

Univ.-Prof. Dr.rer.nat. Dr.techn.h.c. Dr.-Ing.E.h. Thomas Ertl

Current Position

Retired Professor for Visualization and Interactive Systems, Computer Science Department and Visualization Research Center of the University of Stuttgart, Germany

Academic Degrees

1976-1980	Study of Physics and Computer Science, University of Erlangen-Nürnberg
1980-1982	Study of Computer Science at the University of Colorado, Boulder, USA
1982	Master of Science in Computer Science, University of Colorado, Boulder, USA
1988	PhD at the Faculty of Physics at the University of Tübingen
2011	Honorary Doctorate of the University of Technology, Vienna, Austria
2014	Honorary Doctorate of the University of Magdeburg, Germany

Professional and Academic Career

1983 - 1991	Researcher at the Institute for Theoretical Astrophysics, University of Tübingen
1992 - 1993	General Manager science+computing GmbH, Tübingen (1989-2000 part-time)
1994 - 1999	Professor (C3) for Computer Graphics and Visualization at the Institute for Computer Science IX at the University of Erlangen-Nürnberg
1999-2023	Professor (C4/W3) for Practical Computer Science at the University of Stuttgart
2000-2006	Head of R&D and Member of the Board of science+computing ag (part-time)
2006-2008	Member of the Supervisory Board of science+computing ag
2002-2016	Director of the Institute for Visualization and Interactive Systems (VIS)
2006-2023	Director of the Visualization Research Center of the University Stuttgart (VISUS)
2006-2010	Vice-Dean of the Faculty for Computer Science and Electrical Engineering
2013-2015	Dean of the Faculty for Computer Science and Electrical Engineering
2015-2018	University Vice-President for Research and Advanced Graduate Education
2019-2023	Spokesperson Cluster of Excellence <i>Data-integrated Simulation Science</i>
2019-2023	Director of the Stuttgart Center for Simulation Sciences (SC SimTech)

Awards

- PhD Scholarship of the Studienstiftung des Deutschen Volkes (1984-1986)
- Outstanding Technical Contribution Award 2006 of the Eurographics Association
- Technical Achievement Award 2006 of the IEEE (VGTC)
- Outstanding Service Award 2010 of the IEEE (VGTC)
- Regular Member of the Heidelberger Academy of Sciences (since 2007)
- Distinguished Career Award 2016 of the Eurographics Association
- Visualization Career Award 2019 of the IEEE (VGTC)
- Member of the IEEE VGTC Visualization Academy (since 2019)
- Eurographics Medal 2020

Research Areas

- Scientific Visualization and Visual Analytics
- Computer Graphics, especially GPU-based Techniques
- Human-Computer Interaction and interactive Systems

Publications

Co-author of more than 600 peer-reviewed scientific publications.
h-index: 72, more than 22000 citations in total (Google Scholar)

Projects (third-party funding)

Funding by the German Research Foundation (DFG) and by German Federal Ministry of Research (BMBF), State of Baden-Württemberg, European Union, and Industry:
DFG Excellence Cluster EXC 2075 *Data-integrated Simulation Science*
DFG Excellence Cluster EXC 310 *Simulation Technology* (SimTech)
DFG Graduate School GSC 262 *Advanced Manufacturing Engineering* (GSaME)

DFG SFB 716 *Dynamic Simulation of Systems with Large Number of Particles*
DFG SFB 1244 *Adaptive Hulls and Structures for the Tomorrows Built Environment*
DFG SFB 1313 *Interface-Driven Multi-Field Processes in Porous Media*
DFG SFB/Transregio 75 *Droplet Dynamics under Extreme Ambient Conditions*
DFG SFB/Transregio 161 *Quantitative Methods for Visual Computing*
DFG GRK 2106 *Droplet Interaction Technologies*
DFG Priority Program SPP 1335 *Scalable Visual Analysis Techniques*
DFG Priority Program SPP 1648 *Software for Exascale*
BMBF CRETA: *Center for Reflective Text Analysis*
BMBF HONK: *Industrial Numerics for Complex Flows in Hydraulic Systems*
BMBF VASA: *Visual Analytics for Security Applications*
BMBF ePoetics: *Corpus Development and Visualization of German poetics*
EU iPatDoc: *Workbench for Interactive Contrastive Analysis of Patent Documentation*
EU SAPPAN: *Sharing and Automation for Privacy Preserving Attack Neutralization*

Scientific Leadership

Principal Investigator and Spokesperson of the Cluster of Excellence „*Data-integrated Simulation Science*“ at the University of Stuttgart (2019-2023)
Principal Investigator and Member of the Directorate of the Cluster of Excellence „*Simulation Technology*“ at the University of Stuttgart (2007-2018)
Principal Investigator of the Graduate School „*Advanced Manufacturing Engineering*“ at the University of Stuttgart (2007-2018)
Vice Coordinator of the DFG Collaborative Research Center 716 “*Dynamic Simulation of Systems with Large Number of Particles*” at the University of Stuttgart (2006-2017)
Steering Committee DFG Priority Program „*Scalable Visual Analysis Techniques*“ (2008-2014)
Steering Committee IEEE Visualization Conference (2004-2011)
Steering Committee Eurographics Working Group on Data Visualization (2003-2012)
Steering Committee IEEE Visual Analytics Science and Technology (2008-2010)
Editor-in-Chief of the IEEE Transactions on Visualization and Computer Graphics (2007-2010)
Editorial Board IEEE Transactions on Visualization and Computer Graphics (2003-2006)
Paper Co-Chair: Supercomputing 2018 SciVis SC, Eurographics 2012, IEEE PacificVis 2009, IEEE VAST 2008, EuroVIS 2006, IEEE VoVis 2004, IEEE Visualization 2000/2001
Conference Chair: PacificGraphics 2016, IEEE PacificVis 2011, Volume Graphics 2005/2006, Graphics Hardware 2002, Dagstuhl SciVis Seminar 2003/2005, VMV 2001

Advisory Boards, Reviewing, Academic Roles

Selection Committee of the DFG Heinz Maier-Leibnitz Prize (since 2021)
Member of the Computer Science Review Board of the DFG (2012-2020)
Member of the ERC Advanced Grant Panel Computer Science 2011, 2013, 2015
Member Scientific Advisory Board, Computer Science, University of Vienna (since 2017)
Scientific Advisory Board VRVis, Vienna (2001-2022)
Scientific Advisory Board Science Campus Tübingen (2011-2016)
Chairman Scientific Advisory Board Welsh Research Institute of Visual Computing (2009-2014)
Advisory Board des Max-Planck-Centers for Visual Computing (2004-2009)
Executive Committee of the Eurographics Association (2004-2022)
Vice Chairman of the Eurographics Association (2007-2010)
Chairman of the Eurographics Association (2011-2012)

Reviewer for the DFG, the Federal Ministry for Education and Research, the European Union, the Austrian FWF, the Canadian NSERC, the Research Council of Norway, the Dutch National Science Foundation, Swedish Research Council, and others.

Dissertations and Habilitations

1 Habilitation and 56 PhD Dissertations supervised, additionally 50 PhD Dissertations co-supervised

Selected Publications

1. J. Knittel, A. Lalama, S. Koch, T. Ertl. Visual Neural Decomposition to Explain Multivariate Data Sets. *IEEE Transactions on Visualization and Computer Graphics* 27(2): 1374-1384 (2021)
2. M. Heinemann, S. Frey, G. Tkachev, A. Straub, F. Sadlo, T. Ertl. Visual analysis of droplet dynamics in large-scale multiphase spray simulations. *Journal of Visualization*. <https://doi.org/10.1007/s12650-021-00750-6> (2021).
3. G. Tkachev, S. Frey and T. Ertl, "Local Prediction Models for Spatiotemporal Volume Visualization," in *IEEE Transactions on Visualization and Computer Graphics*, doi: 10.1109/TVCG.2019.2961893 (2019).
4. V. Bruder, C. Müller, S. Frey, T. Ertl. On Evaluating Runtime Performance of Interactive Visualizations. *IEEE Transactions on Visualization and Computer Graphics* 26(9): 2848-2862 (2020)
5. H. Zhang, S. Frey, H. Steeb, D. Uribe, T. Ertl, W. Wang. "Visualization of Bubble Formation in Porous Media". In: *IEEE Transactions on Visualization and Computer Graphics* 24.2 (2018), pp. 1060-1069.
6. S. Grottel, M. Krone, C. Müller, G. Reina, T. Ertl. "MegaMol - a prototyping framework for particle-based visualization". In: *IEEE Transactions on Visualization and Computer Graphics* 21.2 (2015), pp. 201-214.
7. M. Üffinger, F. Sadlo, T. Ertl. A time-dependent vector field topology based on streak surfaces. *IEEE T. on Visualization and Computer Graphics* 19(3):379-392 (2013).
8. G. Karch, F. Sadlo, D. Weiskopf, C.-D. Munz, T. Ertl. Visualization of Advection-Diffusion in Unsteady Fluid Flow. *Computer Graphics Forum* 31(3):1105-1114 (2012)
9. D. Thom, H. Bosch, S. Koch, M. Wörner, T. Ertl. Spatiotemporal anomaly detection through visual analysis of geolocated twitter messages. In: *IEEE Pacific Visualization Symposium 2012*, 41-48, 2012.
10. S. Koch, H. Bosch, M. Giereth, T. Ertl. "Iterative Integration of Visual Insights during Scalable Patent Search and Analysis". In: *IEEE Transactions on Visualization and Computer Graphics* 17.5 (2011), pp. 557-569.
11. M. Üffinger, S. Frey, T. Ertl, Interactive High-Quality Visualization of Higher-Order Finite Elements, *Computer Graphics Forum*, 29(2): 337-346 (2010).
12. M. Strengert, C Müller, C. Dachsbacher, T. Ertl. A Compute Unified System Architecture for Graphics Clusters Incorporating Data Locality. *IEEE Transactions on Visualization and Computer Graphics* 15(4): 605-617 (2009).
13. M. Krone, K. Bidmon, T. Ertl. Interactive visualization of molecular surface dynamics. *IEEE Transactions on Visualization and Computer Graphics* 15(6):1391-1398 (2009).
14. S. Stegmaier, U. Rist, T. Ertl. Opening the can of worms: An exploration tool for vortical flows. In: *IEEE Visualization VIS'05*, 463-470, 2005.
15. R. Westermann, T. Ertl. Efficiently using graphics hardware in volume rendering applications. *Comput. Graph. (SIGGRAPH '98)*, 32(4):169–179 (1998).

For a complete publication record:

DBLP: <https://dblp.uni-trier.de/pid/e/ThomasErtl.html>

Google Scholar: <https://scholar.google.com/citations?user=qFQ9jHkAAAAJ>