Wahrnehmung - A Public Outreach Event

Event:

The goal of this event is to raise awareness about the nature of visual perception amongst the residents of the city of Kaiserslautern. Leading scientists from three different countries will introduce interested listeners to the fascinating workings of the human mind and brain during the seemingly automatic process of "seeing". They will also discuss the processes involved in face perception, face blindness, visual search and using applied perception for reducing the congestion problems with current ground-based transportation.

Time:

28th March 2014 (Friday) from 14:00 to 16:30

Where:

Building 57, Room: Rotunde, University of Kaiserslautern, Kaiserslautern, Germany.

Contact:

 Prof. Dr. Tandra Ghose < ghose@sowi.uni-kl.de >

Language:

Talks will be in English

Website:

http://www.sowi.uni-kl.de/psychology-of-perception/events/

Acknowledgements:

Schedule:

Time	Talk
14:00 to 14:05	**Welcome Speech / Introduction** by Prof.Dr.Tandra Ghose (Uni-KL)
14:05 to 14:30	"**Faces as Perceptual Wholes: Integrality of Component and Configural Properties**" by Prof. Dr. Ruth Kimchi (Israel)
14:35 to 15:00	"**What is important in a face for race classification and person identification?**" by Dr. Isabelle Bülthoff (Germany)
15:05 to 15:30	"**Dancing chickens and gorillas in the lung: If I can see so much, why do I miss so much?**" by Prof. Dr. Jeremy Wolfe (USA)
15:35 to 16:00	"**From Flying Robots to Flying Cars**" by Prof. Dr. Heinrich Bülthoff (Germany)
16:00 onwards	Time for discussions with ***Brezel und Wein.***

ABSTRACTS

Title: Faces as Perceptual Wholes: Integrality of Component and Configural Properties
Speaker: Prof. Dr. Ruth Kimchi (University of Haifa, Israel)

Abstract: Adults' expertise in face recognition has been attributed to their ability to engage in holistic processing. Exactly what constitutes holistic processing has remained controversial, however. In an attempt to understand the nature of face representation and processing, we examined how configural and featural information interact during face processing using Garner's speeded classification task. Observers were unable to selectively attend to features without interference from irrelevant variation in configuration, and vice versa—indicating that featural information and configural information are perceptually integral in normal face processing. In contrast, individuals with congenital prosopagnosia (CP) could attend to configural information without interference from irrelevant featural information and vice versa – indicating that CPs process featural and configural information independently. These findings not only elucidate the underlying perturbation in CP but also confirm that intact face processing is characterized by the perceptual integrality of configural and featural information.

Title: What is important in a face for race classification and person identification?
Speaker: Dr. Isabelle Bülthoff (Max-Planck Institute, Tübingen, Germany)

Abstract: We are very good at classifying familiar and unfamiliar faces in terms of their race or sex, but compared to the robust identification of familiar faces, discriminating unfamiliar faces, especially other-race faces, is more difficult (other-race effect). In this talk, I will present three studies investigating what is important in a face for race classification and person identification. First we investigated what gives a face its perceived ethnicity. To this end, mixed-race faces were created by embedding one facial feature (e.g. Caucasian mouth) into the face of the other ethnicity (e.g. Asian face). The perceived ethnicity of these mixed-race faces was assessed in a classification task. The eyes and the texture (skin) proved to be major determinants of ethnicity for Asian and Caucasian participants. Second, we examined what is at the base of the other-race effect. We dissociated ethnicity from identity information by creating Asian and Caucasian faces that shared the same identity (e.g. making a Caucasian face look more Asian), and tested the other-race effect while controlling identity-related facial information. Participants showed equal race discrimination performance for same- and other-race faces. Thus no other-race effect appeared when ethnicity was the only varying factor between the test faces, suggesting that the other-race effect cannot be attributed to face race per se. Finally, we tested what type of facial information is most relevant for the identification of familiar faces. We created both sex-morphs and identity-morphs of very familiar faces, and asked participants to pick the original familiar face among its sex- or identity-morphs. We found a better performance for identity- than sex-manipulated faces, indicating that sex-related facial information is represented less accurately than identity-related information. The implications of these results for models of face representation will be discussed.

Title: Dancing chickens and gorillas in the lung: If I can see so much, why do I miss so much?
Speaker: Prof. Dr. Jeremy Wolfe (Harvard, USA)
Abstract: When you open your eyes on a new scene, you immediately see something. You can understand the basic 'gist' of that scene within a fraction of a second. You can remember that scene for days after just a few seconds exposure. Nevertheless, we can easily show that you are 'blind' or at least remarkably amnesic about very basic aspects of what you have just seen. I will attempt to explain this seemingly contradictory collection of abilities and limits. Moreover, I will discuss the impact of these aspects of normal human vision and attention on important tasks like airport security and cancer screening.

Title: From Flying Robots to Flying Cars
Speaker: Prof. Dr. Heinrich Bülthoff (Max-Planck Institute, Tübingen, Germany)
Abstract: Our brain is constantly processing a vast amount of sensory and intrinsic information in order to understand and interact with the world around us. In my department at the Max Planck Institute for Biological Cybernetics in Tübingen we aim to best model human perception and action and to test these models to predict human action for example in the context of driving and flying. To this end, we use systems and control theory, computer vision, and psychophysical techniques while conducting experiments with the most advanced state of the art motion simulators. I will briefly present our research philosophy of basic research at the Max Planck Institute before presenting a novel framework to overcome the congestion problems with current ground-based transportation.

In the myCopter project (www.mycopter.eu) we study together with other European partners the enabling technologies for traveling between homes and working places, and for flying in swarms at low altitude in urban environments. Our efforts are guided by the vision that in the future humans and machines will seamlessly cooperate in shared or remote spaces, and thus robots or flying cars become an integral part of our daily life.

About the speakers:

Each and every speaker is an eminent scientist in the field of visual perception, principal investigator of world-class laboratories, has published numerous highly cited research articles that have revolutionized this area of research, recipients of coveted research awards and research honors, fellows of prestigious societies and editors of journals with high impact factors.

Prof. Dr. Ruth Kimchi (Israel)

- Head of Max Wertheimer Minerva Center for Cognitive Processes and Human Performance, University of Haifa, Haifa, Israel.
- Professor in the Department of Psychology at the University of Haifa, Israel.
- Research Interests include perceptual organization, visual cognition, object and face perception, visual attention and perceptual development.
- Current research project studies the role of attention in object recognition in an interactive iterative framework.
- Ph.D. in Cognitive Psychology, University of California, Berkeley.
- M.A. in Experimental Psychology, Cum Laude, The Hebrew University of Jerusalem, Israel

Dr. Isabelle Bülthoff (Germany)

- Project leader at the Department of Human Perception, Cognition and Action at the Max-Planck institute for Biological Cybernetics, Tübingen, Germany
- Teaching at the Graduate School for Neural and Behavioral Sciences
- Research interests include investigating the mechanisms underlying face recognition focusing on the interplay between gender and identity, the impact of voice distinctiveness, the influence of context and task, crosscultural differences and the role of idiosyncratic viewing history.
- Current research project investigates face recognition of active observers using full-bodied avatars in a virtual environment.
- Ph.D in Zoology, University of Lausanne, Switzerland. Doctoral Dissertation accomplished at the Max-Planck Institute for Biological Cybernetics, Tübingen, Germany.

Prof. Dr. Jeremy Wolfe (USA)

- Principal Investigator at the Visual Attention Lab, Harvard University
- Professor of Ophthalmology and Radiology at Harvard Medical School
- Director of Center for Advanced Medical Imaging (CAMI)
- Senior Lecturer in the Department of Brain and Cognitive Sciences at MIT and an Adjunct Associate Professor in Cognitive and Neural Systems at Boston University
- Research Interests include preattentive vision, attentional deployment, post-attentive vision, searching scenes and non-selective vision
- Clinical and Applied research includes work at the Center for Advanced Medical Imaging and in the areas of medical screening, airport security and foraging.
- Obtained AB in 1977 from Princeton and his Ph.D. in Psychology from MIT in 1981.

Prof. Dr. Heinrich Bülthoff (Germany)

- Director at the Max Planck Institute for Biological Cybernetics in Tübingen
- Head of the Department Human Perception, Cognition and Action, which focuses on the psychophysical and computational aspects of higher level visual processes in object and face recognition, sensory-motor integration, spatial cognition, and perception and action in virtual environments
- Distinguished Professor of the Department of Brain and Cognitive Engineering College of Information and Communication, Korea University, Seoul, Korea
- Currently leading the EU project myCopter, which enables technologies for personal aerial transportation systems. Other EU projects include SUPRA, TANGO and VR-HYPERSPACE.
- Ph.D. degree in the natural sciences from the Eberhard-Karls-Universität in Tübingen.