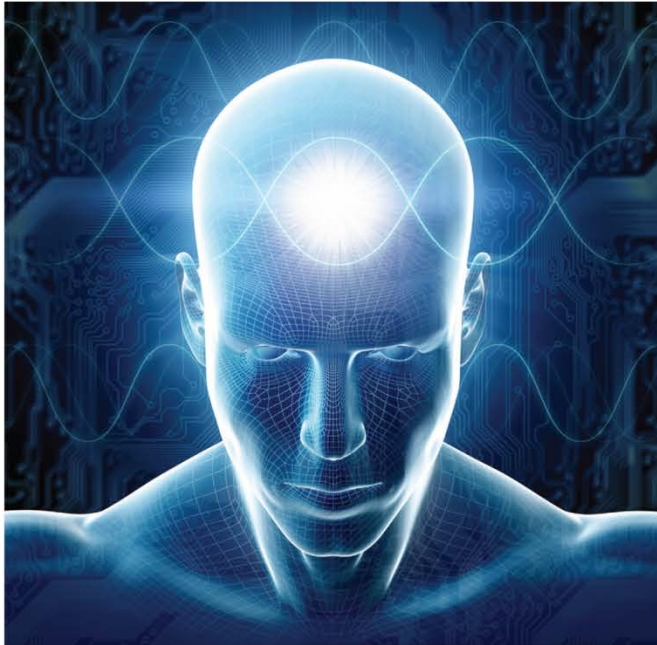


# IEEE Workshop on Advanced NeuroTechnologies for BRAIN Initiatives *November 10-11, 2016*



Sheraton San Diego Hotel and Marina, California

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## IEEE Workshop on Advanced NeuroTechnologies for BRAIN Initiatives



### WORKSHOP AGENDA

#### Thursday, November 10, 2016

**8:00 am**      *Registration Open and Continental Breakfast*

**9:00 am**      **Opening and Welcome Remarks**

Bruce Wheeler, Past President, IEEE EMBS

Paul Sajda, Chair, IEEE Brain Initiative

Metin Akay, Chair, Advanced NeuroTechnologies for BRAIN Initiatives Workshop

**9:30 am**      **Symposium 1 - Brain Initiatives**

Chair: Metin Akay

Carol Lucas, National Science Foundation

*"NSF Brain Initiative"*

Edmund (Ned) Talley, National Institute of Health

*"Engineering Challenges and Opportunities: Perspectives from the NIH"*

Kamil Ugurbil, University of Minnesota

*"Advances in Brain Imaging: Looking Beyond the Current State-of-the-Art"*

**10:30 am**      *Coffee Break*

**11:00 am**      **Symposium 1 - Brain Initiatives (resume)**

Phillip Alvelda, DARPA

*"Scaling Neural Interfaces for Real World Applications"*

Ted Berger, University of Southern California

*"Progress in Developing a Hippocampal Neural Prosthesis for Human Memory"*

Q&A

**Noon**      *Buffet Lunch*

**1:00 pm**      **Symposium 2 - Neural Implants and Prosthetics: Translational Neural Engineering**

Chair: Jose Carmena

Michel M. Maharbiz, University of California, Berkeley

*"Wireless Recording of EMG and Compound Action Potentials in the Peripheral Nervous System with Ultrasonic Neural Dust"*

Gert Cauwenberghs, University of California, San Diego

*"Silicon Integrated High-Density Neural Interfaces"*

Mario Romeo-Ortega, University of Texas, Dallas

*"Long-Term Wireless Peripheral Neural Multielectrode Interfacing"*

Jacob Robinson, Rice University

*"Fluidic Microactuation of Flexible Electrodes for Neural Recording"*

Q&A

**3:00 pm**      **Coffee Break**

**3:30 pm**      **Symposium 3 - Brain Mapping and Connectivity**

Chair: Gert Cauwenberghs

Dominique Durand, Case Western Reserve University

*"Recovery of Fascicular Signals from Peripheral Nerves in a Chronic Preparation"*

Warren Grill, Duke University

*"Temporal Pattern of Stimulation as a New Dimension of Therapeutic Innovation"*

Paul Sajda, Columbia University

*"Neural Correlates of Enhanced Perception-action Coupling in Rapid Decision Making"*

John White, Boston University

*"Estimating the Functional Architecture of Cortical Networks"*

Anthony Guiseppi-Elie, Texas A&M University

*"Nano-enabled Electroconductive Hydrogels for ABIO-BIO Neural Interfaces"*

Q&A

**6:00**      **End of Day 1**

## **Friday, November 11, 2016**

**7:00 am**      ***Registration and Continental Breakfast***

**8:00 am**      **Symposium 4 - Advances in Brain-Computer Interface**

Chair: Paul Sajda

Jose Carmena, University of California, Berkeley

*"Large-scale Recording and Intervention in Neural Circuitry of Learned Behaviors"*

Karim Oweiss, University of Florida

*"Reverse Neural Engineering: Implications for Clinically Viable Bi-directional Neural Interfaces"*

Aldo Faisal, Imperial College London

*"Human Ethomics for Intention Decoding"*

Maryam Shanechi, University of Southern California

*"Next Generation Control-Theoretic Brain-Machine Interfaces"*

Q&A

**9:45 am**      ***Coffee Break***

**10:00 am**      **Symposium 5 - Neurotechnology for Rehabilitation**

Chair: Dominique Durand

Jose Pons, Neural Rehabilitation Group, Cajal Institute

*"Neuroprosthetic-based Management of Pathological Tremors"*

Lee Miller, Northwestern University and Rehabilitation Institute of Chicago

*"Causing a Sensation: Development of an Artificial Proprioceptive Afferent Interface"*

Eric Perrault, Northwestern University and Rehabilitation Institute of Chicago

*"Model-based Controllers for Restoration of Arm Control Following Spinal Cord Injury"*

Robert Kirsch, Case Western Reserve University

*"Reanimation and User Control of the Paralyzed Arm in a Person with SCI"*

Q&A

**11:45**      **Closing Remarks**

**Noon**      ***End of Workshop***