually to an individual who has made significant contributions through a distinguished career of twenty years or more in the field of Biomedical Engineering, as an educator, researcher, developer or administrator. These contributions must represent meritorious achievement and exemplary technical, educational, or administrative accomplishments in the field. Any past or present member of the IEEE and EMBS who has not been a voting member of AdCom in the past two years is eligible. The award recipients each receive an Honorarium of \$2,500 USD and travel reimbursement of up to \$1,500 USD to attend the EMBC awards dinner.

WILLIAM J. MORLOCK AWARD was established in 1960 by the family of William J. Morlock to give recognition to a qualified person with an original contribution involving important application of electronics techniques and concepts to the solution of biomedical problems. The award has not been presented since 1980; however, 2009 marks the first year of new award recipients. The award recipient receives an Honorarium of \$3,000 USD and travel reimbursement of up to \$2,000 USD to attend the EMBC awards dinner.

The IEEE Engineering in Medicine and Biology Society 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.

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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
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 Biomechanics (BIOROB)
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