

## **Cognitive and computational modeling of visual processing of natural scenes**

### **Original title / Originaltitel**

Kognitive und komputationale Modellierung der visuellen Verarbeitung natürlicher Szenen

### **Summary / Zusammenfassung**

In this project we investigated the visual information processing of natural scenes in order to categorize them and judge scene typicality. The result of several psychophysical and computational experiments showed that visual processing of natural scenes relies on processing of local semantic concepts. The computational models developed in this project provided very similar results as human subjects when categorizing natural scenes and rating scene typicality.

Weitere Informationen unter [www.psychologie.unizh.ch/vicoreg/research/](http://www.psychologie.unizh.ch/vicoreg/research/)

### **Publications / Publikationen**

Vogel, J., Schwaninger, A., Wallraven, C., & Bühlhoff, H.H. (accepted). Categorization of natural scenes: local vs. global information and the role of color. *ACM Transactions on Applied Perception* [PDF]

Schwaninger, A., Vogel, J., Hofer, F., & Schiele, B. (2006). Psychophysically plausible computational modelling of scene typicality. *ACM Transactions on Applied Perception*, 3(4), 333–353. [PDF]

Vogel, J., Schwaninger, A., Wallraven, C., & Bühlhoff, H.H. (2006). Categorization of natural scenes: local vs. global information. *Proceedings of the 3rd Symposium on Applied Perception in Graphics and Visualization*, ACM Press, New York, USA, 33-40. [PDF]

Graf, M., Schwaninger, A., Wallraven, C., & Bühlhoff, H.H. (2002). Psychophysical results from experiments on recognition & categorisation. *Information Society Technologies (IST) programme, Cognitive Vision Systems - CogVis (IST-2000-29375)*. [PDF]

Weitere Informationen unter [www.psychologie.uzh.ch/vicoreg/publications/index\\_byarea.htm](http://www.psychologie.uzh.ch/vicoreg/publications/index_byarea.htm)

### **Keywords / Suchbegriffe**

Cognitive and computational modeling, scene categorization, semantic typicality

### **Project Leadership and Contacts / Projektleitung und Kontakte**

Dr. Adrian Schwaninger (Project Leader)

### **Other Links to external Webpages / Andere Links zu externen Webseiten**

[www.psychologie.unizh.ch/vicoreg](http://www.psychologie.unizh.ch/vicoreg)

<http://www.mis.informatik.tu-darmstadt.de/>

### **Funding Source(s) / Unterstützt durch**

Universität Zürich (position pursuing an academic career), EU, Others

EU Project CogVis, IST-2000-29375; Max Planck Society, Germany; German Research

Foundation (Deutsche Forschungsgemeinschaft)

**In Collaboration with / In Zusammenarbeit mit**

Prof. Dr. B. Schiele (Co-Project Leader)

Germany

Multimodal Interactive Systems

Department of Computer Science

Darmstadt University of Technology

Dr. Julia Vogel (Co-Project Leader)

Canada

Laboratory for Computational Intelligence

Department of Computer Science

The University of British Columbia

**Duration of Project / Projektdauer**

Feb 2004 to Dec 2007