RESEARCH CONFERENCES

ESF-EMBO Symposium

Three Dimensional Sensory and Motor Space: Perceptual Consequences of Motor Action

Hotel Eden Roc, Sant Feliu de Guixols
(Costa Brava) • Spain
6-11 October 2007

Chair: **Jeroen Smeets**, Vrije Universiteit Amsterdam, NL
Vice-Chair: **Frank Bremmer**, University Marburg, DE

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Saturday, 6 October

Late afternoon / early evening	Registration at the ESF desk
19.00	Welcome Drink
20.00	Dinner

Sunday, 7 October

08.45-09.00	Conference Opening

1 Eye and body

Chair: Markus Lappe

09.00-09.50 **Michael Land**
University of Sussex
Eye movements and actions: knowing where to look.

09.50-10.40 **John Wann**
Royal Holloway University of London
Neural systems in the control of steering and collision judgments

10.40-11.10 Coffee break

11.10-12.00 **Carol Colby**
University of Pittsburgh
Active Vision

12.00-12.50 **Tirin Moore**
Stanford University
The Influence of Overt and Covert Saccade Plans on Visual Cortical Signals.

13.00 Lunch

Poster Viewing

16.00-16.30 Coffee

2 Eye

Chair: Eli Brenner

16.30-17.20 **Frank Bremmer**
Philipps-University Marburg
Space representation during eye movements

17.20-18.10 **Dirk Kerzel**
Université de Genève
Localization of moving objects

19.00 Dinner

20.30-22.00 **Poster session 1**

Monday, 8 October

3	Hand **Chair: Denise Henriques**
09.00-09.50	Susan Lederman Queen's University *Manual exploration and haptic object processing*
09.50-10.40	Jeroen Smeets Vrije Universiteit Amsterdam *Hand movements in search*
10.40-11.10	Coffee break
11.10-12.00	Mary Hayhoe University of Texas at Austin *The role of internal visual models and anticipation in the control of movement..*
12.00-12.50	Elisabetta Làdavas University of Bologna *Tool use and the dynamic properties of the visual peripersonal space*
13.00	Lunch
	Poster Viewing
16.00-16.30	Coffee
4	Hand and body **Chair: Chris Miall**
16.30-17.20	Denise Henriques York University *Updating and integrating spatial information for motor control*
17.20-18.10	Pieter Medendorp Nijmegen Institute for Cognition and Information *Spatial updating during whole-body movements*
19.00	Dinner
20.30-22.00	Poster session 2

Tuesday, 9 October

5	Body **Chair: John Wann**
09.00-09.50	David Lee University of Edinburgh *A theory of neural guidance of movement based on tau*
09.50-10.40	Laila Craighero University of Ferrara *Role of the motor system in the orienting of attention*
10.40-11.10	Coffee break
11.10-12.00	Kevin O'Regan Université Paris 5 Descartes *Empirical confirmations of a sensorimotor approach to phenomenal feel*
12.30	Lunch
Afternoon	Half-day excursion
19.00	Dinner
20.00-21.00	Forward Look Plenary Discussion

Wednesday, 10 October

6	Saccades **Chair: Frank Bremmer**
09.00-09.50	Eli Brenner Vrije Universiteit Amsterdam *Temporal uncertainty and pre-saccadic mislocalisation*
09.50-10.40	Shigeru Kitazawa Juntendo University *Reversal of subjective temporal order due to eye and hand movements*
10.40-11.10	Coffee break
11.10-12.00	Markus Lappe Westfälische Wilhelms-Universität *Perceptual consequences of saccadic adaptation*
12.00-12.50	David Melcher University of Trento *Evidence for predictive changes in visual perception that precedes saccadic eye movements*
13.00	Lunch

7 Hand

Chair: Jeroen Smeets

16.00-16.50 Roland Johansson
Umeå University
Perceptual consequences of motor action determine prime actor in bimanual object manipulations

16.50-17.20 Coffee Break

17.20-18.10 Chris Miall
University of Birmingham
Motor-visual priming and visuo-motor interference

18.10-19.00 Knut Drewing
Justus-Liebig-Universität
Exploratory movement matters for the integration of redundant signals to haptic shape

20.00 Get-together & Conference Dinner

Thursday, 11 October

8 Brain

Chair: Pieter Medendorp

09.00-9.50 Laure Pisella
Inserm U 534
Related visuo-manual and visuo-perceptual deficits in optic ataxia

9.50-10.40 Angela Sirigu
Institut des Sciences Cognitives
Movement illusion in patients with central or peripheral lesions

10.40-11.10 Coffee break

12.30 Lunch & Departure

3. Antoine Henry Pascal Morice

UPRES EA 4042 lab. «Contrôle Moteur et Perception», Univ Paris Sud 11, 91405 Orsay, France

Embodied perception of gravity when bouncing a ball: proposal for the use of a new invariant

Morice, A.H.P.; Siegler, I.A.; Amorim, M.A.; Baures R.; Benguigui, N.

These are some evidence that, while observing moving objects, kinematics conveys information about the dynamics of movement. Whether this perception is direct or based on heuristics is still under debate. Here, we provide evidence that interacting with objects and observing the visual consequences of action improves perception of dynamical invariants such as gravity eigenvalue ($9.81 m/s^2$). During the "on-line" session, participants were asked to bounce a virtual table tennis ball at a target height by manually controlling a virtual racket. During the "playback" session, they passively observed previously recorded "on-line" bounces. In both sessions, participants compared the acceleration of the ball to the terrestrial gravity acceleration. Gravity fields varied from 1 to 18 m/s^2 using a staircase method. Results show that perception of gravity is more accurate and less variable during the "on-line" than during the "playback" session. Moreover, when exposed to abnormal gravity values, participants quickly learned how to perform the suitable action. At last, our results suggest that the judgement of participants about gravity is based on the relationship linking the velocity of the racket at impact with the ball drop. This proposal can explain why participants are worse in the estimation of gravity during the "playback" than during the "on-line" session. Indeed, the estimation of the racket velocity can be more difficult during passive observation than during on-line manipulation. These results support the use by participants of an efference copy allowing them to estimate the features of the virtual environment by analysing the visual consequences of their actions.

4. Chris Muller

Human Movement Sciences, Vrije Universiteit Amsterdam, Netherlands

Maybe They Are All Circles

Humans judge surface slant from a weighted average of cues, with more reliable cues receiving more weight. Cues that provide more precise estimates are obviously more reliable, but many cues also rely on assumptions about the statistics of the world. For instance, many monocular slant cues rely on the assumption that the surface in question is isotropic. Is the possibility that this assumption is incorrect considered when assigning weights to the cues? Are only the statistics of scenes in general considered, or also specific information from the scene in question? We asked subjects to match the slant of an elliptical target (with monocular and binocular cues indicating slightly different slants) by setting the slant of a large surrounding surface. To strengthen the assumption that the (textured) target was isotropic (circular) it was rotating without its outline changing and the surrounding surface consisted of rotating circles. For comparison we presented static targets surrounded by rotating ellipses with various aspect ratios. Quite surprisingly, we did not find significant effects of the introduced manipulations.