
Research Interests: Realistic rendering, computational photography, Monte Carlo methods and machine learning techniques for graphics and vision.

EDUCATION:

- 2003 – 2007 PhD in Computer Science. The University of British Columbia, Canada.
Supervisor - Prof. Wolfgang Heidrich.
- 2000 – 2003 MS in Computer Science, Stony Brook University, USA.
Advisor - Distinguished Prof. Arie Kaufman.
- 1996 – 2000 BE in Computer Science and Engineering, Gujarat University, India.

Ph.D. THESIS:

Realistic Materials and Illumination Environments. The University of British Columbia, June 2007,
(recipient of 2007 Alain Fournier PhD Thesis Award).

JOURNAL PUBLICATIONS:

- **Practical Modeling and Acquisition of Layered Facial Reflectance.** Abhijeet Ghosh, Tim Hawkins, Pieter Peers, Sune Frederiksen, Paul Debevec. To appear in ACM Transactions on Graphics (Proc. SIGGRAPH Asia), 2008.
- **A Basis Illumination Approach to BRDF Measurement.** Abhijeet Ghosh, Wolfgang Heidrich, Shruthi Achutha, and Matthew O'Toole. To appear in International Journal of Computer Vision (IJCV): Marr Prize (ICCV07) special issue, 2008.
- **Correlated Visibility Sampling for Direct Illumination.** Abhijeet Ghosh and Wolfgang Heidrich. The Visual Computer (Proc. of Pacific Graphics 2006) 22: 693-701.
- **High Dynamic Range Display Systems.** Helge Seetzen, Wolfgang Heidrich, Wolfgang Stuerzlinger, Greg Ward, Lorne Whitehead, Matthew Trentacoste, Abhijeet Ghosh, Andrejs Vorozcovs. ACM Transactions on Graphics (Proc. SIGGRAPH 2004), 23(3): 760-768.
- **Simple Blurry Reflections with Environment Maps.** Michael Ashikhmin and Abhijeet Ghosh. Journal of Graphics Tools, 7(4): 3-8, 2002.

CONFERENCE PUBLICATIONS:

- **Active Learning from Discrete Choice Data.** Eric Brochu, Nando de Freitas and Abhijeet Ghosh. Advances in Neural Information Processing Systems (NIPS) 2007.
- **BRDF Acquisition with Basis Illumination.** Abhijeet Ghosh, Shruthi Achutha, Wolfgang Heidrich, and Matthew O'Toole. Proc. of IEEE International Conference on Computer Vision (ICCV) 2007 (oral presentation, Marr Prize Honorable mention).
- **Sequential Sampling for Dynamic Environment Map Illumination.** Abhijeet Ghosh, Arnaud Doucet, and Wolfgang Heidrich. Proc. of Eurographics Symposium on Rendering 2006, pp.115-126.
- **Real Illumination from Virtual Environments.** Abhijeet Ghosh, Matthew Trentacoste, Helge Seetzen and Wolfgang Heidrich. Proc. of Eurographics Symposium on Rendering 2005, pp. 243-252.
- **Bidirectional Importance Sampling for Direct Illumination.** David Burke, Abhijeet Ghosh and Wolfgang Heidrich. Proc. of Eurographics Symposium on Rendering 2005, pp. 147-156.
- **Volume Rendering for High Dynamic Range Displays.** Abhijeet Ghosh, Matthew Trentacoste and Wolfgang Heidrich. Proc. of Volume Graphics 2005, pp. 91-98.
- **Hardware Assisted Multichannel Volume Rendering.** Abhijeet Ghosh, Poojan Prabhu, Arie Kaufman and Klaus Mueller. Computer Graphics International, July 2003: 2-7, IEEE Computer Society Press.

OTHER REFEREED CONTRIBUTIONS:

- **Estimating Multi-layer Scattering in Faces using Direct-Indirect Separation.** Abhijeet Ghosh and Paul Debevec. SIGGRAPH 2008 Technical Sketch (accepted).
- **Preference Galleries for Material Design.** Eric Brochu, Abhijeet Ghosh and Nando de Freitas. SIGGRAPH 2007 Poster (Winner of the ACM Student Research Competition).
- **The D-BRDF Model as a Basis for BRDF Acquisition.** Abhijeet Ghosh and Wolfgang Heidrich. SIGGRAPH 2007 Poster.
- **Sequential Sampling for Dynamic Environment Maps.** Abhijeet Ghosh, Arnaud Doucet, and Wolfgang Heidrich. SIGGRAPH 2006 Technical Sketch.
- **Correlated Visibility Sampling for Direct Illumination.** Abhijeet Ghosh and Wolfgang Heidrich. SIGGRAPH 2005 Technical Sketch.
- **Real Illumination from Virtual Environments.** Abhijeet Ghosh, Matthew Trentacoste, Helge Seetzen and Wolfgang Heidrich. SIGGRAPH 2005 Technical Sketch.
- **Bidirectional Importance Sampling for Illumination from Environment Maps.** David Burke, Abhijeet Ghosh and Wolfgang Heidrich. SIGGRAPH 2004 Technical Sketch.

EXPERIENCE:

- Senior computer scientist (October 2007 onwards), Graphics Lab., USC Institute for Creative Technologies.
- Doctoral thesis research (2003 - 07), Imager Computer Graphics Lab., Computer Science Department, The University of British Columbia. Supervised by Prof. Wolfgang Heidrich.
- Research Internship (summer 2003), USC Institute for Creative Technologies. Supervised by Dr. Paul Debevec. Real-time rendering with high dynamic range lighting for the Linear Light Source Reflectometry project.
- Research assistant (2000 - 03), Visualization Lab., Computer Science Department, Stony Brook University. Parallel volume rendering with special purpose hardware. Supervised by Prof. Arie Kaufman.
- Viatronix Inc. (November 2001) - Integrated diagnostic medical imaging applications with VolumePro 1000 rendering as well as PC graphics cards. Supervised by Dr. Kevin Kreeger.
- Research apprenticeship (1999 - 00), Space Application Centre, Ahmedabad, India. Multispectral classification of remote sensing data using artificial neural networks. Supervised by Dr. A Senthil Kumar.

STUDENT AND INTERN SUPERVISION:

- Tomohito Masueda – Supervision of 3 month internship in spring 2008, USC-ICT. Recovery of shape from specular reflection.
- Matthew O'Toole – Supervision of undergraduate honors thesis 2006-07, University of British Columbia. Real-time rendering of acquired BRDFs.

FELLOWSHIPS AND AWARDS:

- **Alain Fournier Thesis Award** – Best Canadian PhD thesis in computer graphics in 2007.
- **IEEE Marr Prize Honorable Mention** – ICCV 2007 best paper award.
- **University Graduate Fellowship** – The University of British Columbia, 2005 - 06.
- **ATI Technologies Fellowship** 2004 - 05 (4 awards world-wide).
- **IRIS/Precarn Fellowship** 2003 - 04.
- **University Fellowship** – Stony Brook University, 2002 - 03.

INVITED TALKS:

- **Measurement and Modeling of Material and Facial Reflectance** – Technische Universität Darmstadt, Germany, June 2008.
- **Realistic Materials and Illumination Environments** – USC Institute for Creative Technologies and Digital Domain Inc., Marina del Rey, CA, April 2007.
- **Sequential Sampling of Environment Maps** – INRIA Futurs, Bordeaux, France, July 2006.
- **High Dynamic Range Acquisition and Display** – UVP Biotech Imaging Systems, Upland, CA, August 2005.
- **Real Illumination from Virtual Environments** – Université de Montréal, July 2005; Bauhaus University at Weimar, Germany, July 2005.
- **Bidirectional Importance Sampling for Direct Illumination** - Bauhaus University at Weimar, July 2005.
- **Volume Rendering for High Dynamic Range Displays** – INRIA Futurs, Bordeaux, France, June 2004.

CONFERENCE TALKS:

- **Estimating Multi-layer Scattering in Faces using Direct-Indirect Separation.** SIGGRAPH 2008 Technical Talk.
- **BRDF Acquisition with Basis Illumination** – ICCV 2007 oral presentation, Rio de Janeiro, Brazil, October 2007.
- **Sequential Sampling of Environment Maps** – Eurographics Symposium on Rendering 2006, Nicosia, Cyprus, June 2006; SIGGRAPH 2006 Sketch talk, August 2006.
- **Correlated Visibility Sampling for Direct Illumination** – SIGGRAPH 2005 Sketch talk, August 2005; Pacific Graphics 2006, Taipei, Taiwan, October 2006.
- **Real Illumination from Virtual Environments** – Eurographics Symposium on Rendering 2005, Konstanz, Germany, July 2005.
- **Bidirectional Importance Sampling for Direct Illumination** – Eurographics Symposium on Rendering 2005, Konstanz, Germany, July 2005.
- **Volume Rendering for High Dynamic Range Displays** – Volume Graphics 05, Stony Brook, NY, June 2005.

TEACHING EXPERIENCE:

- Teaching Assistant for Computer Graphics (CPSC 314), Summer Session 1, 2006, University of British Columbia.
- Teaching Assistant for Algorithm Design and Analysis (CPSC 320), Winter Term 2, 2003-04, University of British Columbia.
- Teaching Assistant for Computer Graphics (CPSC 414), Winter Term 1, 2003-04, University of British Columbia.
- Teaching Assistant for Object Oriented Program Design (CSE 219), Spring 2003, Stony Brook University.

SERVICE:

- **Program Committee** – Graphics Interface 2008, Eurographics 2008 Short papers, Pacific Graphics 2006.
- **External Reviewer (papers)** – SIGGRAPH 2004-08, Eurographics 2006-08, EGSR 2006-08, ACCV 2007, Computer Graphics Forum, Computers&Graphics, GI 2006, CGI 2006, I3D 03, VolVis-02, JGT, IPSJ Trans. CVA.
- Faculty Recruiting Committee – elected student representative 2006-07, UBC.
- Graduate Admissions Committee – elected student representative 2005-06, UBC.
- Computer Science PhD Breadth Committee volunteer – 2005-06, UBC.
- AMoRe (Imager Graphics Lab) research meetings coordinator 2003 - 07, UBC.
- Computer Science Graduate Student Council - executive member 2002-03, Stony Brook University.
- Student Volunteer – International Workshop on Volume Graphics VG-01.