

Special Session on Brain, Mind and Machines
15th International Graphonomics Society
June 12-15, 2011; Live Aqua Cancun, Mexico

Dear colleagues,

I am pleased to announce that the 15th International Graphonomics Society Conference (<http://www.graphonomics.org/igs2011/>) will feature a **Special Session on Brain, Mind & Machines for Dexterous Movement Control**, which will be highlighted by the plenary speakers:

- Ranulfo Romo, UNAM, Mexico: Conversion of sensory signals into perceptual decisions
- Marc Scheiber, University of Rochester: Changing the circuits that control the fingers
- Miguel Nicolelis, Duke University: Toward whole-body neuroprosthetics

The Special session will consist of ‘position’ presentations, strictly limited to 10 minutes in length to allow for ample debate and discussion, addressing critical issues involving the neural and biomechanical computations for fine finger control and the development of dexterous neuroprosthetics.

You are invited to contribute to a Special Poster Session associated with this session to report on recent breakthroughs and ongoing work on Brain, Mind & Machines for Dexterous Movement Control. If you wish to submit an abstract for the Special Poster Session, please submit at <http://www.graphonomics.org/igs2011/submit.php> and request the Special Session at the top of your abstract:

- Title of your presentation, either in the form of a question or position taken in a specific issue. All themes in the IGS Topics page (<http://www.graphonomics.org/igs2011/topics.php>) will be accepted.
- One-page abstract stating the position you will take during the debate, including up to 5 references.

Deadline for Position Posters for the Special Session: January 24th, 2010.

Authors notification for Special Poster Session: February 1, 2011

Please note that a consensus report summarizing the discussion at the Special Session, and co-authored by the speaker participants (if desired), will open a Special Issue on Brain-Machine Interfaces and the Control of Dexterous Movements to appear in the Journal of Computers in Biology and Medicine.

The conference fee is \$200 (early bid, March 1st, 2011) for attendees. Conference information is available at <http://www.graphonomics.org/igs2011/index.php>

I sincerely hope you are available and can participate in this meeting.

Pepe Contreras-Vidal, Ph.D.
University of Maryland School of Public Health
pepeum@umd.edu, 301-405-2495

Special Session on Brain, Mind and Machines
 15th International Graphonomics Society
 June 12-15, 2011; Live Aqua Cancun, Mexico

7:00 am-8:00 am		Continental Breakfast
Special session on Brain, Mind & Machines for Dexterous Movement Control June 14, 2011		
8:10 am-9:00 am		Plenary talk: "CHANGING THE CIRCUITS THAT CONTROL THE FINGERS" Marc Schieber (University of Rochester)
9:00 am-8:10 am		Introduction Pepe Contreras-Vidal, University of Maryland
9:10 am-8:20 am		Sensorimotor integration for the control of grasp kinematics and kinetics: potential applications to BMI Speaker: Marco Santello, Arizona State University
9:20 am-8:30 am		Are low or high frequencies necessary for decoding of fine dexterous movements? Speaker: Pepe Contreras-Vidal
9:30 am-8:40 am		What of Brain-Machine Interfaces (BMI) can be left to non-cortical and peripheral processes? Speaker: Francisco Valero-Cuevas, USC
9:40 am-8:50 am		Is BMI training a matter of decoding explicit cognitive tasks that users engage in? Speaker: Dennis McFarland, Wadsworth Center-New York
9:50 am-9:00 am		Do cortical gamma responses reflect cognitive-motor information encoding of fine motor tasks? Speaker: Nathan Crone, JHU
10:00 am-9:10 am		Break
10:10 am-9:20 am		Is it possible to facilitate BMI learning with brain stimulation? Speaker: Leo Cohen, National Institutes of Health
10:20 am-9:30 am		Can BMIs be used for degenerative disease and neuropsychiatry disease? Speaker: Niels Birbaumer, University of Tubingen
10:30 am-9:40 am		Inferring grasping from ECoG signals Speaker: Nitish Thakor, John Hopkins University
10:40 am-9:50 am		What information is contained in the brain's 'noise' that could be harnessed by BMI? Speaker: Christoph Guger, Graz (Guger Technologies)
10:50 am-11:00 am		Strengths and limitations of hand prosthetics for BMI. Are we there yet? Speaker: Jacob Vogelstein, John Hopkins University Applied Physics Laboratory
11:00 am-12:30 pm		Discussion: What are the most promising hypotheses/approaches for understanding and improving BMI reliability for fine motor control? Which hypotheses are most testable and how? What new collaborations may help test hypotheses? What studies are needed to move forward? Moderators: Miguel Nicolelis (Duke), Ranulfo Romo (UNAM) and Marc Schieber (Rochester)