



Faculty of Health Sciences

Faculty of Engineering Sciences



מרכז זלוטובסקי למדעי העצב  
Zlotowski Center for Neuroscience

**The 12<sup>th</sup> Karniel Computational Motor Control Workshop**  
**June 19-21, 2016**

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

Department of Biomedical Engineering,  
Zlotowski Center for Neuroscience at Ben-Gurion  
ABC Cognitive Robotics Center  
supported by Leona M. and Harry B. Helmsley Charitable Trust

**Sunday, June 19**

**Lab visits**

- 15:00-17:00 Motor control labs at BGU:

**Physiotherapy**

- The laboratory for Rehabilitation and Motor Control of Walking, **Simona Bar-Haim**
- Cognition Aging and Rehabilitation laboratory, **Shelly Levy-Tzedek**
- Schwartz Movement Analysis & Rehabilitation Laboratory, **Itzik Melzer**

**Biomedical engineering**

- Biomedical Robotics Laboratory, **Ilana Nisky**
- Motor Learning Laboratory, **Opher Donchin**

**Industrial Engineering and cognition**

- Biomechanics and robotics Laboratory, **Raziel Riemer**
- Telerobotics laboratory, **Sigal Berman**
- Brain and Action Laboratory, **Lior Shmuelof**

Labs tour will start from Student Center (near bank Hapohalim) at 15:00

**Festive dinner**

- 18:00 Location "Lola", Friend café
- Dr Eilat Almagor, The Jerusalem Academy of Music and Dance, Israel  
& Prof Dorit Aharonov, School of Computer Science and engineering, The Hebrew University, Jerusalem  
"Awareness Through Movement as a guide to Mathematical Learning"



## **Monday, June 20**

- 08:30-08:50 Registration, Poster placement and coffee
- 08:50-09:00 Opening Remarks **Prof. Rivka Carmi**, President of Ben-Gurion University

### **Session 1 – Motion Planning**

Chair: Sandro Mussa-Ivaldi, Rehabilitation Institute of Chicago, USA

- 09:00-09:30 **Björn Brembs**, Universität Regensburg, Germany  
"The common biology of motor learning, operant conditioning and model-free learning"  
Keynote Lecture
- 09:30-10:00 **Lior Shmuelof**, Ben-Gurion University, Israel  
"On the fly planning of pre-planned curved trajectories"
- 10:00-10:30 **Einat Couzin**, Konstanz university, Germany  
"Control of 6-legged locomotion"
- 10:30-10:40 Discussion
- 10:40-11:20 Coffee break

### **Session 2 - Rehabilitation**

Chair: Mindy Levin, McGill University, Canada

- 11:20-11:50 **Mark Latash**, Pennsylvania State University, USA  
"Impaired control of movement stability in neurological patients"
- 11:50-12:20 **Tamar Weiss**, University of Haifa, Israel  
"A multi-dimensional approach to evaluate performance of complex daily activities of young and older adults in a simulated mall"
- 12:20-12:50 **Darcy Reisman**, University of Delaware, USA  
"Locomotor Adaptation and Learning after Stroke"
- 12:50-13:00 Discussion
- 13:00-13:30 Lunch
- 13:30-14:30 **Posters**

### **Session 3 - Motor Control**

Chair: Anatol Feldman, University of Montreal, Canada

- 14:30-15:00 **Ron Meir**, Technion, Israel  
"Optimal Neural Codes for Estimation and Control"
- 15:00-15:30 **Robert Scheidt**, Marquette University, USA  
"Neural correlates of nonlinear multisensory integration during wrist stabilization"
- 15:30-16:00 **Prof. Amir Karniel Memorial Young Researcher Lecture**  
**Marc Deffains**, Hebrew University, Israel  
"Computational physiology of Basal Ganglia & Parkinson's disease"
- 16:00-16:10 Discussion
- 16:10-16:40 Coffee break and posters



### Session 4 – Locomotion Control

Chair: Sigal Berman, Ben-Gurion University, Israel

- 16:40-17:10 **Raziel Riemer**, Ben-Gurion University, Israel  
“Biomechanical energy harvesting from human motion: Theory, design, and results”
- 17:10-17:40 **Mati Joshua**, Hebrew University, Israel  
“Linking the dynamics of activity in the frontal eye field to the planning of action selection”
- 17:40-17:50 Discussion
- 17:50-18:00 **Best poster awards**
- Sponsors: NBT, AlphaOmega
- 19:00 Dinner at "Avaz Hazahav" restaurant

### Tuesday, June 21

#### **Hike**

**An invitation to explore the ancient views within the beautiful landscape** on a hike from The 'Jerusalem heals to Judea's Low lands. The core of the trip will be a 4-miles hike along 'Nahal HaMe'ara'(the cave wadi).