Simon Premože

CONTACT INFORMATION

14 Gomez Way Apt 9
Mill Valley, CA 94941
USA

Voice: H: (415) 383-1396 W: (415) 746-3344
E-mail: premoze@cs.columbia.edu
WWW: www.cs.columbia.edu/~premoze

CITIZENSHIP

Slovenian

DATE OF BIRTH

January 29, 1973 in Ljubljana, Slovenia

RESEARCH INTERESTS

Scientific Visualization and Imaging: complex and large multidimensional data set visualization, interactive rendering of time-varying data, measurements of material optical properties

Computer Graphics: realistic image synthesis, global illumination, reflectance models, rendering algorithms

Cross-disciplinary: Monte Carlo and Quasi Monte Carlo methods, parallel computing, computer cartography, visual perception

EDUCATION

University of Utah, Salt Lake City, Utah USA
Department of Computer Science
Ph.D., Computer Science, December 2003

- Dissertation Topic: "Approximate Methods For Illumination and Light Transport in Natural Environments"
- Advisor: Dr. Peter Shirley

University of Colorado at Boulder, Boulder, Colorado USA
Department of Computer Science
B.S., Computer Science, May 1996

PROFESSIONAL EXPERIENCE

Industrial Light and Magic, San Francisco, California USA
Research and Development Software Engineer **July, 2005 - present**
Developed algorithms for rendering volumetric and participating media for feature films. Involved in designing tools for feature film production pipeline.

Columbia University, New York City, New York USA
Postoctoral Researcher **November, 2003 - March, 2005**
Researched algorithms for efficient and interactive global illumination algorithms. Measured optical properties of volumetric materials. Worked on sampling methods for 4D light field data structures. Helped guiding several PhD students in research.

University of Utah, Salt Lake City, Utah USA
Graduate Student, Research Assistant **September, 1997 - October, 2003**
Includes Ph.D. research, Ph.D. level coursework and research/consulting projects. Researched and developed global illumination rendering algorithms, physically-based simulation of natural phenomena, appearance models for computer graphics, perceptual issues in computer graphics.

Visual Influence, Inc., Salt Lake City, Utah USA
Consultant **August 2002 - August 2003**
Wrote lidar visualization and registration software. Wrote image mosaicing software.

Aster, Ljubljana, Slovenia
Software Engineer **January 1997 - August 1997**
Wrote GIS software and terrain visualization applications.

Condensed Matter Laboratory, University of Colorado at Boulder, Boulder, Colorado USA
Undergraduate Research Assistant **May 1995 - August 1996**
Wrote visualization and molecular dynamics simulation software for liquid crystal simulations.

Dataware Technologies, Boulder, Colorado USA
Software Tester **May 1995 - December 1995**

TEACHING EXPERIENCE

University of Utah, Salt Lake City, Utah USA
Teaching Assistant **September 1997 – December 2002**
Duties at various times have included leading weekly discussions and computer lab exercises, holding office hours, lecturing, preparing exams, preparing homework solutions and grading.

- CS6810 Advanced Computer Architecture (Dr. Al Davis)
- CS5480 Data Communications and Networks (Dr. Lee Hollaar)
- CS3510 Advanced Algorithms and Data Structures (Dr. Joe Zachary)
- CS354 Data Structures and Algorithms (Dr. Joe Zachary)

ACM SIGGRAPH
Course Organizer and Presenter **July 2003**
Presentation in "Light and Color in the Outdoors" course at SIGGRAPH 2003.
Course Presenter **July 2000**
Presentation in "Image-based Surface Details" course at SIGGRAPH 2000.

University of Colorado at Boulder, Boulder, Colorado USA
Tutor **September 1995 - May 1996**
Tutoring basic programming in C and C++.

PUBLICATIONS

SIGGRAPH

1. H. Jensen, F. Durand, M. Stark, S. Premože, P. Shirley, J. Dorsey, "A Physically-Based Night Sky Model" The Proceedings of ACM SIGGRAPH 2001.
2. M. Ashikhmin, S. Premože, P. Shirley, "A Microfacet-based BRDF Generator", The Proceedings of ACM SIGGRAPH 2000, pp. 65-74.

Journal Publications

1. J. Kniss, S. Premože, C. Hansen, P. Shirley, A. MacPherson, "A Model for Volume Lighting and Modeling", IEEE Transactions on Visualization and Computer Graphics, v. 9, no. 2, April - June 2003, pp. 150-162
2. S. Premože, M. Ashikhmin, "Rendering Natural Waters", Computer Graphics Forum, v. 20, no. 4 (2001), pp. 189-200
3. M. Ashikhmin, S. Premože, P. Shirley, B. Smits, "A Variance Analysis of the Metropolis Light Transport", Computers & Graphics, v. 25, no. 2 (2001), pp. 287-294

Refereed Conferences

1. S. Premože, K. Hegeman, M. Ashikhmin, G. Drettakis, "Approximate Ambient Occlusion for Trees", Accepted for publication, ACM Siggraph Symposium on Interactive 3D Graphics and Games, April 2006,

2. S. Premože, "Digital Relief Presentation", Accepted for publication, 5th ICA Mountain Cartography Workshop, March 2006,
3. S. Premože, "Feature preserving processing of terrain data", Accepted for publication, 5th ICA Mountain Cartography Workshop, March 2006,
4. K. Hegeman, M. Ashikhmin, S. Premože, "A Lighting Model for General Participating Media", Proceedings of ACM Siggraph Symposium on Interactive 3D Graphics and Games, April 2005,
5. S. Premože, M. Ashikhmin, J. Tessendorf, R. Ramamoorthi, S. Nayar, "Practical Rendering of Multiple Scattering Effects in Participating Media", Proceedings of the Eurographics Symposium on Rendering, June 2004,
6. J. Kniss, S. Premože, M. Ikits, A. Lefohn, C. Hansen. E. Praun, "Gaussian Transfer Functions for Multi-Field Volume Visualization", Proceedings of IEEE Visualization, October 2003
7. S. Premože, T. Tasdizen, J. Bigler, A. Lefohn, R. Whitaker, "Particle-Based Simulation of Fluids", Proceedings of Eurographics, September 2003
8. S. Premože, M. Ashikhmin, P. Shirley, "Path Integral Approach to Light Transport in Volumetric Materials", Proceedings of the Eurographics Symposium on Rendering, June 2003,
9. S. Premože, "Analytic Light Transport Approximations for Volumetric Materials", Proceedings of the Tenth Pacific Conference on Computer Graphics and Applications, October 2002
10. J. Kniss, S. Premože, C. Hansen, D. Ebert, "Interactive Translucent Volume Rendering and Procedural Modeling", Proceedings of IEEE Visualization, October 2002 (Best Paper Finalist)
11. S. Premože, W. B. Thompson, "Automated Coloring of Panchromatic Orthoimagery", 3rd ICA Mountain Cartography Workshop, Mt. Hood, Oregon, May 2002
12. S. Premože, "Computer Generated Panorama Maps", 3rd ICA Mountain Cartography Workshop, Mt. Hood, Oregon, May 2002
13. S. Premože, M. Ashikhmin, "Rendering Natural Waters", Proceedings of the Eight Pacific Conference on Computer Graphics and Applications, October 2000 (Best Papers Selection)
14. S. Premože, W. B. Thompson, P. Shirley, "Geospecific Rendering of the Alpine Terrain", Proceedings of the Tenth Eurographics Workshop on Rendering, 1999

Technical Reports

1. M. Ashikhmin, S. Premože, R. Ramamoorthi, S. Nayar, "Blurring of Light due to Multiple Scattering by Participating Medium: A Path Integral Approach", Columbia University Technical Report CUCS-017-04, May 2004.
2. J. Kniss, S. Premože, M. Ikits, A. Lefohn, C. Hansen, "Closed-Form Approximation to the Volume Rendering Integral with Gaussian Transfer Functions", University of Utah Scientific Computing and Imaging Institute Technical Report, April 2003.
3. S. Premože, "Analytic Light Transport Approximations for Volumetric Materials", University of Utah Technical Report UUCS-02-012, 2002.
4. H. Jensen, S. Premože, P. Shirley, B. Thompson, M. Stark, J. Ferwerda, "Night Rendering", University of Utah Technical Report UUCS-00-016, 2000.

SIGGRAPH Course Notes

1. Light and Color in the Outdoors, course notes for SIGGRAPH 2003 Course 1 Simon Premože, organizer; Mark J. Harris, Nathaniel Hoffman, AJ Preetham, presenters.
2. In Image-based Surface Details, course notes for SIGGRAPH 2000 Course 16 Yizhou Yu, organizer; Kristin Dana, Holly Rushmeier, Stephen Marschner, Simon Premože, and Yoichi Sato, presenters.

Under Review

1. R. Morley, S. Boulos, J. Johnoson, D. Edwards, P. Shirley, M. Ashikhmin, S. Premože, "Image Synthesis using Adjoint Photons", Submitted to Graphics Interface, October 2005
2. S. Premože, J. Tessendorf and M. Ashikhmin "Volume Rendering with Multiple Scattering using Path Integration", Submitted to ACM Transactions on Graphics

Professional Activities

Reviewer **1999 - present**

Reviewer for ACM SIGGRAPH, Eurographics Workshop on Rendering, Eurographics, Graphics Interface, IEEE Visualization, ACM SIGGRAPH Symposium on Animation, ACM Transactions on Graphics, Visual Computer

References

Dr. Peter Shirley
Associate Professor
Department of Computer Science
University of Utah
50 S Central Campus Dr RM 3190
Salt Lake City, UT 84112–9205
Voice: (801) 585-1883
Fax: (801) 581-5843
Email: shirley@cs.utah.edu

Dr. George Drettakis
Group Leader
REVES / INRIA Sophia-Antipolis
2204 routes des Lucioles, BP 93
F-06902 Sophia Antipolis
France
Voice: +33 4 92 38 50 32
Fax: +33 4 92 38 50 30
Email: George.Drettakis@sophia.inria.fr

Dr. Charles Hansen
Professor
Scientific Computing and Imaging Institute
University of Utah
50 S Central Campus Drive RM 3190
Salt Lake City, UT 84112–9205
Voice: (801) 581-3154
Fax: (801) 581-5843
Email: hansen@cs.utah.edu

Dr. Michael Ashikhmin
Assistant Professor
Computer Science Department
Stony Brook University
1434 Computer Science Building
Stony Brook, NY 11794
Voice: (631) 632-1728
Fax: (631) 632-8334
Email: ash@cs.sunysb.edu

Teaching References

Dr. Joe Zachary
Professor
Department of Computer Science
University of Utah
50 S Central Campus Dr RM 3190
Salt Lake City, UT 84112–9205
Voice: (801) 581-7079
Fax: (801) 581-5843
Email: zachary@cs.utah.edu

Dr. Al Davis
Professor
Department of Computer Science
University of Utah
50 S Central Campus Dr RM 3190
Salt Lake City, UT 84112–9205
Voice: (801) 581-3991
Fax: (801) 581-5843
Email: ald@cs.utah.edu