



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

June 11, 2009, 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

**Sunday – Wednesday, June 7-10, IAS-ISF workshop in Jerusalem – see [www.as.huji.ac.il](http://www.as.huji.ac.il)**

**Wednesday, June 10 Welcome Dinner**

### Thursday, June 11

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

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

9:00-9:10 Opening remarks – **Prof. Rivka Carmi**, President, BGU

### Principles of motor control

**Chairperson: Prof. Gideon Inbar, Technion, Israel**

9:10-9:40 **Prof. Kenji Doya** – Neural Computation Unit, Okinawa Institute of Science and Technology, Japan  
*Multiple representations and algorithms for motor learning and control*

9:40-10:10 **Prof. Olivier Sigaud** – Institut des Systèmes Intelligents et de Robotique Université Pierre et Marie Curie, Paris, France  
*An Operational Space Control Approach to Motor Learning*

10:10-10:20 Discussion

10:20-11:00 Posters and coffee

### Laws of motor control

**Chairperson: Prof. Ferdinando A.(Sandro) Mussa-Ivaldi, Northwestern University, Chicago**

11:00-11:30 **Prof. Kurt Thoroughman** – Washington University, St. Louis  
*The delta rule, adaptation, and human motor behavior*

11:30-12:00 **Prof. Tamar Flash** – Weizmann Institute of Science, Israel  
*On desired trajectories and compositionality: geometry, kinematics and dynamics*

12:00-12:30 **Dr. Tzvi Ganel** – BGU  
*Weber's law in grasping*

12:30-12:40 Discussion

12:50-14:40 **Posters and lunch**



### Action-perception coupling

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

14:40-15:10 **Prof. Pieter Medendorp** – Radboud University Nijmegen, The Netherlands  
*Spatial constancy mechanisms in perception and action*

15:10-15:40 **Prof. Randy Flanagan** – Queen's University, Ontario, Canada  
*Representations of objects used in action and perception*

15:40-16:10 **Prof. Jeroen Smeets** – VU University, Amsterdam, The Netherlands  
*Combining depth cues for arm movements*

16:10-16:20 Discussion

16:20-16:30 **The Alpha Omega, Sensegraphics and NanInstruments**  
**Best poster and Travel Awards**

16:30-17:00 Posters and coffee

### Physiology of motor control

**Chairperson: Prof. Eilon Vaadia, Hebrew University, Israel**

17:00-17:30 **Dr. Opher Donchin** – BGU  
*Combining theory and experiments in our approach to the cerebellum*

17:30-18:00 **Prof. Steve Scott** – Queen's University, Kingston, Ontario, Canada  
*Statistical models of the limb in primary motor cortex*

18:00-18:30 **Prof. Tim Ebner** – University of Minnesota, Minneapolis, USA  
*Searching with an Electrode for Internal Models in the Cerebellum*

18:30-18:40 Discussion

19:30 **Dinner and discussion**

**Friday, June 12, 8:45-14:30, Desert hike**  
**Guide – Eitan Krovovski**

## Invitation Letter and Call for Posters

Dear Colleagues,

In what has now become a tradition, we wish to invite you to participate in the fifth 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/cmchw>

This year we are also having a **companion meeting** titled **Israel Motor Days in Jerusalem** on **June 7-10**, which will require a separate free registration at <http://www.as.huji.ac.il>

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



Winter in the Negev

**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.

**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 [cmchw@bgu.ac.il](mailto:cmchw@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: Opher Donchin, Ben-Gurion University, Sandro Mussa-Ivaldi, Northwestern University – Chicago, and Anatol Feldman, University of Montreal - Canada.

**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 [cmchw@bgu.ac.il](mailto:cmchw@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.

**Dinners:** We will have a festive welcome dinner on the evening of June 10, before the workshop at Achuzat Samilanski. Speakers and chairmen will be guests of the workshop at the welcome dinner. We will also have a dinner in the evening following the workshop at Avaz Hazahav (Middle Eastern restaurant). Cost will be 100 NIS per person to be paid at the restaurant.

**Tour to the Negev:** On Friday, June 12, we plan a trip to the Negev, cost per-person will be 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 [cmchw@bgu.ac.il](mailto:cmchw@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 Zlotowski Center for Neuroscience, BGU
- The Dean of the Faculty of Health Sciences
- The Dean of the Faculty of Engineering



The desert in motion