Curriculum Vitae of G. Zachmann

Phone (office): +49 421 - 218 63 99 1
Email: zach cs.uni-bremen.de
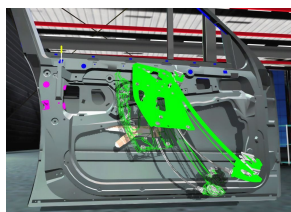URLs: zach.in.tu-clausthal.de ; cgvr.cs.uni-bremen.de

Personal information

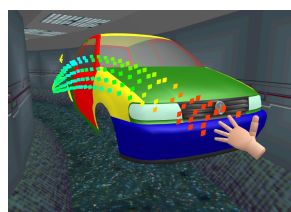Position: Full Professor for Computer Graphics and Virtual Reality
Affiliation: University of Bremen, Department of Computer Science, Germany
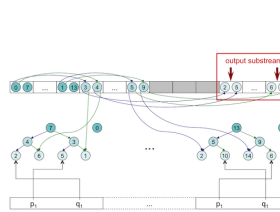Degree: Dr.-Ing. ($\approx$ PhD)

Research Projects (Selection)

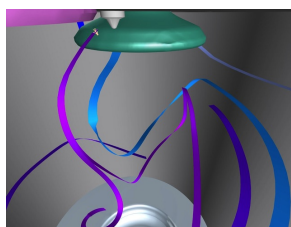Virtual assembly simulation (BMW)

Scientific visualization in VR (VW)

GPU sorting (DFG)

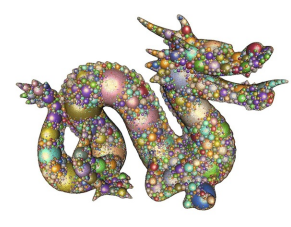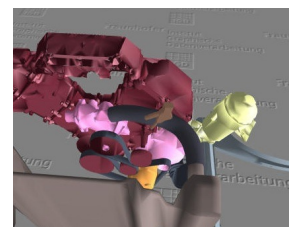High-quality rendering (Volkswagen)

Scientific visualization (IAA)

Fast sphere packings (BMBF)

Markerless hand tracking

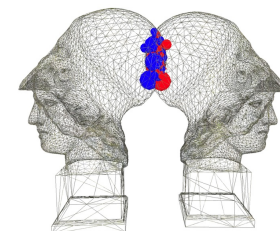
Virtual maintenance simulation (AIT)

World Expo 2000

Open Source Scenegraph

Fast proximity computations (BMBF)

CAD + VR integration (Tecnomatix)

I also helped founding the spin-off VR software company VRcom (www.vrcom.de) in 1998, which has merged with Icido in 2008.

Research Interests

My research interests include:

- geometric algorithms and acceleration data structures for computer graphics, in particular collision detection and related topics (such as proximity computations),
- massively-parallel algorithms on the GPU, such as sorting on the GPU, collision detection on the GPU, computer-vision algorithms on the GPU,
- virtual prototyping, in particular virtual assembly simulation,
- virtual reality in general,
- computer vision-based, markerless hand tracking,
- dedicated hardware for collision detection (see e.g. the research project "Collision Chip", funded by the DFG in 2004, in cooperation with Bonn University),
- algorithms in haptics and force-feedback,
- immersive user interaction,
- immersive visualization, virtual cities, etc.

We have published results of this research at many international conferences and journals (ACM SIGGRAPH, Eurographics, Elsevier, . . .), plus books and book chapters.

Professional Services

- Member of the Review Panel in the Human Brain Project for the Competitive Call for additional project partners; Jan 2014.
- External examiner for the M.Sc./P.Grad.Dip. program in Computer Science Interactive Entertainment Technology at the Trinity College Dublin, Ireland; 2013 - 2015.
- General Co-Chair of the VRIPHYS 2013.
- Member of the executive board ("Leitungsgremium") of the special interest group (SIG) on VR/AR of the German Computer Science Society (GI-Fachgruppe VR/AR), 2013 -
- Member of the Executive Committee of the EuroVR Association
- Co-Chair of the Scientific Visualization Contest 2011–2013 of the IEEE VisWeek
- Member of the Conference Committee, and a member of the program committee of IEEE VR since 2008
- Area Chair/Associate Editor for Tack II: Virtual Reality and Medical Applications, at ICPR 2012.
- Workshop organizer for IEEE VR 2007
- Dean of Studies ("Studiendekan") for the Faculty of Mathematics, Computer science, and mechanical engineering, Clausthal University, 2008–2012
- Expert reviewer for the monitoring of EU STREP project 034691 Net-WMS within FP6 in 2007-2010
- Member of the review panel "Information and Communication Technologies" for the Cyprus Research Promotion Foundation (RPF) in 2008–2009.

- Reviewer for the German Science Foundation (DFG) and other funding agencies, such as the Austrian Science Foundation (FFG), and the Investitions- und Strukturbank Rheinland-Pfalz (ISB).
- External examiner or referee of many PhD theses and candidates, both in Germany and throughout Europe.
- Member of the program committees of various conferences such as IEEE VR, VRST, EUROGRAPHICS, EGVE, Web3D, JVRC, etc.
- Reviewer for numerous conferences such as Eurographics, Siggraph, SIGCHI, IEEE VR, EGVE, ICRA, IEEE Visualization, IEEE InfoVis, VRST, etc., and numerous journals such as J. of Computational Geometry & Applications, ACM Transactions on Visualization, ACM Transactions on Graphics, IEEE Trans. on Visualization and Computer Graphics, Elsevier CG&A, Computer-Aided Design, ACM Computing Surveys, IEEE Transactions on Robotics, etc.
- Co-organizer of the 3rd Workshop VR/AR of the GI (German society for computer science)

Chronological CV

since 2012	Full Professor for Computer Graphics at University of Bremen
2010, 2013	Visiting Professor with Nanyang Technological University, Singapore
2005–2012	Professor for Computer Graphics at Clausthal University, Germany
2003–2005	Head of the Young Investigator's Research Group for "Novel Interaction Methods in Virtual Prototyping", funded by the DFG (German Research Foundation)
2001–2005	Assistant Professor for Virtual Reality at Bonn University, Germany
2000	Dissertation ("summa cum laude") in Computer Science from Darmstadt University, Germany; topic: "Virtual Reality in Assembly Simulation"; advisors: Prof. Dr.-Ing. Encarnação, Prof. Carolina Cruz-Neira, PhD
1994–2001	Researcher with the Fraunhofer Institute for Computer Graphics in Darmstadt, Germany
1994	Diploma in Computer Science during a 6-month research stay at the National Center for Supercomputing Applications (NCSA)
1990	Vordiplom ($\approx$ B.Sc.) from Karlsruhe University, Germany