

## Austrian Academy of Sciences

Austrian Academy of Sciences  
 Commission for Scientific Visualization  
 Donau-City-Strasse 1  
 A-1220 Wien, Austria  
 ☎ +43-1-20501 18333  
 ☎ +43-1-20501 18900  
 ✉ postmaster@viskom.oeaw.ac.at  
 🌐 www.viskom.oeaw.ac.at

### Core Competence

Scientific Visualisation, Information Visualisation,  
 Volume Visualization, Voxelization, Archaeological  
 Visualization, Biomedical Visualization, Volume  
 Graphics, Image and Signal Processing



Head of the Commission  
 Wolfgang Mecklenbräuker

### History

CG activities at the Austrian Academy of Sciences go back to the early 70's and took place at the time at the Institute of Information Processing. The Institute participated in the organization of important national and international scientific events such as Austrographics 1988, Eurographics 1991, VisSym 1999, GD 2001, and various CG-oriented workshops and seminars, e.g. SPIE-sponsored DIP-94, DIP-97. The first activities in the area of volume visualization in Austria took place here in the early 90's. Important contributions to the fields of volume rendering, brain imaging and multi-modal data fusion originated here. This prompted the Praesidium of the Academy to establish the present commission in the year 1999 and set it up as an independent research unit for the area of scientific visualization.

### Staff

*1 Chairman:* Wolfgang Mecklenbräuker  
*6 Researchers:* Leonid I. Dimitrov, Ute Feldmann,



Milos Sramek, Emanuel Wenger, 2 vacancies  
 3 *PhD-Students:* Matus Straka, 2 vacancies  
 1 *Secretary:* vacant

### Rooms and Locations

The commission occupies 200 sq.m. on the 4th floor of the Tech Gate Vienna - a science and technology park at the Danube, near the Vienna International Center (UNO-City)

### Financing

As a research unit of the Austrian Academy of Sciences, the basic staff (7 people), the rooms and other infrastructure are financed by the Austrian government. The PhD students as well as some special equipment are paid from projects funded by the EU or by Austrian science foundations.

### Current Structure and Important Partners

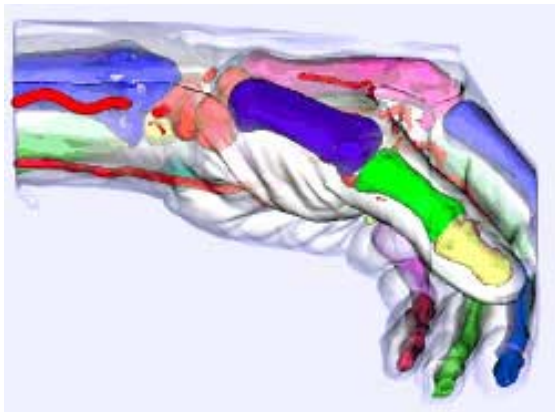
The Commission is an independent research unit of the Austrian Academy of Sciences. Its research area was defined by the establishing resolution of the Praesidium which also nominated the members of the Commission. The main directions and activities are reported to and supervised by the members of the Commission to whom an annual report and a research plan are presented. The daily activities are directed by the Chairman but vast freedom in selecting, defining and conducting projects is granted to the researchers. Currently, two working groups concerned with research in the fields of signal processing and scientific visualization are active. Important partners are institutes of the University of Technology of



Vienna, General Hospital of Vienna, institutes of other national Academies of Sciences (Russia, Slovakia).

### Current Research

The signal processing group conducts research concerning non-linear biosignal analysis and prediction. The main topics cover EEG signal analysis and sleep research. The SciVis group conducts projects aiming at developing of methods and algorithms for volume graphics, voxelization, direct object representation by distance fields, digital watermarking for volumetric datasets and distributed, collaborative volume segmentation by hierarchical watershed transform. Next to it, an important part of the development work is oriented towards realizing systems for processing and visualization of the scientific results of other academic research units, predominantly from the humanities - history and archaeology, or medicine and neurophysiology. Herein count archaeological visualizations, a system for acquisition, processing and storage of watermarks from medieval documents, as well as EEG and MRI data processing and fusion for mapping brain activities. Nowadays, a system for visualization and interpretation of peripheral CT angiography data in the framework of the AngioVis project is under development.



### Important Recent Project Participations

- SIESTA EU-funded,  
<http://www.ai.univie.ac.at/oefai/nn/siesta>
- WM - INTAS funded,  
<http://www.viskom.oew.ac.at/wm>
- AngioVis - FWF funded,  
<http://www.cg.tuwien.ac.at/research/vis/angiovis>



### Future of the Lab

The commission will continue to conduct basic research in the areas where it is active now and provide expertise to its non-technical partners. The cooperations with the existing partners will be intensified and the look-out for new, rewarding partnerships continued. The research work will be structured around the major research directions in the form of bigger, national or EU projects. The commission will intensify its educational calling with the attraction and supervision of more PhD students.

