



The Fourth Computational Motor Control Workshop at Ben-Gurion University of the Negev

June 11, 2008, W. A. Minkoff Senate Hall, BGU Marcus Family Campus, Beer-Sheva, Israel

Website: <http://www.bgu.ac.il/cmaw>

Department of Biomedical Engineering and
the Zlotowski Center for Neuroscience at Ben-Gurion University of the Negev

Program

Tuesday, June 10, 18:00: Welcome dinner

Featured speaker: **Dr. Eilat Almagor** – Feldenkrais practitioner, Rubin Academy of Music and Dance

Does awareness promote Learning Through Movement?

Wednesday, June 11

8:20-8:50 Registration, poster placement and coffee

8:50-9:00 Greetings – **Dr. Opher Donchin**, head of the organizing committee, BGU

9:00-9:10 Opening remarks – **Prof. Moti Herskowitz**, Vice-President and Dean for Research and Development

Action and Perception

Chairperson: Prof. Anatol Feldman, BME, U. Montreal, Canada

9:10-9:40 **Prof. Paul Gribble** - Dept. Psychology and Dept. Physiology & Pharmacology, The University of Western Ontario, Canada
Motor Learning by Observing

9:40-10:10 **Dr. Pierre Baraduc** - Institute for Cognitive Science, Lyon, France
Role of visual feedback in the oculomotor state estimate

10:10-10:40 **Prof. A. J. Van Opstal** - Dept of Biophysics, Institute for Neuroscience, Radboud University, The Netherlands
The neural encoding of eye movements in the primate midbrain

10:40-10:50 Discussion

10:50-11:30 Posters and coffee

Adaptation

Chairperson: Dr. Rony Paz – Neurobiology, Weizmann

11:30-12:00 **Dr. Amir Karniel** – Dept. of BME, BGU
Adaptation to and Perception of Delay during Motor Control

12:00-12:30 **Dr. Maurice Smith** – Dept. of BME, Harvard, USA
Distinct parallel adaptive processes in motor learning and what they tell us about learning and retention

12:30-13:00 **Prof. Eilon Vaadia** – Dept. Physiology, Faculty of Medicine, Hebrew Univ., Israel
Brain and machine learning in brain machine interface

13:00-13:10 Discussion

13:10-15:10 **Posters and lunch**



Optimality

Chairperson: Prof. Zev Rymer, BME, Northwestern University, USA

15:10-15:40 **Dr. Joern Diedrichsen** - School of Psychology, University of Bangor, Wales
Bimanual coordination: an optimal feedback control perspective

15:40-16:10 **Dr. Emanuel Guigon** - Inserm, Université Pierre et Marie Curie
Can optimal control explain adaptation to force fields?

16:10-16:40 **Prof. Ehud Ahissar** – Dept. of Neurobiology, Weizmann Institute
Active sensing: Motor strategies for optimizing sensory acquisition

16:40-16:50 Discussion

16:50-17:00 **The Alpha Omega, Sensegraphics and NanInstruments**
Best poster and Travel Awards

17:00-17:20 Posters and coffee

Basic science and applications

Chairperson: Prof. Charles Capaday, Université Laval, Canada

17:20-17:50 **Dr. John Krakauer** – Dept. of Neurology, Columbia University, USA
Adaptation, skill, and recovery

17:50-18:20 **Prof. Dagmar Timmann** – Department of Neurology, University of Duisburg-Essen, Germany
Lesion-symptom mapping of the human cerebellum

18:20-18:50 **Prof. Mindy Levin** - Jewish Rehabilitation Hospital, McGill University, Canada
Deficits in threshold control related to spasticity and disordered motor function

18:50-19:00 Discussion

20:30 **Dinner and discussion**

Thursday, June 12, 9:00-16:00, Desert hike

Invitation Letter and Call for Posters

Dear Colleagues,

In what has now become a tradition, we wish to invite you to participate in the fourth annual Ben-Gurion University workshop on computational motor control on June 11, 2006, in the W. A. Minkoff Senate Hall at Ben-Gurion University of the Negev, Beer-Sheva, Israel.

The following information is also available on our website:

<http://www.bgu.ac.il/cmwcw>

Thank you for your attention,
Opher Donchin and Amir Karniel
donchin@bgu.ac.il; akarniel@bgu.ac.il

Overview: The nervous system analyses sensory information and orchestrates motor commands. In so doing, it faces challenges that it shares with many artificially engineered systems. In the spirit of the classic field of cybernetics, the field of computational motor control makes scientific and technological progress simultaneously by exploring the differences between artificial control theory and biological motor control. Computational motor control is a multidisciplinary research program in which mathematics, engineering, biology, medicine and the cognitive neurosciences all play important roles. This workshop will bring together world leaders in the field of computational motor control including Israeli researchers and distinguished guests. The goal will be to learn about the current state of the field and to identify the directions that will provide the medical and scientific breakthroughs of the next decades.



Winter in the Negev

Call for Posters: The posters will be available throughout the day near the lecture hall to facilitate fruitful discussions. Please submit a one-page abstract of up to 400 words by May 1 through the website or by email to cmcw@bgu.ac.il with the subject heading "CMCW registration form". An email should clearly contain your name and affiliation. Notification of acceptance and abstract books will be mailed out on May 20. In addition, all accepted abstracts will appear on our website prior to the conference. Poster's should have a maximum width of 90 cm and a maximum height of 120 cm.

Best Poster Award: The award committee will choose the best poster(s) which will be announced at the end of the day. The Best Poster Award Committee: Amir Karniel, Ben-Gurion University, Miriam Zacksenhouse, Technion – Israel Institute of Technology, Gideon Inbar, Technion – Israel Institute of Technology, Tamar Flash, Weizmann Institute of Science. **To be considered for the best poster award**, authors must submit a file with their poster to the Best Poster Award Committee by June 4, 2008. The poster can be submitted in PDF, TIFF, or Power Point formats by e-mail to cmcw@bgu.ac.il. Please use the subject heading "CMCW best poster submission" and include in the text of the message the name of the main author.

Travel Award: In special cases we will also consider a travel award to partially cover the expenses of international researchers/students. The criteria for the travel award will be: (i) The scientific quality of the proposed poster and its relevance to the topic of the workshop (ii) An interest in pursuing a PhD, post doc or faculty position at Ben-Gurion University. Those interested in receiving a travel award should submit an abstract for the poster they will submit and a short description of their circumstances by March 20 by e-mail to cmcw@bgu.ac.il with the subject heading "CMCW travel award."

Dinners: We will have a festive welcome dinner on the evening of June 10, before the workshop. Speakers and chairmen will be guests of the workshop at the dinner. For others wishing to join us, the dinner will be subsidized and will cost no more than 90 NIS per person. We will also have a more modest dinner and discussion in the evening following the workshop. Subsidized cost (other than speakers and chairmen) will be no more than 50 NIS per person.

Tour to the Negev: On Thursday, June 12, we plan a trip to the Judean desert, cost per-person will be no more than 150 NIS (approx. \$40), registration and payment (cash only) to the trip will be done during the morning of June 11 at the workshop registration desk. Price includes the cost of lunch.

Registration: Please register before May 20. Registration is mandatory but free. Space may be limited, so please register early. Please register on our website or by email to cmcw@bgu.ac.il with the subject heading "CMCW registration form". Please indicate in your registration whether you are interested in participating in the welcome dinner, the discussion dinner or the desert hike.

Sponsors:

- The President, Ben-Gurion University
- The Rector, Ben-Gurion University
- The Deans of the Faculties of Health Sciences, of Engineering, and of Humanities and Social Sciences
- The Zlotowski Center for Neuroscience, BGU



The desert in motion