Résumé

Johannes Kehrer, PhD

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Nationality	Austrian
Date / Place of birth	April 8, 1983 / Linz, Austria

Education

12/2007 - 05/2011	**Doctoral Program in Visualization**, Department of Informatics, University of Bergen, Norway Graduation "*Philosophiae Doctor*" (PhD) -- without grading
10/2005 - 10/2007	**Master Program in Computer Graphics and Digital Image Processing**, Vienna University of Technology, Austria Graduation "*Diplom-Ingenieur*" (≈ Master of Science) with highest distinction; overall grade average: 1.07 (scale: 1=excellent to 5=unsatisfactory)
10/2002 - 06/2005	**Bachelor Program in Media Technology and Design**, University of Applied Sciences, Campus Hagenberg, Austria Graduation "*Bachelor of Science in Engineering*" (BSc) with highest distinction; overall grade average: 1.27 (scale: 1=excellent to 5=unsatisfactory)
09/1993 - 06/2001	**Grammar School**, Rohrbach, Austria Graduation (Matura) with highest distinction

Work Experience

since Dec. 2007 (see also page 3 & 4)	**Research Assistant / PhD Student**, Visualization Group, Dept. of Informatics, University of Bergen, Norway; www.ii.uib.no/vis/ Thesis title: "*Interactive Visual Analysis of Multi-faceted Scientific Data;*" supervised by H. Hauser and M.E. Gröller; opponents: M. Chen and H. Schumann Researching the interactive visual analysis of higher dimensional, multi-variate, and time-dependent data (primarily from climate research area) Research collaborations with SimVis GmbH, Vienna, Austria; Department of Statistics and Probability Theory, Vienna University of Technology, Austria; Wegener Center for Climate and Global Change, University of Graz, Austria; and Potsdam Institute for Climate Impact Research, Germany Co-supervision of student projects of A.E. Lie and S. Eikeland (Autumn 2008) Teaching assistant for "*Computer Graphics*" (Spring 2008), "*Visualization*" (Autumn 2008 & 2009), "*Selected Topics in Visualization*" (Spring 2009), "*Introduction to Programming Methodology*" (Autumn 2010 & Spring 2011), and "*Programming Development Methodologies*" (Spring 2010)
02/2007 - 10/2007 (see also page 4)	**Master Thesis**, Visual Interactive Analysis Group, VRVis Research Center, Vienna, Austria; www.vrvis.at Title: "*Integrating Interactive Visual Analysis of Large Time Series Data into the SimVis System;*" supervised by H. Hauser, P.Muigg, and H. Doleisch; grade: excellent
10/2006 - 02/2007	**Teaching Assistant**, Vienna University of Technology, Austria Lab tutor for "*Introd. to Digital Image Processing*" and "*Virtual & Augmented Reality*"
07/2006 - 11/2006	**Intern**, Visual Interactive Analysis Group, VRVis Research Center, Austria Interactive visualization and analysis of time-dependent data from automotive engine simulation; supervised by H. Piringer

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07/2005 - 09/2005	**Programmer**, Ars Electronica Futurelab, Linz, Austria; www.aec.at Development of virtual 3D worlds for the "*CAVE*" and "*Humphrey*" flight simulator
03/2005 - 06/2005	**Intern**, Inst. for Computer Graphics & Vision, Graz Univ. of Technology, Austria Advancement of the mixed reality installation "*Virtual Showcase;*" supervised by D. Schmalstieg
10/2003 - 01/2005	**Teaching Assistant**, Univ. of Applied Sciences in Hagenberg, Austria Lab tutor for "*Introduction to Programming*" (Autumn 2003/04), "*Object Oriented Programming*" (Spring 2004), and "*Applied Software Techniques*" (Autumn 2004/05)
08/2004 - 09/2004	**Web programming**, WebDynamite IT Solutions GmbH, Linz, Austria
12/2003 - 05/2004	**Web conception & design**, Information Engineering GmbH, Aigen i.M., Austria
09/2003 & 10/2001 - 09/2002	**Summer Job / Alternative Civilian Service**, Caritas Old People's Home Karl Borromäus, Linz, Austria Attending to old people; Secretary's office

Awards

Student Project *Coeno Storyboard* (see also page 4)	**Europrix Multimedia Top Talent Award 2005** Winner in the category "*Content Tool and Interface Design*" www.europrix.org/content/top-talent-festival-2005 **Austrian State Prize for Multimedia & e-Business** Jury award in the category "*Förderpreis*" (award for young talents) and special award sponsored by the Austrian Computer Society
others	**Scholarship for excellent grades** University of Applied Sciences, Hagenberg (2005); Vienna University of Technology (2006 & 2007)

Additional Information

Languages	German (native), English (excellent), Norwegian (good), French (basic)
Research Interests	Visualization, interactive visual analysis, real-time rendering, and virtual reality
Reviewing	IEEE TVCG journal (2010, 2011); IEEE Visualization (2009, 2010, 2011); IEEE InfoVis (2009, 2010); EuroVis (2008, 2009, 2010, 2011); IEEE PacificVis (2010, 2011); Vision, Modeling, and Visualization (2009); Volume Graphics (2010); TopoInVis (2009)
Selected Activities	Student volunteer at EuroGraphics 2006, Vienna Responsible for publication list, VisGroup, Bergen, www.ii.UiB.no/vis/publications/ Webmaster for EuroVis 2011 conference website, www.UiB.no/eurovis2011/
Workshops	Participation in several workshops on presentation techniques, scientific writing, acting, improvisational theatre, body language, and conflict management
Personal Interests	Interested in classical music, digital arts, design, and philosophy; Acting in several groups for improvisational theatre (2001, 2002, 2004-2007) and classical theatre (1996-2002); Member in a student choir (2008-2011); Webmaster of www.blak.uib.no

Journal Articles
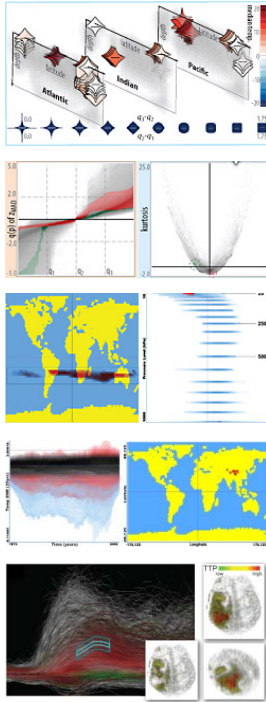
Interactive Visual Analysis of Heterogeneous Scientific Data across an Interface by J. Kehrer, P. Muigg, H. Doleisch, and H. Hauser. *IEEE Trans. Visualization and Computer Graphics*, 17(7):934-946, 2011.


Brushing Moments in Interactive Visual Analysis by J. Kehrer, P. Filzmoser, and H. Hauser. *Computer Graphics Forum*, 29(3):813-822, 2010.

Exploration of Climate Data Using Interactive Visualization by F. Ladstädter, A. Steiner, B. Lackner, B. Pirscher, G. Kirchengast, J. Kehrer, H. Hauser, P. Muigg, and H. Doleisch. *Journal of Atmospheric and Oceanic Technology*, 27(4):667-679, 2010.

Hypothesis Generation in Climate Research with Interactive Visual Data Exploration by J. Kehrer, F. Ladstädter, P. Muigg, H. Doleisch, A. Steiner, and H. Hauser. *IEEE Trans. Visualization & Computer Graphics*, 14(6):1579-1586, 2008.

A Four-level Focus+Context Approach to Interactive Visual Analysis of Temporal Features in Large Scientific Data by P. Muigg, J. Kehrer, S. Oeltze, H. Piringer, H. Doleisch, B. Preim, and H. Hauser. *Computer Graphics Forum*, 27(3):775-782, 2008.

Other Publications
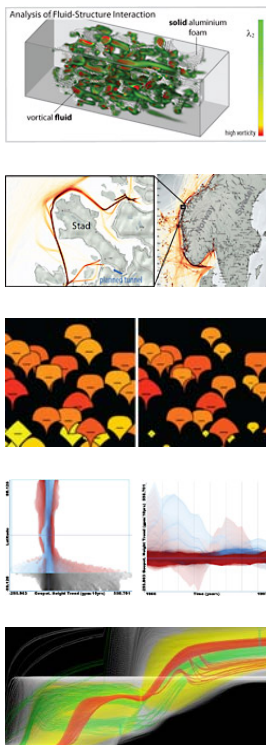
Interactive Visual Analysis of Multi-faceted Scientific Data by J. Kehrer. PhD thesis, Department of Informatics, University of Bergen, Norway, March 2011.


Visual Analysis of Multivariate Movement Data Using Interactive Difference Views by O. Daae Lampe, J. Kehrer, and H. Hauser. In *Proc. Vision, Modeling, and Visualization (VMV 2010)*, pages 315-322, 2010.

Critical Design and Realization Aspects of Glyph-based 3D Data Visualization by A.E. Lie, J. Kehrer, and H. Hauser. In *Proc. Spring Conference on Computer Graphics (SCCG 2009)*, pages 27-34, 2009.

SimVis: An Interactive Visual Field Exploration Tool applied to Climate Research by F. Ladstädter, A.K. Steiner, B.C. Lackner, G. Kirchengast, P. Muigg, J. Kehrer, and H. Doleisch. In *New Horizons in Occultation Research: Studies in Atmosphere and Climate*, pages 235-245, Springer, 2009.

Integrating Interactive Visual Analysis of Large Time Series Data into the SimVis System by J. Kehrer. Master thesis, Vienna University of Technology, Austria, Oct. 2007.
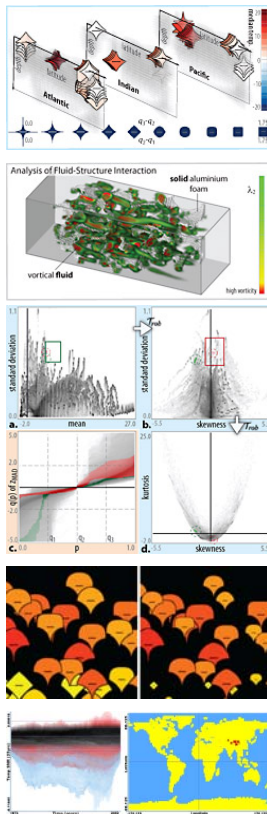
PhD Thesis, *Interactive Visual Analysis of Multi-faceted Scientific Data*, Department of Informatics, University of Bergen, Norway
*Supervised by H. Hauser and M.E. Gröller; opponents: M. Chen and H. Schumann*

Visualization plays an important role in exploring, analyzing and presenting large and heterogeneous scientific data. In many areas, however, we can see that model and data scenarios are becoming *multi-faceted*: data are often multi-variate and time-dependent, they stem from different data sources (multi-modal data), from multiple simulation runs (multi-run data), or from simulations of interacting physical phenomena, which consist of coupled simulation models (multi-model data). This research deals with different aspects of the interactive visual analysis of such multi-faceted scientific data.
The main contributions of this work are (see also publication list):

- a number of novel approaches and strategies for the interactive visual analysis of multi-run data;
- a concept that enables the feature-based visual analysis across an interface between interrelated parts of heterogeneous scientific data (including data from multi-run and multi-physics simulations);
- a model for visual analysis that is based on the computation of traditional and robust estimates of statistical moments from higher-dimensional multi-run data;
- procedures for visual exploration of time-dependent climate data that support the rapid generation of hypotheses, which are subsequently evaluated with statistics;
- and structured design guidelines for glyph-based 3D visualization of multi-variate data together with a novel glyph.

All these approaches are incorporated in a single framework for interactive visual analysis that uses powerful concepts such as coordinated multiple views, feature specification via brushing, and focus+context visualization. The proposed concepts and methods are demonstrated in a number of case studies that are based on climate data and data from multi-run or multi-physics simulations.

http://www.ii.UiB.no/vis/team/kehrer/thesis/
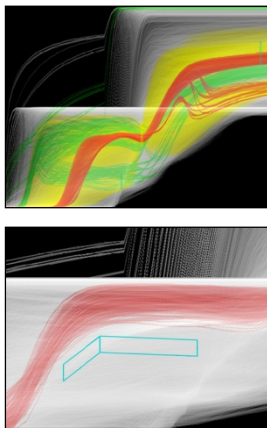
Master Thesis, *Integrating Interactive Visual Analysis of Large Time Series Data into the SimVis Framework*, VRVis Research Center, Vienna
Supervised by H. Hauser, P. Muigg, and H. Doleisch; grade: excellent

SimVis is a tool for the interactive visual analysis of time-dependent, multivariate 3D simulation data. It offers multiple linked views from *InfoVis* and *SciVis* that allow users to interactively examine data and its interconnections.

In this research, novel techniques for the enhanced exploration and analysis of *data evolution over time* (function graphs) were developed. Large time-dependent datasets with several million entries can be depicted in real-time, visualizing data trends while preserving outliers. Using several kinds of *similarity-based brushes*, function graphs can be selected by means of similarity to user-defined patterns, which can be directly sketched in the view.

http://www.simvis.at

Student Project: Coeno Storyboard, Univ. of Appl. Sciences, Hagenberg
Virtual input devices (mouse and keyboard) for the interactive installation.

The application is an intuitive face-to-face collaboration tool with an augmented table-top for presentations and discussions. Participants can drag data (e.g., images, 3D models, videos, sketches) from their own laptop computers onto a table or wall display area during a meeting. Abstract thoughts, complex ideas and instructions can be shared, exchanged and adapted.

Winning several Awards such as Europrix Top Talent Award 2005 (see awards, page 2)
Presented at numerous international scientific conferences including
- SIGGRAPH 2005 (Poster), Los Angeles, USA, http://www.siggraph.org/s2005/
- ISMAR 2005 (Demo), Vienna, Austria, http://campar.in.tum.de/ISMAR/

Team size: 6 persons
http://mi-lab.org/coeno/cms/