

# The 2011 Visualization Technical Achievement Award

Daniel Keim

The 2011 Visualization Technical Achievement Award goes to Daniel Keim, University of Konstanz, in recognition of his seminal technical work in high-dimensional data analysis and visualization of large data bases. His work has stimulated research in the new field of Visual Analytics.

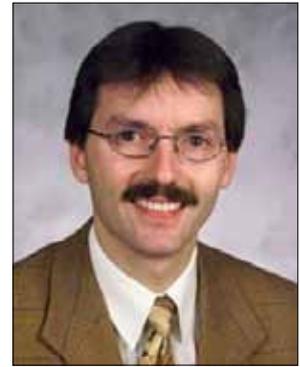
The IEEE VGTC is pleased to award Dr. Daniel Keim the 2011 Visualization Technical Achievement Award.

## BIOGRAPHY

Daniel Keim is a full Professor of Computer Science at the University of Konstanz, Germany, as well as Head of the Data Analysis and Information Visualization Research Group and the Center for Analysis and Visualization (CAVIS). He received a MS degree in Computer Science from the University of Dortmund in 1990, and a PhD as well as a Habilitation Degree in Computer Science from the University of Munich, Germany in 1994 and 1997. In 1997 Daniel became an Associate Professor of Computer Science (Databases and Data Analysis) at the University of Halle where he started to build a data analysis and visualization research group. After accepting a full professorship position at the University of Konstanz in 2000, he continued to build up his research group. Daniel spent several years of his career in the United States of America, first in 1990/1991 when he started his research career at the NPS in Monterey, CA with work on advanced interfaces for databases, and then in 2001/2002 when he worked as a full-time Senior Technology Consultant at AT&T Shannon Labs in Florham Park, NJ, developing visual analytics techniques for AT&T's extremely large data sets.

Daniel and his group did pioneering work in the areas of information visualization, data analysis, and databases. In particular, he developed pixel-based visual exploration techniques for very large data sets such as the Recursive Pattern, Pixel Bar Chart, and PixelMaps techniques, advanced density-based clustering techniques such as DENCLUE and OptiGrid, and special index structures for high-dimensional data such as the X-Tree. With his background in databases, data analysis, and visualization, he started already in the early nineties to bring these areas together. His research on Visual Data Mining, which later became known as Visual Analytics, tries to include the human in the data exploration process and combine the flexibility, creativity, and general knowledge of the human with the enormous storage capacity and the computational power of today's computers. The visual analytics techniques and systems develop by Daniel and his group try to present the data in some visual form, allowing the human to get insight into the data, draw conclusions, interact with the data, and steer the analysis process. In many applications, the combination of automated analysis and visualization techniques allows a faster data exploration and often provides better results. Applications range from financial over telecom, marketing, and spatio-temporal to bio-molecular applications.

Daniel leads a number of research projects funded by the German Science Foundation (DFG), the German Ministry of Research and Technology (BMBF), the European Commission (EU), and a number of companies including AT&T, HP,



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Siemens, and IBM. In particular, Daniel has been Scientific Coordinator of the European VisMaster Consortium which put forward the European Visual Analytics research agenda entitled "Mastering the Information Age: Solving Problems with Visual Analytics". He also initiated and coordinates the Strategy Research Initiative on "Scalable Visual Analytics: Interactive Visual Analysis Systems of Complex Information Spaces" funded by the German Science Foundation from 2008 to 2014. The numerous long term industrial collaborations show the practical relevance and high impact of the work.

Daniel is a co-author of more than 200 scientific publications and he served as a reviewer for most of the conferences and journals in the field of databases, data mining, and visualization as well as for many funding agencies. He has been a member of numerous paper committees, papers or program cochair for several conferences. He has been associate editor of the *IEEE TVCG* (1999 – 2004) and the *IEEE Transactions on Knowledge and Data Engineering* (2002 – 2007) and continues to be associate editor of *Palgrave's Information Visualization Journal* (since 2001) and the *Knowledge and Information System Journal* (since 2006).

From the early years of the IEEE Visualization conference, Daniel has actively participated in the conference series. His first paper at the IEEE Visualization conference appeared in 1992 and more than 30 papers followed at the Visualization, Information Visualization, and VAST conferences over the next two decades. Daniel has been part of the Information Visualization community since its inception, and he still serves as a steering committee member of the IEEE Information Visualization, IEEE VAST, and EG/IEEE EuroVis Conferences. He has also been on the Executive Committee of the IEEE Visualization and Graphics Technical Committee (2001 - 2008) and is helping to ensure the success of the VisWeek conference series as a member of the VisWeek Executive Committee.

## AWARD INFORMATION

The IEEE VGTC Visualization Technical Achievement Award was established in 2004. It is given every year to recognize an individual for a seminal technical achievement in visualization. VGTC members may nominate individuals for the Visualization Technical Achievement Award by contacting the awards chair, Bill Lorensen, at [vgtc-vis-awards@vgtc.org](mailto:vgtc-vis-awards@vgtc.org).