Special Session on Standards
Sunday, October 9, 2016, 9:00 – 17:00

The SMC 2016 provides an international forum for researchers and practitioners to report up-to-the-minute innovations and exchange ideas and advances in all aspects of systems science and engineering, human machine systems, and cybernetics.

During this session on BMI-related standards, organized by the **IEEE Standards Association**, the use of neurotechnologies for invasive and non-invasive practices will be discussed. How this technology is implemented for surgery, Augmented Reality (AR)/Virtual Reality (VR), or wearables, and how standardization of the technology is needed to support integration and help accelerate the translation of these devices to commercialization. This session is open to the attendants to IEEE SMC conference.

Topics to be discussed:
- What is a BMI standard?
- Should there be a separate set of standards for clinical and non-clinical applications?
- What would a framework for standards on diverse topics, plus their interoperability look like?
- What are the biggest challenges to using these technologies?
- What are the highest priorities or the biggest challenges that can be addressed by standards?
- What needs be addressed in the next 3 years?
- Is there a need for standards on the reliability of these systems in terms of performance?
- Should standards be set to protect from third-party access?
- Is it the role of standards to define which information should or should not be stored? Or whether encryption/anonymization is required.

This session will be composed of short presentations and panels with different stakeholders from the private, academic, and regulatory sectors. Ample time has been reserved for discussions with contributions from the attendants, including breakout discussion sessions on standards gaps for clinical and non-clinical BMI applications. Plenary panels will take place on the Ballroom III. Breakout roundtables (14:30-16:00) will take place in the Ballroom III and Panorama I. The final session will take place in the room Panorama I

Contact persons: Bill Ash <w.ash@ieee.org>, Carole Carey c.carey@ieee.org>,
Ricardo Chavarriaga < ricardo.chavarriaga@epfl.ch>, Cherry Tom <c.tom@ieee.org>

The outcome of this workshop will be used to drive establishment of the standards committee on Neurotechnologies.

http://go.epfl.ch/smc2016_bmi_standards
http://standards.ieee.org

Proposed Program

Ballroom III	**9:00 AM**	Welcome**: Michael H. Smith, Chair SMC2016 BMI Workshop** Opening Remarks and Moderation: **Ricardo Chavarriaga (EPFL)**
	9:15 – 10:30	Signal acquisition and stimulation - **Panel I** Brain, Behavior and AR/VR – **Panel II** • Aureli Soria-Frisch, Neuroelectrics Barcelona, Starlabs, Spain • Christoph Guger/Francisco Fernandes, g.Tec, Austria • Gangadhar Garipelli (TBD), Mindmaze, Switzerland • Khizer Kaderi/Mohan Reddy, Vizzario/VSP, USA
	10:30 – 10:45	**Break**
Ballroom III	10:45 – 12:00	Data analysis and sharing - **Panel III** BMI evaluation with end-users – **Panel IV** • Tim Mullen, Qusp, USA • Louis Mayaud, Mensia Technologies, France • Cherry Tom, IEEE Standards Association, USA • José Contreras-Vidal, U Houston, USA • Reinhold Scherer, TU Graz, Austria
	12:00 – 13:00	**Lunch**
Ballroom III	13:00 – 14:30	**Why do standards Matter? Moderator Bill Ash (IEEE Standards)** • Carole Carey – Standards & Brain Initiative overview • Hasan Ayaz – Brain, Behavior and AR/VR • Felipe Aguel, NIH/NINDS - Why standards are needed in medical devices • Walter Besio – EEG, sensors and signal processing
Panorama I Ballroom III	14:30 – 15:15	**Roundtable discussion: Wearables, fMRI, MEG, Invasive and Nin-Invasive technologies**
	15:15 – 15:30	**Break**
Panorama I Ballroom III	15:30 – 16:00	**Roundtable discussion: Wrap up and readout preparation**
Panorama I	16:00 – 16:30	**Readouts from the roundtables**
	16:30 – 17:00	**Wrap up**