

## Alexander Hornung

---

Computer Sciences 8  
Computer Graphics & Multimedia  
RWTH-Aachen University  
Ahornstraße 55  
52074 Aachen  
Germany

Phone: +49 241 8021815  
Fax: +49 241 8022899  
hornung at cs.rwth-aachen.de  
<http://www.graphics.rwth-aachen.de/>

### Education

Research Associate and Ph.D. Student 8/2003–Present  
Computer Graphics & Multimedia RWTH-Aachen University  
Research Interests: Computer Vision and 3D Reconstruction, Computational Video, Computer Animation and Motion Capture, Efficient GPU-based Algorithms.  
Supervisor: Prof. Dr. Leif Kobbelt.

Computer Science Studies 10/1997–3/2003  
Diploma (with honors) RWTH-Aachen University  
Thesis: Autonomous Real-Time Camera Agents in Interactive Narratives and Games  
Supervisors: Prof. Gerhard Lakemeyer, Ph.D. (RWTH-Aachen University), Prof. Dr. Georg Trogemann (Academy for Media Arts, Cologne).

### Work Experience

Research Associate 4/2003–7/2003  
Laboratory for Mixed Realities Academy of Media Arts, Cologne  
Research in the field of Interactive Narratives and Games, in particular for the *alVRed* project on non-linear dramaturgy in VR-Environments.

Founder and Executive Board 5/2001–1/2003  
IT-Develop AG Aachen  
Strategic planning and implementation of an interactive Internet platform for online communities, location-based services and event management.

Volunteer Coach 4/2001–12/2001  
Startsocial Initiative by McKinsey, Gerling, Pro7 Cologne  
Consultant for a project for social networking and support of families and single persons affected by spinal muscular atrophy. <http://www.startsocial.de/>

Student Researcher 12/1999–3/2002  
Virtual Reality Center Aachen (VRCA) Aachen  
General VR software development for different projects at the VRCA, e.g., planning and implementation of a parallelized visualization cluster based on ViSTA, physical based modeling in VR, real-time acoustic modeling in virtual environments, and interactive visualization of eclipses and planetary conjunction events.

Freelance Web-Developer 8/1997–7/2003  
NBC GIGA, RB Presse-Data, RP-Online Aachen  
Design and implementation of several web-based applications and services.

Internship 7/1997–8/1997  
RB Presse-Data Düsseldorf  
Software development and administration.

## Alexander Hornung

---

### Refereed Conference and Journal Publications

Hornung A., Zeng B., Kobbelt L., Image Selection For Improved Multi-View Stereo, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2008

Hornung A., Dekkers E., Kobbelt L., Character Animation from 2D Pictures and 3D Motion Data, *ACM Transaction on Graphics (TOG)*, vol. 26, 1, 2007, Among Top 10 Downloads from ACM's Digital Library in March 2007

Hornung A., Kobbelt L., Robust Reconstruction of Watertight 3D Models from Non-uniformly Sampled Point Clouds without Normal Information, *ACM and Eurographics Symposium on Geometry Processing (SGP)*, 41–50, 2006

Hornung A., Kobbelt L., Hierarchical Volumetric Multi-view Stereo Reconstruction of Manifold Surfaces based on Dual Graph Embedding, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, vol. 1, 503–510, 2006

Hornung A., Kobbelt L., Robust and Efficient Photo-Consistency Estimation for Volumetric 3D Reconstruction, *European Conference on Computer Vision (ECCV)*, LNCS, vol. 3952, Springer, 179–190, 2006

Sar-Dessai S., Hornung A., Kobbelt L., Automatic Data Normalization and Parameterization for Optical Motion Tracking, *Journal of Virtual Reality and Broadcasting (JVRB)*, 3(2006), no. 3

Botsch M., Hornung A., Zwicker M., Kobbelt L., High Quality Splatting on Today's GPUs, *ACM and Eurographics Symposium on Point-Based Graphics (PBG)*, 17–24, 2005

Hornung A., Sar-Dessai S., Kobbelt L., Self-Calibrating Optical Motion Tracking for Articulated Bodies, *IEEE Virtual Reality Conference (VR)*, 75–82, 2005

Sar-Dessai S., Hornung A., Kobbelt L., Automatic Data Normalization and Parameterization for Optical Motion Tracking, 2. *Workshop Virtuelle und Erweiterte Realität der GI-Fachgruppe VR/AR*, Shaker Verlag, 2005, Best paper award

Wages R., Hornung A., The Virtual Real-Time Dramaturge: Formalisation of Dramaturgic Principles, *International Conference on Virtual Systems and Multimedia (SVMM)*, 729–738, 2005

Hornung A., Kobbelt L., Robust and Automatic Optical Motion Tracking, 1. *Workshop Virtuelle und Erweiterte Realität der GI-Fachgruppe VR/AR*, Shaker Verlag, 2004

Hornung A., Lakemeyer G., Trogemann G., An Autonomous Real-Time Camera Agent for Interactive Narratives and Games, *Intelligent Virtual Agents (IVA)*, 2003

Oberschelp W., Hornung A., Samulowitz H., Visualisation of Eclipses and Planetary Conjunction Events. The Interplay between Model Coherence, Scaling and Animation, *Computer Graphics International*, 2000, Revised Version appeared in *The Visual Computer*, June 2001

## Alexander Hornung

---

### Other Publications

Hornung A., An Autonomous Real-Time Camera Agent for Interactive Narratives and Games, *Diploma Thesis*, RWTH-Aachen University, 2003

Buttgereit D., Hentschel B., Hornung A., Thoma J., S.W.A.R.M., Simulation and 3D-Visualisation of Complex Swarm Behaviour, *GI-Informatiktage*, 2002

Hornung A., Samulowitz H., 3D Visualisation of Music, *GI-Informatiktage*, 2001

Oberschelp W., Hornung A., Samulowitz H., Simulation und Visualisierung planetarer Konjunktionen während einer Sonnenfinsternis, *GI-Informatiktage*, 1999

### Reviewer

Eurographics (EG)

Virtual Reality (VR)

Computer Aided Geometric Design (CAGD)

Vision, Modeling, and Visualization (VMV)

Geometric Modeling and Processing (GMP)

Journal of Virtual Reality and Broadcasting (JVBR)

Winter School on Computer Graphics (WSCG)

### Teaching Experience

#### Supervised Master Theses

Dekkers E., Combining Video and 3D Motion Data for Character Animation, 2007

Zeng B., View Planning for Robot-based Automatic 3D Reconstruction, 2007

Kangoez Y., Design und Implementierung von 3D Interaktionsmetaphern basierend auf optischer Bewegungsverfolgung, 2007

Vogel C., Constrained Multiresolution Deformations, 2006

Wei L., Stereo-based Scene Reconstruction and Image Segmentation via Graph Cuts, 2006

Sar-Dessai S., Normalization and Parameterization of Motion Captured Data, 2005

Habbecke M., 3D Reconstruction From Uncalibrated Image Sequences Using The Structure From Motion Approach, 2004

Huppertz T., Modellbasierte Interaktionsunterstützung für Whiteboardsysteme, 2004

#### Teaching

**SS08** Practical Course: The Virtual Aachen Project

**WS07/08** Computer Graphics I Lecture, Exercises

**SS07** Practical Course: The Virtual Aachen Project

**WS06/07** Computer Graphics I Lecture, Exercises

**SS06** Practical Course: Building a Vision-based 3D Scanner

**WS05/06** B-IT Seminar: Current Research Topics in Computer Graphics

Practical Course: Introduction to Computer Graphics

**SS05** Practical Course: Special Effects

**WS04/05** Seminar: Point and Image-based Rendering Techniques

**SS04** Practical Course: Special Effects

**Awards, Sponsorships, Memberships**

Best paper award for *Automatic Data Normalization and Parameterization for Optical Motion Tracking*, 2. Workshop Virtuelle und Erweiterte Realität der GI-Fachgruppe VR/AR, 2005

Prize at the Multimedia Transfer Award 2004, University Karlsruhe

2nd Prize at the GI-Tweenwork Award 2003 for Outstanding Interdisciplinary Student Projects

IGDA GDC Europe 2002 Student Sponsorship

Student Support-Team Member of the IGDA AI Interface Standards Committee

e-fellows.net Sponsorship 2001–2003

Date: 2008/04/21