

President's WELCOME MESSAGE



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It is my great pleasure to welcome you to the 34th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBS). Our Annual Conference (known as EMBC) is a premier international conference in biomedical engineering, and has been strategically held in different locations around the world, for example, in Boston (USA), Buenos Aires (Argentina), Minneapolis (USA), Vancouver (Canada), Lyon (France), New York City (USA), and Shanghai (China) over the last 7 years.

This year's meeting is being held in the beautiful city of San Diego, California. Under the able leadership of Dr. Michael Khoo (Conference Chair), Dr. Gert Cauwenberghs (Program Co-Chair) and Dr. James Weiland (Program Co-chair), the organizing committee has developed an exciting inter-disciplinary program. This Program includes tutorial courses offering continuing medical education credits to clinicians; panel sessions discussing important biomedical engineering issues with academic researchers, clinicians, and research and development engineers; and lunchtime sessions to promote students' interest in biomedical engineering. The organizers have also successfully recruited an all-star roster of keynote speakers, including Dr. William Brody (Salk Institute), Dr. Eric Topol (Scripps Translational Science Institute), Rebecca Bergman (Medtronic, Inc), Dr. Shu Chien (University of California, San Diego), Dr. James B. Basingthwaight (University of Washington), Michael B. Duich (Philips Healthcare), Hamid Ghandehari (University of Utah), Dr. Erik Meijering (Erasmus University Medical Center), Misha Pavel (National Science Foundation), John A. Rogers (University of Illinois at Urbana-Champaign), Krishna V. Shenoy (Stanford University), Shankar Subramaniam (University of California, San Diego), and Savio L.-Y. Woo (University of Pittsburgh).

The continued growth of our meeting is an indication of its high quality and impact. This year, we received over 2,500 submissions. All the submitted papers were subject to peer review by the EMBS Conference Editorial Board (CEB), consisting of an international panel of experts in all areas of biomedical engineering. Special thanks go to, Nigel Lovell, Editor-in-Chief of the CEB, all the editors and reviewers of the CEB, and all the staff of the EMBS Executive Office (Laura Wolf, Jessica Lotito, Alicia Tomaszewski, Dana Bernstein, and Angela Martin) for their outstanding service and contributions toward making this meeting possible.

EMBS continues to strive to provide a unique, effective platform for biomedical engineers to publish, to present, to network, and to advance their careers. If you are not an EMBS member yet, please consider joining this dynamic society, and join us for future EMBS Conferences. The next three EMBS Annual Conferences will be held in Osaka, Japan (2013), and Chicago, Illinois, USA (2014), Milan, Italy (2015).

Again, welcome to EMBC'12. I appreciate your participation and hope you will find this meeting stimulating and rewarding.



Dear Colleagues,

On behalf of the EMB'12 Organizing Committee, it is our singular pleasure to welcome you to the 34th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. EMBC'12 continues the series of annual conferences that have become a key meeting ground for the international bioengineering community, bringing together academic experts, clinicians, industry representatives, and students in the broad spectrum of areas that constitute biomedical engineering. This year's theme, "Engineering Innovation in Global Health", resonates well with the positive, forward-looking vibe that accompanies the setting of EMBC'12 in San Diego – a city known for its year-round near-perfect weather, breathtaking beauty, and highly accessible location on the Pacific Rim. Aside from its lure as an international travel destination, San Diego is home to world-class academic and research institutions such as University of California at San Diego, the Salk Institute of Biological Sciences, the Scripps Research Institute and the Sanford-Burnham Medical Research Institute. The greater San Diego region houses hundreds of wireless, medical device and biotechnology companies, including Qualcomm, Novatel, Nanogen, Illumina and Elan. Located within a two-hour drive of this city are several other institutions of higher learning with notable biomedical engineering programs, such as the University of Southern California, California Institute of Technology, the other campuses of University of California (at Irvine, Los Angeles and Riverside) and California State University.

The program this year includes a diverse array of over 2,100 papers and talks in topic areas that range from stem cell biology to neuroprosthetics to international biomedical education. These papers will be presented in the form of platform talks and posters, and in various kinds of sessions that include workshops, tutorials, regular oral/poster sessions, minisymposia and panel discussions. We are proud to note the introduction of two new types of sessions in this year's conference: (1) Poster sessions featuring "late-breaking research" papers; and (2) A poster session featuring research or design projects carried out by undergraduate students - this provides a unique opportunity for undergraduate students to be exposed first-hand to state-of-the-art advances in bioengineering research and the leaders in the field, as well as for them to participate in networking and mentoring activities that may be critical in encouraging them to pursue graduate study or careers in biomedical engineering. EMBC'12 will be preceded (on Monday August 27) by the Workshop on Brain-Machine-Body Interfaces jointly sponsored by three IEEE societies: EMB, CAS and SMC. Other pre-conference workshops and tutorials, as well as the 2nd IEEE EMBS Unconference on Rehabilitation Robotics, will be held on Tuesday, August 28. We are excited to present plenary keynote addresses during the conference itself (August 29 through September 1) by William Brody, President of the Salk Institute, Eric Topol, Director of the Scripps Translational Science Institute, Rebecca Bergman, Vice-President of Medtronic, Inc., and Shu Chien, Y.C. Fung Professor of Bioengineering and Medicine at UCSD. In addition to these plenary sessions, the conference will also be highlighted by specialized keynote lectures presented by other world-renowned experts in the various EMBC scientific themes.

While the scientific program promises to be an outstanding experience, we hope that you will also enjoy all that the city of San Diego has to offer in the days before or after the conference.

Once again, welcome to San Diego and welcome to EMBC'12!

Michael C.K. Khoo
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James Weiland
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