

## VRVis Research Center

VRVis Zentrum für Virtual Reality  
und Visualisierung Forschungs GmbH  
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### Core Competence

Photorealistic Rendering, Global Illumination, Real-time Rendering, Image Based Rendering, Scientific Visualisation, Information Visualisation, Virtual Reality, Virtual and Augmented Environments



CEO of the  
Research Center  
Georg Stonawski

### History

VRVis was founded in 2000 as an initiative of the Institute of Computer Graphics and Algorithms (Werner Purgathofer) of the Vienna University of Technology together with several academic and industrial partners. It is a part of the Kplus program in Austria, which provides 60% of funding by the City of Vienna and the federal government. The Kplus program has been initiated by the federal ministry of education, science and culture to improve cooperation between science and industry in Austria.

### Rooms and Locations

VRVis occupies 380 square meters and is located in the third floor of the TechGate Building. In the Virtual Reality Center at the TechGate extensive Graphics Hardware is available for rent by VRVis.

### Financing

60% of the costs of VRVis are funding by the federal government and the City of Vienna, the other 40% are paid by the industry partners.

### Staff

*1 CEO:* Georg Stonawski

*6 Key researchers* (heads of the research areas):

Robert Tobler, Konrad Karner, Rainer Wegenkittl, Kresimir Matkovic, Anton Fuhrmann, Helwig Hauser

*4 Senior researchers:* Stefan Maierhofer, Katja Bühler, Petr Felkel, Robert Kosara

*13 Junior researchers:* Joachim Bauer, Christopher Zach, Andreas Klaus, Mohamed Gouda, Reinhard Danzl, Rainer Splechtner, Thomas Gatschnegg, André Neubauer, Robert Laramee, Zoltan Konyha, Stephan Mantler, Helmut Doleisch, Markus Hadwiger

*1 Technician:* Adi Kriegisch

*2 Secretaries:* Sylvia Kiss, Christina Winkler

About 20 additional researchers are contributed by the industry partners and are working with the VRVis staff on projects.

### Current Structure and Important Partners

The VRVis is a joint venture in Research & Development for virtual reality and visualisation, undertaken by five academic institutes and renowned Austrian companies. The Institute for Computer Graphics and Algorithms of Vienna University of Technology (Prof. Purgathofer) is our main scientific partner, others are Institute of Graphics and Vision Graz University of Technology (Prof. Leberl), ÖFAI Austrian Res. Inst. f. Artificial Intelligence (Prof. Trapp), Institute of Electrical Measurement and Measurement Signal Processing of Graz



University of Technology (Prof. Pinz) and Cure Center for usability research & engineering (Prof. Tscheligi). The industry partners are ABIS-Softwareentwicklungsges.m.b.H, Alicona Imaging GmbH, AutomationX GmbH, AVL List GmbH, Geodata Ziviltechniker GmbH, Imagination Computer Services GmbH, No Limits Informationstechnologie GmbH, Mischek Ziviltechniker GmbH, TIANI Medgraph AG.

### Current Research

The scientific research program consists of five closely connected research areas: Application Research Areas: The departments AR1 to AR3 perform application-oriented, precompetitive research in the fields of "Virtual Reality" respectively "Visualization". The topics have been selected to point out new methods and goals for the commercial partners. ARs closely cooperate with the commercial partners and BRs. Basic Research Areas: The departments BR1 and BR2 research basic topics in the fields of "Virtual Reality" respectively "Visualization" respective. The topics have been selected to point out new methods and goals for the "Application Research Areas". BRs closely cooperate with the University partners and ARs.

#### AR 1: Virtual Reality for Marketing and Edutainment

Main research focus: real-time architectural visualization, development of a powerful interactive rendering system for large environments, as well as the integration of three-dimensional user interfaces, personality agents, and user dependent interaction paradigms.

#### AR 2: Virtual Habitat

Main research focus: automatic image based modeling of existing scenes and on the organisation, simulation and visualisation of this data.

#### AR 3: Virtual Reality for Scientific Applications

Main research focus: Prototyping compendium and a supporting software framework to visualize complex systems and processes. Efficient and expressive visualization of large data sets stemming from high-end simulations in mechanical engineering New interaction metaphors for the user interface and new data-handling concepts for medical data

#### BR 1: Virtual Reality Fundamentals

Main research focus: enabling technologies: tracking of users and objects, display devices (head-mounted displays or front- and back-projection systems) 3D-input devices like 3D-mouse or glove human-computer interaction: interactions with the virtual environment, collaborations between users, content definition for virtual environments

#### BR 2: Interactive Visualization

Main research focus: flexible as well as fast and interactive visualization solutions, which empower the user to more efficiently explore, analyze, and/or present her or his data.



### Important Recent Project Participations

- "Kplus", Austrian project, [www.kplus.at](http://www.kplus.at)

### Important Recent Industrial Partners

ABIS-Softwareentwicklungsges.m.b.H, Alicona Imaging GmbH, AutomationX GmbH, AVL List GmbH, Geodata Ziviltechniker GmbH, Imagination Computer Services GmbH, No Limits Informationstechnologie GmbH, Mischek Ziviltechniker GmbH, TIANI Medgraph AG



### Future of the Lab

VRVis will continue to cooperate with its current partners but also plans to extend its cooperations with new industrial partners. It starts to participate in international projects of the European union. Future research will be directed towards the needs of our industrial partners.