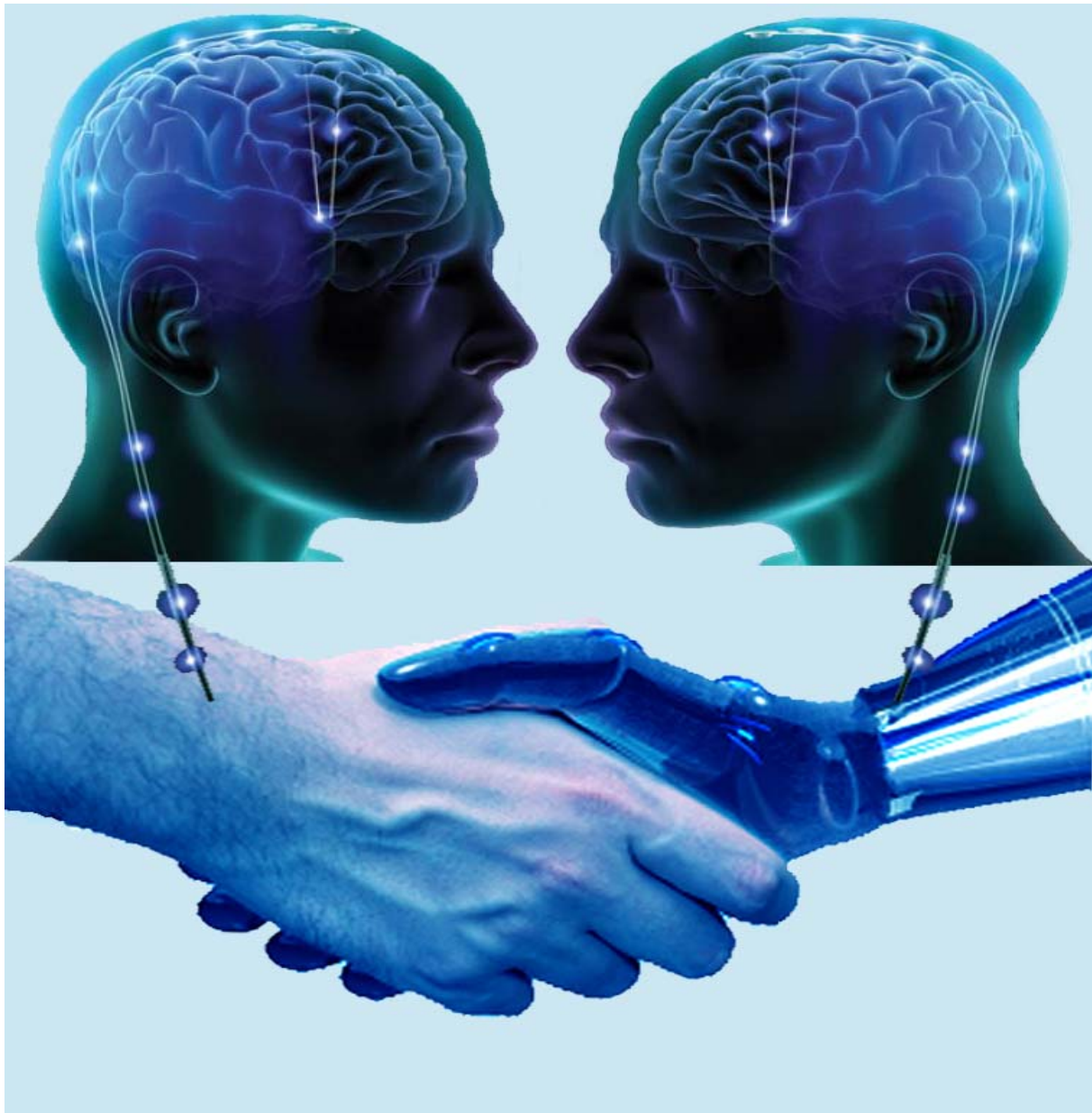


# Neural Encoding of Perception and Action

Organizers: M. Giese and D. Sheinberg



Contact :  
Prof. Dr. Martin Giese

Phone: ++49 (0)7071-2989124  
martin.giese@uni-tuebingen.de  
www.compens.uni-tuebingen.de

February 21 and 22, 2010  
Sun 9:00 Mon 8:30  
Lecture Hall  
Max Planck Guesthouse  
Spemannstrasse 36  
72076 Tübingen

Sunday February 21th

## Morning Session

### Opening (9:00-10:05)

|            |                            |  |
|------------|----------------------------|--|
| 9:00-9:05  | M. Giese /<br>D. Sheinberg | Welcome  |
| 9:05-9:20  | I. Autenrieth              | (Dean of the Medical Faculty in Tübingen)<br><b>Perspectives of the Medical Faculty</b>  |
| 9:20-9:35  | J. Davenport               | (Associate Director, Institute for Brain Science<br>Brown University)<br><b>Brain Science at Brown</b>                               |
| 9:35-9:45  | W. Warren                  | (Dept. of Cognitive and Linguistic Sciences,<br>Brown University)  |
| 9:45-9:55  | H. Bühlhoff                | (Director, Dept. of Human Perception, Cognition and<br>Action, MPI for Biological Cybernetics)                                       |
| 9:55-10:05 | P. Thier                   | (Director, Hertie Institute for Clinical Brain Research<br>and Coordinator, Werner Reichardt Centre for<br>Integrative Neuroscience) |

**10:05-10:30**

**Coffee Break & Posters**

### BCI and Bio inspired Robotics (10:30-13:00)

|             |                             |   |
|-------------|-----------------------------|---|
| 10:30-10:55 | A. Gharabaghi /<br>A. Ramos | (Institute of Medical Psychology and Behavioural<br>Neurobiology/Dept. of Neurosurgery)<br><b>Neuroprostheses for Motor Rehabilitation in<br/>Chronic Stroke Patients</b> |
| 10:55-11:20 | M. Grosse-<br>Wentrup       | (Dept. of Empirical Inference, MPI for Biological<br>Cybernetics)<br><b>Causal Bayesian Networks in Neuroimaging</b>  |
| 11:20-11:45 | C. Schwarz                  | (Hertie Institute, Centre for Integrative Neuroscience)<br><b>Physiology of Perception and Intracortical<br/>Microstimulation in the Rat Whisker System</b>               |

11:45-12:10 C. Crick (Dept. of Computer Science, Brown University)  
**Learning and Computing Motion Primitives from Demonstration**

12:10-12:35 J. Peters (Dept. of Empirical Inference, MPI for Biological Cybernetics)  
**Skill Learning for Robotics**

12:35-13:00 Brainstorming Discussion

**13:00-14:00 Lunch Break (for contributors only)**

## **Afternoon Session**

### **Motor Systems (14:00-16:00)**

14:00-14:25 P. Thier (Hertie Institute, Centre for Integrative Neuroscience)  
**The Cerebellar Basis of Saccadic Learning and its Role in the Compensation of Fatigue**

14:25-14:50 M. Himmelbach (Hertie Institute for Clinical Brain Research)  
**Perception and Action in Patient Studies of Occipito-parietal Cortex**

14:50-15:15 J. Sanes (Dept. of Neuroscience, Brown University)  
**Brain Representations for Voluntary Action and and Motor Learning**

15:15-15:40 C. Curio (MPI for Biological Cybernetics, Dept. of Human Perception, Cognition and Action)  
**Realtime Facial Animation for Studying Interactive Perception and Rehabilitation**

15:40-16:00 Brainstorming Discussion

**16:00-16:30 Coffee Break and Posters**

**16:30- 17:30**

**Discussion about Possible Joint Projects and Grant Initiatives**

17:30-19:00

Lab Visits at the University and the MPI

**19:30-22:00**

**Dinner (for contributors only)**

## **Monday February 22nd**

### **Morning Session**

#### **Visual Perception (8:30-10:35)**

8:30-8:55 M. Giese (Hertie Institute, Centre for Integrative Neuroscience)  
**Dynamic Representations for Complex Body Movements**

8:55-9:20 D. Sheinberg (Dept. of Neuroscience, Brown University)  
**Neural Mechanisms of Action Recognition**

9:20-9:45 T. Serre (Dept. of Cognitive and Linguistic Sciences, Brown University)  
**Computational Models of the Visual Cortex**

9:45-10:10 A. Bartels (MPI for Biological Cybernetics, Dept. Physiology of Cognitive Processes and CIN)  
**Cortical Regions Distinguishing Self-motion Cues from Object Motion Cues**

10:10-10:35 A. Nieder (Dept. of Biology, University, Tübingen)  
**Prefrontal Cortex Neurons Encode Quantitative Rules**

**10:35-11:00**

**Coffee Break & Posters**

## **Action (11.00-13:15)**

- 11:00-11:25 W. Warren (Dept. of Cognitive and Linguistic Sciences, Brown University)  
**Visual Control of Locomotion and Navigation**
- 11:25-11:50 T. Meilinger / B. Mohler (MPI for Biological Cybernetics, Dept. of Human Perception, Cognition and Action, **Spatial Cognition and Virtual Characters**)
- 11:50-12:15 H.P. Mallot / G. Hardieß (Dept. of Biology, University Tübingen) **Working Memory Processes in Spatial Cognition**
- 12:15-12:40 M. Ernst (MPI for Biological Cybernetics) **Multisensory Perception for Action**
- 12:40-13:00 Brainstorming Discussion

**13:00-14:30 Lunch Break and Posters (lunch for contributors only)**

## **Afternoon Session**

- 14:30-14:50 H. Herbert (Graduate Training Center of Neuroscience, Tübingen) **Study & Research Opportunities at the Graduate Training Center of Neuroscience**

**14:50-16:00 Discussion about Possible Joint Projects and Grant Initiatives**

16:00-18:30 Further lab Visits at the University and the MPI

19:00 - open end Evening event /Dinner (for contributors only)

## Posters

### 1. **Influence of (A)Synchronous Egomotion on Action Perception**

Andrea Christensen, Winfried Ilg, Hans-Otto Karnath, Martin A. Giese

Hertie Institute for Clinical Brain Research, Centre for Integrative Neuroscience,  
University Clinic Tübingen

### 2. **Similarity Grouping and Repetition Blindness are Both Influenced by Attention.**

Bianca de Haan, Chris Rorden

Hertie Institute for Clinical Brain Research, Centre of Neurology, Section of  
Neurophysiology, University Clinic Tübingen

### 3. **Neural Correlates of Sound Localization in a Multisound Environment**

Zündorf<sup>1</sup>, J. Lewald<sup>2</sup>, S. Obermeyer, H.-O. Karnath<sup>1</sup>

<sup>1</sup> Hertie Institute for Clinical Brain Research, Cognitive Neurology / Section of  
Neuropsychology, Tübingen, Germany

<sup>2</sup> Leibniz Research Centre for Working Environment and Human Factors (IfADo),  
Dortmund, Germany

### 4. **Functional Differences between the Human Superior Colliculus and Cortical Eye Fields in Visual Search**

Marc Himmelbach, Svenja Borchers

Hertie Institute for Clinical Brain Research, Centre of Neurology, University Clinic  
Tübingen

### 5. **Visual Localization in the Occipito-parietal Pathway**

Marc Himmelbach, Sebastian Werner, Hans-Otto Karnath

Hertie Institute for Clinical Brain Research, Centre of Neurology, University Clinic  
Tübingen

### 6. **Spatial Neglect: Not just a Right Hemisphere Phenomenon**

Julia Suchan, Hans-Otto Karnath

Hertie Institute for Clinical Brain Research, Centre of Neurology, University Clinic  
Tübingen

7. **Fiber Pathways Connecting cortical Areas Relevant for Spatial Orienting and Exploration**

Julia Suchan, Marc Himmelbach, Dorothee Saur, Hans-Otto Karnath

Hertie Institute for Clinical Brain Research, Centre of Neurology, University Clinic Tübingen

8. **The Virtual Face Mirror Project: Revealing Dynamic Self-Perception in Humans**

Cristóbal Curio

Max-Planck Institute for Biological Cybernetics, Human Perception, Cognition and Action, Tübingen

9. **Towards Robust Scene Analysis: A Versatile Mid-level Feature Framework**

David Engel

Max-Planck Institute for Biological Cybernetics, Human Perception, Cognition and Action, Tübingen

10. **Neurophysiological Correlates of Visual Awareness in the Human and Macaque Prefrontal Cortex**

Fanis Panagiotaropoulos

Max-Planck Institute for Biological Cybernetics, Physiology of Cognitive Processes, MPI Tübingen

11. **3D Vision for Autonomous Navigation of Unmanned Aerial Vehicles**

Chunrong Yuan, A. Mallot  
Faculty of Biology, Cognitive Neuroscience, University Tübingen

12. **Skyline cues for visual homing in desert ant natural environments: a simulation approach**

Kai Basten, Hanspeter A. Mallot  
Faculty of Biology, Cognitive Neuroscience, University Tübingen

13. **Spatial Representation of Dynamic Objects within Working Memory in a Collision Avoidance Task**

Gregor Hardieß  
Faculty of Biology, Cognitive Neuroscience, University Tübingen

#### **14. View-independent Recognition of Grasping Actions with a Cortex-inspired Model**

Falk Fleischer, Antonino Casile, and Martin A. Giese

Hertie Institute for Clinical Brain Research, Cognitive Neurology, University Clinic  
Tübingen

#### **15. Interpreting the Neural Code with Formal Concept Analysis**

Dominik Endres<sup>1</sup>, Uta Priss<sup>2</sup>, Peter Foldiak<sup>3</sup>

<sup>1</sup> Hertie Institute for Clinical Brain Research, Cognitive Neurology, University Clinic  
Tübingen

<sup>2</sup> Edinburgh Napier University, UK

<sup>3</sup> University of St. Andrews, Scotland, UK

**Location:**

Max Planck Guest House, Spemannstr. 36, 72076 Tübingen

