

Dipl.-Ing. Dr. Stefan Maierhofer

Stefan Maierhofer is head of the **Semantic Modelling and Acquisition Group** at VRVis.

The group of about 10 highly motivated researchers and students builds real-world software for a number of industry partners, and also performs applied and basic research resulting in publications at international conferences and journals. The group's overarching goal is to make it easy to capture and manipulate *usable* models from reality by trying new ideas to represent, visualize and understand vast amounts of data that is readily generated at almost arbitrary detail with today's scanning and photogrammetric technologies. Additional research into advanced lighting simulation allows real-time interactions with physically-based light sources in terms of movement and scene modification in order to provide a fast, dynamic and easy-to-use way to visualize new lighting concepts in architectural scenarios.



Besides, the group also manages to produce reusable high-quality software components from its research projects and therefore is also responsible for core development, maintenance and support of the resulting Aardvark software libraries. Aardvark is used across a large number of projects in multiple groups at VRVis and is our way of sustaining, accumulating and evolving past results for future projects and development.

Stefan Maierhofer studied Computer Science with a focus on Computer Graphics and Algorithms at the Technische Universität Wien (Vienna University of Technology) and received a Ph.D. (with distinction) from the same university in 2002. Apart from his obvious interest in Visual Computing, he also has a solid understanding of Software Engineering and Design due to a multi-year exposure to industry, mainly as an independent consultant.

Research (main areas)

- Smart Modeling and Reconstruction
- Incremental Computation and Functional Reactive Systems in Visual Computing
- Visual Computing Systems Architecture

Education and Employment

- 2010 present Head of Semantic Modeling and Acquisition Group at VRVis
- 2002 present Key Researcher at VRVis Forschungs GmbH
- 1999 present Lecturer at the University of Applied Sciences Technikum Wien, Faculty of Computer Science, teaching Computer Graphics, Algorithms and Data Structures, Object-Oriented Modelling and Design, Foundations of Computer Science, Programming
- 2003 2004 Consulting & Software Engineering
Client: Bombardier Wien Schienenfahrzeuge AG (Controlling)
- 2002 2002 Consulting & Software Engineering
Client: Bombardier Wien Schienenfahrzeuge AG (Logistics)
- 2000 2002 Vienna University of Technology
Ph.D. thesis "Rule-Based Mesh Growing and Generalized Subdivision Meshes" Thesis advisor: Prof. Werner Purgathofer

- 2000 2000 DHM KEG, Vienna
Software Engineering & Development
XML&OODB-based internet content management systems
- 1999 2000 University of Applied Sciences Technikum Wien, IT-Services
- 1998 2001 DHM KEG, Vienna, Limited Partner (Kommanditist)
- 1997 1999 Siemens Logistik Services, LIC (Logistik Information Controlling), Vienna, (part time) Software Engineering & Development of
Web-based Logistics Intranet Applications (Europe-wide rollout)
- 1994 1999 Vienna University of Technology
Master's Thesis in Computer Science
- 1993 1994 1. Garde Kompanie, Maria-Theresien-Kaserne, Wien
Mandatory military service
- 1985 1993 Bundesrealgymnasium Gmünd

Projects

- 2015 – ongoing; Virtual Geodetic Mapper, rmDATA GmbH; Project Manager/Researcher
- 2015 – ongoing; Curve Processor, Clever Contour GmbH; Group Manager
- 2015; IMP Institutsgebäude Light-Sim., Inst. f. Molek. Pathologie, ATP; Group Manager
- 2015; Mobile Color Calibration, Invicon Chemical Solutions GmbH; Group Manager
- 2014 – ongoing; VAMOS, Zumtobel AG, Hefel Wohnbau; Group Manager
- 2014 – ongoing; AMBAVis, ÖBV, Belvedere, Uni Manchester, ...; Group Manager
- 2014 – ongoing; Immobilienbewertung, Meixner Vermessung ZT GmbH; Group Manager
- 2014 – ongoing; ENSEMBLE, Strategic Research; Group Manager
- 2014; MYFLY, MYFLY GmbH - Live Support Communication; Project Manager/Researcher
- 2014; Twinkle; D. Swarovski KG; Project Manager/Researcher
- 2013 – 2014; Clever Cast II, Clever Contour GmbH; Group Manager
- 2012 – 2015; REPLICATE, ViewApp, ICGA, VCE; Project Manager/Researcher
- 2012 – 2015; Deep Pictures, IST Austria; Group Manager
- 2012 – 2015; LocaPhoto, Institut für Schallforschung; Group Manager
- 2012; Clever Cast, Clever Contour GmbH; Group Manager
- 2011 – 2013; RT-Analysis 3D, Heinemann Oil GmbH, KAUST; Project Manager
- 2010 – 2013; HILITE, Zumtobel AG, Hefel Wohnbau; Group Manager
- 2006 – present; Aardvark Platform; Project Manager/Researcher
- 2011 – 2012; Facsimile, Ingenieurbüro Gersthofer; Project Manager/Researcher
- 2011 – 2012; Logistics Tracking; Load on – Transportanalytik; Project Manager/Researcher
- 2011; Immobilien Tools, Mag. Ludwig Bresich Immobilientreuhänder; Group Manager
- 2011; Rekonstruktion für Bussimulator, ViewApp GmbH, Group Manager/Researcher
- 2011; FindMyHome.at; FindMyHome.at GmbH, Project Manager/Researcher
- 2011; GPGPU Traveling Salesman; impactit GmbH, Project Manager
- 2010; Tactile Paintings; ArteConTacto; Group Manager
- 2010; Gemälde für Blinde, Kunsthistorisches Museum, Project Manager
- 2010; Petwalk, Petwalk Solutions GmbH, Group Manager
- 2010; CUDA Traveling Salesman Optimization, ImpactIt GmbH, Project Manager
- 2010; Hofburg, Wiener Kongresszentrum Hofburg Betriebsges.m.b.H, Project Manager

- 2010; Questionnaire, Oeser GmbH, Project Manager/Researcher
- 2009; Panfilm 360, Project Manager
- 2008 – 2009: Archetype, Activision|Blizzard Corporation; Project Manager/Researcher
- 2007 – 2009; Wiki Vienna; Project Manager/Researcher
- 2008; Mobilkom Fahrsimulator; Project Manager
- 2007 – 2008; Microsoft UltraView; Microsoft Research; Project Manager/Researcher
- 2008; Infrastruktur-Schnittstelle SSI; Project Manager/Researcher
- 2007 – 2008; VEI 3D; Project Manager
- 2007 – 2008; 3D Inside; Project Manager
- 2006 – 2007; Digitaler Streckengraph Assistant - DISA; Project Manager/Researcher
- 2005 – 2006; Creative Histories – The Josefsplatz Experience; Senior Researcher
- 2004 - 2005; GeomeTree; Senior Researcher
- 2003 - 2009; Rule-Based Rendering; Project Manager
- 2003 - 2009; Content Rendering; Project Manager

Honours and Awards

- Rigorosum, „mit Auszeichnung bestanden“ (doctoral comprehensive examination)
- Best Paper Award, CESC 2000, "A Flexible Framework for Volumetracing"

Publications (last five years)

- [Haaser et al., 2015] G. Haaser, H. Steinlechner, S. Maierhofer, and R.F. Tobler. "An incremental rendering VM". In Proceedings of the 7th Conference on High-Performance Graphics (HPG '15), Stephen Spencer (Ed.). ACM, New York, NY, USA, 51-60.
- [Haaser et al., 2014] G. Haaser, H. Steinlechner; M. May, M. Schwärzler, S. Maierhofer, R. Tobler. "CoSMo: Intent-based composition of shader modules" in Computer Graphics Theory and Applications (GRAPP), 2014.
- [Wörister et al., 2013] M. Wörister, H. Steinlechner, S. Maierhofer, R.F. Tobler. "Lazy Incremental Computation for Efficient Scene Graph Rendering". In Proc. of the 5th High Performance Graph. Conf., ACM, NY, USA, HPG '13, 53–62.
- [Reichinger et al., 2013] A. Reichinger, P. Majdak, R. Sablatnig, and S. Maierhofer, "Evaluation of Methods for Optical 3-D Scanning of Human Pinnas," in Proc. of the 3D Vision Conference, Seattle, WA, 2013, pp. 390–397.
- [Reisner-Kollmann et al., 2013] I. Reisner-Kollmann, S. Maierhofer, W. Purgathofer. "Reconstructing Shape Boundaries with Multimodal Constraints". Computers & Graphics, Volume 37, Issue 3, May 2013, Pages 137-147.
- [Arikan et al., 2013] M. Arikan, M. Schwärzler, S. Flöry, M. Wimmer, S. Maierhofer. "O-Snap: Optimization-Based Snapping for Modeling Architecture". ACM Transactions on Graphics (TOG), 2013.
- [Reichinger et al., 2012] A. Reichinger, F. Rist, M. Neumüller, S. Maierhofer, W. Purgathofer. "Computer-Aided Design of Tactile Models – Taxonomy and Case-Studies". Computers Helping People with Special Needs, ed. by K. Miesenberger, A. Karshmer, P. Penaz, W. Zagler, pp. (to be published), Springer Berlin / Heidelberg. Lecture Notes in Computer Science. 2012.
- [Reichinger et al., 2012] A. Reichinger, S. Maierhofer, W. Purgathofer. "High-Quality Tactile Paintings". ACM Journal on Computing and Cultural Heritage, 4(2):5:1-5:13. 2012.
- [Reisner-Kollmann et al., 2012] I. Reisner-Kollmann, S. Maierhofer. "Segmenting multiple range images with primitive shapes". Proceedings of 9th International Conference on Systems, Signals and Image Processing (IWSSIP 2012), 2012.

- [Reisner-Kollmann et al., 2011] I. Reisner-Kollmann, S. Maierhofer. "Consolidation of Multiple Depth Maps". 1st IEEE Workshop on Consumer Depth Cameras for Computer Vision (CDC4CV'11) in Barcelona, Spain, 2011.
- [Hornacek et al., 2011] M. Hornacek, S. Maierhofer. "Extracting Vanishing Points across Multiple Views". IEEE CVPR 2011 Conference in Colorado Springs (CVPR2011), 2011.
- [Reichinger et al., 2011] A. Reichinger, S. Maierhofer, W. Purgathofer. "High-Quality Tactile Paintings". Eurographics 2011 in Llandudno UK (EG2011), 2011.
- [Musialski et al., 2010] P. Musialski, C. Luksch, M. Schwärzler, M. Buchetics, S. Maierhofer, W. Purgathofer. "Interactive Multi-View Façade Image Editing". 15th International Workshop on Vision, Modeling and Visualization (VMV10), 2010.
- [Musialski et al., 2010] P. Musialski, M. Recheis, S. Maierhofer, P. Wonka, W. Purgathofer. "Tiling of Ortho-Rectified Façade Images". Spring Conference on Computer Graphics (SCCG 2010), 2010.