

Thomas Annen

C/C++ Software Engineer

Computer Graphics ■ Research ■ Development

■ Profile

Ambitious and passionate software engineer and research scientist. Specializes in real-time and high quality off-line rendering with strong background in shadow computation. Extensive graphics research and 3D animated movie production experience. Design and implementation of critical rendering libraries and tools for feature film rendering.

■ Technical Skills

Graphics: 3D movie production rendering and pipelines, real-time rendering, efficient shadow map filtering methods, precomputed radiance transfer, complex algorithms on GPUs.

Coding: C/C++, OpenGL, Unix Shell, GLSL, MetaSL, and graphics hardware.

OS: UNIX/Linux, Windows, Mac

■ Education

Ph.D. in Computer Science, Max-Planck-Institut Informatik, Germany, 2008
Dissertation title: *"Efficient Shadow Map Filtering"*

M.Sc. in Computer Science, Saarland University, Germany, 2004
Thesis title: *"Radiance Transfer Using Spherical Harmonic Gradients"*

B.Sc. in Computer Science, Saarland University of Applied Science, Germany, 2002
Thesis title: *"Advanced Shadow Map Parameterization"*

■ Research and Development Experience

Aechelon Technology, Inc. (07/2011 – present)
Senior Graphics Software Engineer – Graphics Group. Enhancing and maintaining flight simulator technology and developing graphics tools.

PDI/DreamWorks (08/2008 – 07/2011)
Software Engineer, Animation Technology – Improved depth map and shadow generation, 3D compositing, and integrated core rendering libraries into new shading system.

Max-Planck-Institut Informatik – Germany (10/2002 – 07/2008)
Researcher and Ph.D. Candidate. Focus on real-time rendering and shadows.

University College London – UK (10/2006 – 02/2007)

Research visit. Focus on constant-time shadow map filtering methods.

Mitsubishi Electric Research Laboratories (10/2004 – 02/2005)

Research visit. Work on distributed rendering for auto-stereoscopic 3D displays.

Massachusetts Institute of Technology (11/2003 – 01/2004)

Research visit. Investigation of spherical harmonic based lighting techniques.

Industry Project: DaimlerChrysler AG – Germany (04/2002 – 11/2006)

Development of a distributed CAVE system and active LCD display simulation.

Max-Planck-Institut Informatik – Germany (10/2001 – 09/2002)

Internship focused on practical shadow mapping and graphics hardware.

■ Awards & Patents

Best computer science thesis at a university of applied sciences in Germany (2004)

Thesis title: *"Advanced Shadow Map Parameterization"*

Pending Patent: *"Method and device for generating shadow maps"*

■ Professional Activities

■ International Program Committee

Eurographics Symposium On Rendering in 2010 , 2009

■ Peer Reviewer for International, Referred Conferences and Journals

ACM SIGGRAPH in 2008

ACM SIGGRAPH Asia in 2010

Eurographics Symposium on Rendering in 2010, 2009, 2008, 2007, 2006, 2005

Eurographics in 2010, 2009, 2008, 2006

IEEE Transactions on Visualization and Computer Graphics in 2010

Computer Graphics Forum in 2010

Volume Graphics in 2006

Pacific Conference on Computer Graphics in 2004

Vision, Modeling, and Visualization in 2007

Journal of Graphics, GPU, and Game Tools (JGT) in 2009

Graphics Interface in 2010, 2005

Computer and Graphics in 2010

■ Publications

■ International, Refereed Conferences

T. Annen, Z. Dong, T. Mertens, P. Bekaert, H.-P. Seidel, and J. Kautz
Real-Time, All-Frequency Shadows in Dynamic Scenes
ACM Transactions on Graphics (Proceedings SIGGRAPH) 2008

T. Annen, H. Theisel, C. Rössl, G. Ziegler, and H.-P. Seidel
Vector Field Contours
Graphics Interface, May 2008

T. Annen, T. Mertens, P. Bekaert, H.-P. Seidel, and J. Kautz
Exponential Shadow Maps
Graphics Interface, May 2008

T. Annen, T. Mertens, P. Bekaert, H.-P. Seidel, and J. Kautz
Convolution Shadow Maps
Rendering Techniques: Eurographics Symposium on Rendering, June 2007

T. Annen, W. Matusik, M. Zwicker, H. Pfister, and H.-P. Seidel
Distributed Rendering for Multiview Parallax Displays
Stereoscopic Displays and Applications XVII, January 2006

K. Dmitriev, T. Annen, G. Krawczyk, K. Myszkowski, and H.-P. Seidel
A CAVE System for Interactive Modeling of Global Illumination in Car Interior
ACM Symposium on Virtual Reality Software and Technology, November 2004

T. Annen, J. Kautz, F. Durand, H.-P. Seidel
Spherical Harmonic Gradients for Mid-Range Illumination
Rendering Techniques: Eurographics Symposium on Rendering, June 2004

F. Drago, K. Myszkowski, T. Annen and N. Chiba
Adaptive Logarithmic Mapping For Displaying High Contrast Scenes
Computer Graphics Forum. Proceedings of Eurographics 2003

S. Brabec, T. Annen and H.-P. Seidel
Shadow Mapping for Hemispherical and Omnidirectional Light Sources
Computer Graphics International (CGI) 2002 proceedings, Bradford, UK

■ Journals

S. Brabec, T. Annen and H.-P. Seidel
Practical Shadow Mapping
Journal of Graphics Tools, Special Issue on Hardware-Accelerated Rendering Techniques

■ Books

S. Brabec, T. Annen and H.-P. Seidel
Practical Shadow Mapping
Graphics Tools The JGT Editors' Choice, August 2005