



**Special Session - Panel**  
**Healthcare Innovation: Inspiring Global Open Consensus Standards**

<https://embc.embs.org/2017/special-sessions/>

Date: July 15, 2017 | Time: 08:00-09:30 | Webster Room

**Organizers:**

*Carole C. Carey*, [c.carey@ieee.org](mailto:c.carey@ieee.org)

Chair of the IEEE EMB Standards Committee; C3-Carey Consultants, LLC

*Young Lae Moon*, [ylm2103@gmail.com](mailto:ylm2103@gmail.com)

Practicing Physician and Professor in the Orthopedic Dept. Chosun University and Director of Chosun Medical Research Center

*William (Bill) Ash*, [w.ash@ieee.org](mailto:w.ash@ieee.org)

Strategic Technology Program Director for the IEEE Standards Association (IEEE-SA)

**Session Description** Novel technologies, in both medical and consumer devices, generally evolve faster than the development of standards. Rapidly expanding knowledge in science and biomedical engineering has in part led the speed in innovation of new personal and medical health devices. Next generation image-guided systems; advanced non-invasive brain-computer interfaces; wearable health devices for monitoring; and, display visualization techniques are some examples to name a few. IEEE and its standards development arm, the IEEE-SA, draw on the expertise of its technical societies to bring people and technology together. Industry consensus standards are developed in an open process based on input from interested parties worldwide. This session will highlight and provide current standardization information on specific technology areas, such as standards for 3D-based medical device applications, health informatics medical device communication, AR/VR (Augmented Reality, Virtual Reality), and the field of neurotechnologies. The dialogue will provide an opportunity to share best practices, identify additional gaps for future standards development as well as stimulate active involvement to help reduce the lag between technology and availability of standards.

Carole C. Carey was formerly with the U.S. FDA, Center for Devices and Radiological Health and is currently a Regulatory Consultant. She is IEEE EMB Standards Committee Chair and Liaison to IEEE-SA Standards Board, 445 Hoes Lane, Piscataway, NJ 08854-4141 USA. (Corresponding author, e-mail: [c.carey@ieee.org](mailto:c.carey@ieee.org)).

Young Lae Moon is a Physician and a Professor in the Orthopedic Dept. Chosun University and Director of Chosun Medical Research Center, Republic of Korea (e-mail: [ylm2103@gmail.com](mailto:ylm2103@gmail.com))

Bill Ash is the Strategic Technology Program Director for the IEEE Standards Association. (e-mail: [w.ash@ieee.org](mailto:w.ash@ieee.org))

A. Daidi Zhong, Chongqing University, [daidi.zhong@ieee.org](mailto:daidi.zhong@ieee.org)

**Title of Presentation: “Developing IEEE Interoperability Standards for Personal Health Devices Communications”**

Daidi Zhong is a professor at the Department of Biomedical Engineering, Chongqing University. He is co-chair of the IEEE 11073 PHD (Personal Health Devices) Working Group, a member of IEEE-SASB (2015-16), PCHA, ISO TC215 and ITU-T SG16. Last year, his team was awarded for its work on the development of two standards within the IEEE 11073™ Health informatics – Personal health device communication standards family.

B. Young Lae Moon, Chosun University, [ylm2103@gmail.com](mailto:ylm2103@gmail.com)

**Title of Presentation: “Moving Forward the IEEE Standardization Projects in 3D-Based Medical Device Application – Medical Visualization, Medical Data Management, 3D Simulation, Bio-CAD Format for Medical 3D Printing”**

Young Lae Moon is a Physician, Professor in the Orthopedic Dept. Chosun University and Director of Chosun Medical Research Center. He is the Chair of IEEE-SA 3D Medical Application Work Group, a Member of Additive Manufacturing, ISO-TC 261 and Medical team head, Kia professional baseball team.

C. Yu Yuan, Senses Global Corporation, [y.yuan@ieee.org](mailto:y.yuan@ieee.org)

**Title of the presentation: “Shaping the Virtual Reality (VR), Augmented Reality (AR) and Mixed Reality (MR) Technology Roadmap: Challenges and Standardization Needs”**

Yu Yuan is currently serving as Chair of the IEEE Digital Senses Initiative, the Standards Chair of IEEE Consumer Electronics Society, and IEEE–SA Standards Board member. He is a veteran researcher, practitioner in the areas of Consumer Electronics, Transportation, and Internet of Things. He founded Senses Global Corporation, a multinational technology company specializing in Virtual Reality, Augmented Reality, Human Augmentation, and Smart Robots.

D. Ricardo Chavarriaga, Ecole Polytechnique Fédérale de Lausanne, [ricardo.chavarriaga@epfl.ch](mailto:ricardo.chavarriaga@epfl.ch)

**Title of the presentation: “Need of Standards for Brain-Machine Interface Systems and Report on the Industry Connection (IC) Program in Neurotechnologies”**

Ricardo Chavarriaga is a senior researcher at the Center for Neuroprosthetics of the École Polytechnique Fédérale de Lausanne (EPFL), Switzerland. He holds a B.Sc. degree in Electronics Engineering from the Pontificia Universidad Javeriana in Cali, Colombia and a PhD in computational neuroscience from EPFL. He co-chairs the IEEE SMC technical committee in BMI systems, and is part of the steering committee of the IEEE Brain Initiative.

**Panel Discussion**

Special Guest Panelist

*Banu Onaral, Professor School of Biomedical Engineering, Science and Health Systems, Senior Advisor to President, Global Innovation Partnerships, Drexel University Philadelphia, PA, USA, and a past President of the IEEE Engineering in Medicine and Biology Society, [banu.onaral@drexel.edu](mailto:banu.onaral@drexel.edu)*