



# Computational Motor Control Workshop

May 25, 2005, the Senate Auditorium of Ben-Gurion University, Israel.

**Ben Gurion University of the Negev, Department of Biomedical Engineering,  
the Zlotowski Center for Neuroscience at Ben Gurion University and  
The Interdisciplinary Center for Neural Computation at The Hebrew University of Jerusalem**

Website: <http://www.bgu.ac.il/~akarniel/CMCW/index.htm>

## Program

- 8:20-8:50 Registration, Poster Placement and Coffee
- 8:50-9:00 Greetings - Amir Karniel, head of the organizing committee, BGU
- 9:00-9:10 Opening words - President Avishay Braverman, BGU

### From Mathematical to Behavioral

**Chairperson: Opher Donchin, BME, BGU**

- 9:10-9:30 Tamar Flash - Dept. of Applied Math. and Computer Science, Weizmann  
*On the planning of complex movements*
- 9:30-9:50 Amir Karniel - BME, BGU  
*Optimal Motor Control: From minimum acceleration to minimum transitions*
- 9:50-10:10 Nachshon Meiran - Department of Behavioral Science, BGU  
*Task Switching*
- 10:10-10:20 Discussion
- 10:20-11:00 Posters and Coffee

### From Robots to Emotions

**Chairperson: Amir Karniel, BME, BGU**

- 11:00-11:40 Sandro Mussa-Ivaldi - Northwestern Medical School and the Rehabilitation Institute of Chicago  
*Remapping motor control*
- 11:40-12:00 Miriam Reiner - Department of Education in Technology and Science, Technion  
*Communication through haptics -- a primitive haptic language?*
- 12:00-12:20 Mati Mintz - Department of Psychology, TAU  
*The Cerebellum and Emotions*
- 12:20-12:30 Discussion
- 12:30-13:50 Poster and Lunch



### From Human to Simple Invertebrates

**Chairperson: Gideon Inbar, EE, Technion**

- 13:50-14:30 Claude Ghez - Center for Neurobiology and Behavior, Columbia University  
*Parallel planning and learning of spatial vectors and final postures in reaching*
- 14:30-14:50 Opher Donchin - BME, BGU  
*Modeling learning process and finding the sources of noise*
- 14:50-15:10 Yair Manor - Dept. of Life Sciences, BGU  
*Mechanisms for phase constancy in central pattern generators*
- 15:10-15:20 Discussion
- 15:20-15:50 Poster and Coffee

### From PreMotor cortex to Spinal cord

**Chairperson: David Golomb, Health Science & BME, BGU**

- 15:50-16:10 Moshe Abeles - Gonda Brain Research Center, Bar-Ilan University  
*Dissociation between local population and single units properties in pre-motor cortex regarding both reaching and grasping*
- 16:10-16:30 Eilon Vaadia - Department of Physiology, Hebrew U  
*Learning induced modifications of internal representations in motor cortex*
- 16:30-16:50 Miriam Zacksenhouse - Faculty of Mechanical Engineering, Technion  
*Rate-modulations of cortical neurons during arm movements and operation of a brain-machine interface*
- 16:50-17:10 Yifat Prut - Department of Physiology, Hebrew U, *Population-based corticospinal interactions during voluntary movements*
- 17:10-17:30 Discussion; The National Instrument Award for the best poster and The Alpha Omega Award for the best poster.

## Invitation Letter (Final Call)

Dear Colleagues,

I wish to invite you to participate in a one-day workshop about computational motor control on May 25 at the Senate Auditorium of Ben-Gurion University, Beer-Sheva, Israel.

The rest of this message contains the following information which is also available at our web-site:

<http://www.bgu.ac.il/~akarniel/CMCW/index.htm>

1. Overview
2. Call for Posters
3. Best Poster Award
4. Registration
5. Transportation
6. Sponsors
7. Organizing committee

Thank you for your attention,  
Amir Karniel



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 leader 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 decade.

**Call for Posters:** The posters will be available throughout the day near the lecture hall to facilitate fruitful discussions. We will accept any abstract describing research related to the topics of this workshop. Please submit a one page abstract of up to 500 words through the website by April 30. <http://www.bgu.ac.il/~akarniel/CMCW/registration.htm> Or by email to [tsvika@bgu.ac.il](mailto:tsvika@bgu.ac.il), [akarniel@bgu.ac.il](mailto:akarniel@bgu.ac.il) with title "CMCW registration form". An email should clearly also contain your name and affiliation. All the accepted abstracts will appear on the web-site prior to the workshop.

**Best Poster Award:** In order to encourage a high quality of posters we present a 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: Dr. Opher Donchin, Dr. Miriam Zacksenhouse, Dr. Dana Cohen, and Prof. Gideon Inbar.

**Registration:** Please register through our web-site before May 15. Registration is mandatory but free. Space may be limited, so please register early. <http://www.bgu.ac.il/~akarniel/CMCW/registration.htm>

**Transportation:** From the north the best way to arrive is by train <http://www.israrail.org.il/>. From Jerusalem the ICNC is organizing transportation, email Ms. Ruth Suchi [ruthsu@savion.huji.ac.il](mailto:ruthsu@savion.huji.ac.il) for further details. If you intend to arrive by private car please email us [doritd@bgu.ac.il](mailto:doritd@bgu.ac.il) the following information 1) the number 2) type and 3) color of your car as well as 4) your name and 5) cell phone number in order to obtain entrance permit to the main campus.

### Sponsors:

- The President, Ben-Gurion University
- The Rector, Ben-Gurion University
- The Dean of the Faculty of Health Sciences, BGU
- The Zlotowski Center for Neuroscience Research, BGU
- The Interdisciplinary Center for Neural Computation, HU

### Organizing Committee:

- Dr. Amir Karniel [akarniel@bgu.ac.il](mailto:akarniel@bgu.ac.il)
- Dr. Opher Donchin [donchin@bgu.ac.il](mailto:donchin@bgu.ac.il)
- Dr. Heidi Sugarman [heidi@bgumail.bgu.ac.il](mailto:heidi@bgumail.bgu.ac.il)
- Dorit Daloya [doritd@bgu.ac.il](mailto:doritd@bgu.ac.il)
- Tsvika Rabkin [tsvika@bgu.ac.il](mailto:tsvika@bgu.ac.il)



The desert in Motion