
Research Interests: Realistic computer graphics, appearance modeling, computational photography, vision for graphics.

CURRENT APPOINTMENT:

Senior Lecturer, Dept. of Computing, Imperial College London.
(recipient of Royal Society Wolfson Research Merit Award 2013 - 17)

PREVIOUS POSITIONS:

Research assistant professor, Dept. of Computer Science, University of Southern California 2009-2012.
Senior computer scientist, Graphics Lab., USC Institute for Creative Technologies 2007-2012.

EDUCATION:

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|-------------|---|
| 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).

GRANTS AND CONTRACTS:

- **EPSRC Early Career Fellowship EP/N006259/1** – £1,255,111 (EPSRC contribution 80%), Computational imaging and analysis of scene appearance, 2016-20.
- **Royal Society International Scientific Seminar** – £5,000 travel support + two nights stay for 20 participants at Chicheley Hall, Imaging in Graphics, Vision and Beyond, 2015-16.
- **EPSRC First Grant EP/M00192X/1** – £123,328 (EPSRC contribution 80%), On-site reflectometry in the real-world, 2015-16.
- **Google Faculty Research Award** – \$67.5K, On-site reflectometry in the real-world, 2014.
- **NSF grant IIS-1016703** (with Dr. Pieter Peers) – \$475K, Higher order statistics for appearance modeling, 2010-13.
- **AVON contract** – \$100K, Acquisition and rendering of faces with and without makeup, 2010-11.
- **USC-ICT seedling grant** (with Dr. Louis-Philippe Morency) – \$100K, Appearance models for facial expression recognition, 2009-10.

RECOGNITION AND AWARDS:

- **EPSRC Early Career Fellowship** 2016-20.
- **Royal Society Wolfson Research Merit Award** 2013-17.
- **Motion Picture Film Credit** – AVATAR, Lightstage facial capture, 2009.
- **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.

JOURNAL PUBLICATIONS:

- **Polarization Imaging Reflectometry in the Wild.** Jérémy Riviere, Ilya Reshetouski, Luka Filipi, Abhijeet Ghosh. To appear in ACM Transactions on Graphics (Proc. SIGGRAPH Asia), 36(6), 2017.
- **Practical Acquisition and Rendering of Diffraction Effects in Surface Reflectance.** Antoine Toisoul and Abhijeet Ghosh. ACM Transactions on Graphics, 36(5), 2017 (presented at SIGGRAPH 2017).
- **BRDF Representation and Acquisition.** Dar'ya Guarnera, Giuseppe Claudio Guarnera, Abhijeet Ghosh, Cornelia Denk, Mashuda Glencross. Computer Graphics Forum (Eurographics'16 STAR Report), 35(2), 2016.
- **Near-Instant Capture of High-Resolution Facial Geometry and Reflectance.** Graham Fyffe, Paul Graham, Borom Tunwattanapong, Abhijeet Ghosh, Paul Debevec. Computer Graphics Forum (Proc. Eurographics), 35(2), 2016.
- **Mobile Surface Reflectometry.** Jérémy Riviere, Pieter Peers, Abhijeet Ghosh. Computer Graphics Forum, 35(1): 191-202, 2016 (presented at Eurographics 2016).
- **Skin Microstructure Deformation with Displacement Map Convolution.** Koki Nagano, Graham Fyffe, Oleg Alexander, Jernej Barbič, Hao Li, Abhijeet Ghosh, Paul Debevec. ACM Transactions on Graphics (Proc. SIGGRAPH), 34(4), 2015.
- **Acquiring Reflectance and Shape from Continuous Spherical Harmonic Illumination.** Borom Tunwattanapong, Graham Fyffe, Paul Graham, Jay Busch, Xueming Yu, Abhijeet Ghosh, Paul Debevec. ACM Transactions on Graphics (Proc. SIGGRAPH), 32(4), 2013.
- **Estimating Diffusion Parameters from Polarized Spherical Gradient Illumination.** Yufeng Zhu, Pradeep Garigipati, Pieter Peers, Paul Debevec, Abhijeet Ghosh. IEEE CG&A Special Issue on Scattering May/June 2013.
- **Measurement Based Synthesis of Facial Microgeometry.** Paul Graham, Borom Tunwattanapong, Jay Busch, Xueming Yu, Andrew Jones, Paul Debevec, Abhijeet Ghosh. Computer Graphics Forum (Proc. Eurographics), 32(2), 2013.
- **Exploring the effect of illumination on automatic expression recognition using the ICT-3DRFE database.** Giota Stratou, Abhijeet Ghosh, Paul Debevec, Louis-Philippe Morency. Image and Vision Computing, 30(10), 728-737, 2012.
- **Multiview Face Capture using Polarized Spherical Gradient Illumination.** Abhijeet Ghosh, Graham Fyffe, Borom Tunwattanapong, Jay Busch, Xueming Yu, Paul Debevec. ACM Transactions on Graphics (Proc. SIGGRAPH Asia), 30(6), 2011.
- **Circularly Polarized Spherical Illumination Reflectometry.** Abhijeet Ghosh, Tongbo Chen, Pieter Peers, Cyrus A. Wilson, Paul Debevec. ACM Transactions on Graphics (Proc. SIGGRAPH Asia), 29(5), 2010.
- **Temporal Upsampling of Performance Geometry using Photometric Alignment.** Cyrus A. Wilson, Abhijeet Ghosh, Pieter Peers, Jen-Yuan Chiang, Jay Busch, Paul Debevec. ACM Transactions on Graphics, 29(2), March 2010.
- **A Basis Illumination Approach to BRDF Measurement.** Abhijeet Ghosh, Wolfgang Heidrich, Shruthi Achutha, and Matthew O'Toole. International Journal of Computer Vision (Marr Prize special issue: ICCV07), 90(2): 183-197, 2010.
- **Estimating Specular Roughness and Anisotropy from Second Order Spherical Gradient Illumination.** Abhijeet Ghosh, Tongbo Chen, Pieter Peers, Cyrus A. Wilson, Paul Debevec. Computer Graphics Forum (Proc. EGSR), 28(4), 1161-1170, 2009.
- **Compressive Light Transport Sensing.** Pieter Peers, Dhruv K. Mahajan, Bruce Lamond, Abhijeet Ghosh, Wojciech Matusik, Ravi Ramamoorthi, Paul Debevec. ACM Transactions on Graphics, 28(1), January 2009.
- **Practical Modeling and Acquisition of Layered Facial Reflectance.** Abhijeet Ghosh, Tim Hawkins, Pieter Peers, Sune Frederiksen, Paul Debevec. ACM Transactions on Graphics (Proc. SIGGRAPH Asia), 27(5), 2008.
- **Correlated Visibility Sampling for Direct Illumination.** Abhijeet Ghosh and Wolfgang Heidrich. The Visual Computer (Proc. of Pacific Graphics) 22: 693-701, 2006.
- **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), 23(3): 760-768, 2004.
- **Simple Blurry Reflections with Environment Maps.** Michael Ashikhmin and Abhijeet Ghosh. Journal of Graphics Tools, 7(4): 3-8, 2002.

CONFERENCE PUBLICATIONS:

- **Acquiring Axially-Symmetric Transparent Objects using Single-View Transmission Imaging.** Jaewon Kim, Ilya Reshetouski, and Abhijeet Ghosh. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), July 2017.

- **Image-Based Relighting using Room Lighting Basis.** Antoine Toisoul and Abhijeet Ghosh. European Conference on Visual Media Production (CVMP), Dec. 2016.
- **Efficient surface diffraction renderings with Chebyshev approximations.** Daljit Singh Dhillon and Abhijeet Ghosh. SIGGRAPH Asia'16 Technical Briefs, Dec. 2016.
- **Fine-grained Material Classification using Micro-geometry and Reflectance.** Christos Kampouris, Stefanos Zafeiriou, Abhijeet Ghosh, Sotiris Malassiotis. European Conference on Computer Vision (ECCV), October 2016.
- **Single-shot layered reflectance separation using a polarized light field camera.** Jaewon Kim, Shahram Izadi, Abhijeet Ghosh. Proc. of Eurographics Symposium on Rendering (EGSR) EI&I, June 2016.
- **Rerendering Landscape Photographs.** Pu Wang, Diana Bicanzan, Abhijeet Ghosh. European Conference on Visual Media Production (CVMP), 2014.
- **Estimating Surface Normals From Spherical Stokes Reflectance Fields.** Giuseppe Claudio Guarnera, Pieter Peers, Paul Debevec, Abhijeet Ghosh. ECCV Workshop on Color and Photometry in Computer Vision (CPCV), 2012.
- **Practical Image-Based Relighting and Editing with Spherical Harmonics and Local Lights.** Borom Tunwattanapong, Abhijeet Ghosh, Paul Debevec. European Conference on Visual Media Production (CVMP), London, 2011.
- **Facial Cartography: Interactive Scan Correspondance.** Cyrus A. Wilson, Oleg Alexander, Borom Tunwattanapong, Pieter Peers, Abhijeet Ghosh, Jay Busch, Arno Hartholdt, Paul Debevec. ACM/Eurographics Symposium on Computer Animation (SCA) 2011.
- **Effect of Illumination on Automatic Expression Recognition: A Novel 3D Relightable Facial Database.** Giota Stratou, Abhijeet Ghosh, Paul Debevec, Louis-Philippe Morency. IEEE International Conference on Automatic Face and Gesture Recognition (FG 2011), Santa Barbara, USA, March 2011.
- **Image-based Separation of Diffuse and Specular Reflections using Environmental Structured Illumination.** Bruce Lamond, Pieter Peers, Abhijeet Ghosh, Paul Debevec. International Conference on Computational Photography, April 2009.
- **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).
- **Active Learning from Discrete Choice Data.** Eric Brochu, Nando de Freitas and Abhijeet Ghosh. Advances in Neural Information Processing Systems (NIPS) 2007.
- **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.

INVITED CONTRIBUTIONS:

- **Measurement-Based Modelling of Facial and Material Appearance.** Abhijeet Ghosh. BMVC'16 Conference Tutorial, York, Sept. 2016.
- **Cook-Torrance BRDF model.** Abhijeet Ghosh. Computer Vision: a reference guide, pp. 146 – 152, 2014.
- **Measurement and Modeling of Detailed Facial Reflectance.** Abhijeet Ghosh. SIGGRAPH Asia 2012 Technical Brief and Talk.

OTHER REFEREED CONTRIBUTIONS:

- **Material Capture and Representation with Applications in Virtual Reality.** Giuseppe Claudio Guarnera, Abhijeet Ghosh, Ian Hall, Mashuda Glencross, Dar'ya Guarnera. SIGGRAPH 2017 Short Course.
- **Practical Acquisition of Translucent Liquids using Polarized Transmission Imaging.** Jaewon Kim and Abhijeet Ghosh. SIGGRAPH 2017 poster.
- **Real-time Rendering of Realistic Surface Diffraction with Low Rank Factorization.** Antoine Toisoul and Abhijeet Ghosh. SIGGRAPH 2017 poster.
- **Capturing and Representing BRDFs for Virtual Reality.** Dar'ya Guarnera, Giuseppe Claudio Guarnera, Abhijeet Ghosh, Ian Hall, Mashuda Glencross. SIGGRAPH Asia 2016 Short Course.
- **Near Instant Capture of High Resolution Facial Geometry and Reflectance.** Paul Graham, Graham Fyffe, Borom Tunwattanapong, Abhijeet Ghosh, Paul Debevec. SIGGRAPH 2015 Talk.

- **Image-Based Relighting using Room Lighting Basis.** Antoine Toisoul, Abhijeet Ghosh. SIGGRAPH 2015 Poster.
- **Mobile Surface Reflectometry.** Jérémy Riviere, Pieter Peers, Abhijeet Ghosh. SIGGRAPH 2014 poster.
- **Rerendering Landscape Photographs.** Pu Wang, Diana Bicanzan, Abhijeet Ghosh. SIGGRAPH 2014 poster.
- **Polarized Light in Computer Graphics.** Alexander Wilkie, Andrea Weidlich, Abhijeet Ghosh. SIGGRAPH Asia 2012 Half-Day Course.
- **Measurement Based Synthesis of Facial Microgeometry.** Paul Graham, Borom Tunwattanapong, Jay Busch, Xueming Yu, Andrew Jones, Paul Debevec, Abhijeet Ghosh. SIGGRAPH 2012 Technical Talk and Poster.
- **Estimating Specular Normals from Spherical Stokes Reflectance Fields.** Giuseppe Claudio Guarnera, Pieter Peers, Paul Debevec, Abhijeet Ghosh. SIGGRAPH 2012 Technical Talk and Poster.
- **Estimating Diffusion Parameters from Polarized Spherical Gradient Illumination.** Yufeng Zhu, Pieter Peers, Paul Debevec, Abhijeet Ghosh. SIGGRAPH 2012 Technical Talk and Poster.
- **Facial Cartography: Interactive Scan Correspondance.** Cyrus A. Wilson, Oleg Alexander, Borom Tunwattanapong, Pieter Peers, Abhijeet Ghosh, Jay Busch, Arno Hartholdt, Paul Debevec. SIGGRAPH 2011 Technical Talk.
- **Free-form Polarized Spherical Illumination Reflectometry.** Kaori Kikuchi, Bruce Lamond, Abhijeet Ghosh, Pieter Peers, Paul Debevec. SIGGRAPH Asia 2010 Sketch.
- **Combining Spherical Harmonics and Point-Source Illumination for Efficient Image-Based Relighting.** Borom Tunwattanapong, Abhijeet Ghosh, Paul Debevec. SIGGRAPH 2010 Poster.
- **Data-Driven Diffuse-Specular Separation of Spherical Gradient Illumination.** Tongbo Chen, Abhijeet Ghosh, Paul Debevec. SIGGRAPH 2009 poster.
- **Estimating Specular Roughness from Polarized Second Order Spherical Gradient Illumination.** Abhijeet Ghosh, Pieter Peers, Cyrus A. Wilson, Paul Debevec. SIGGRAPH 2009 Technical Talk.
- **2D and 3D Facial Correspondences via Photometric Alignment.** Cyrus A. Wilson, Abhijeet Ghosh, Pieter Peers, Jen-Yuan Chiang, Jay Busch, Paul Debevec. SIGGRAPH 2009 Technical Talk.
- **Considering Shape Reconstruction from Specular Reflection.** Tomohito Masueda, Abhijeet Ghosh, Wanchun Ma, Hiroki Unten, Paul Debevec. SIGGRAPH Asia 2008 Technical Sketch.
- **Estimating Multi-layer Scattering in Faces using Direct-Indirect Separation.** Abhijeet Ghosh and Paul Debevec. SIGGRAPH 2008 Technical Talk.
- **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.

TEACHING EXPERIENCE:

- **Instructor for Advanced Computer Graphics – Photographic Image Synthesis (CO 417)** Spring 2013 - present, Imperial College London.
- Coordinator for Academic Writing in Computer Science (CO 520), Spring 2015, Imperial College London.
- Co-Instructor for Advanced Computer Graphics – Photographic Image Synthesis (CS 599) (with Dr. Paul Debevec and Dr. Pieter Peers), Spring 2009 and Spring 2010, University of Southern California.
- 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.

RESEARCH SUPERVISION:

- Dr. Daljit Singh Dhillon – Supervision of visiting postdoctoral researcher (SNSF fellow) at Imperial College, Feb. 2016 – August 2017. Computational methods for wave optics effects in appearance. Dr Dhillon is rejoining the Realistic Graphics & Imaging group as a postdoctoral RA from Nov. 2017.
- Yiming Lin – Supervision of ongoing doctoral research at Imperial College, since Oct. 2016. Image-based appearance modelling.
- Jaewon Kim – Supervision of ongoing doctoral research at Imperial College, since Oct. 2015. Computational light field imaging and analysis.
- Antoine Toisoul – Supervision of ongoing doctoral research at Imperial College, since Oct. 2014. Wave effects in surface reflectance.
- Christos Kampouris – Co-supervision (with Dr. Stefanos Zafeiriou) of ongoing doctoral research at Imperial College, since Oct. 2013. Acquisition and analysis of microgeometry and reflectance.
- Jérémy Riviere – Supervision of **completed** doctoral research at Imperial College, Oct. 2013 – Aug. 2017. On-site surface reflectometry. PhD thesis **viva** held in September 2017. (Starting as a post-doctoral researcher at Disney Research Zurich from October 2017)

PAST SUPERVISION:

Post-Doc

- Dr. Ilya Reshetouski – Supervision of postdoctoral research at Imperial College, Mar. 2015 – Oct. 2016. Computational photography for shape and appearance acquisition. (Now at Sony R&D, Japan)
- Dr. Tongbo Chen – Co-supervision (with Dr. Paul Debevec) of post-doctoral research at USC-ICT, 2009-10. Spherical illumination reflectometry.

PhD

- Dr. Paul Graham – Co-supervision (with Dr. Paul Debevec) of doctoral dissertation at USC-ICT, 2011-14. Synthesis of facial mesostructure and microgeometry.
- Dr. Borom Tunwattanapong – Co-supervision (with Dr. Paul Debevec) of doctoral dissertation at USC-ICT, 2010-14. Spherical harmonic and point illumination basis for reflectometry and image based relighting.
- Dr. Giuseppe Claudio Guarnera – Supervision of visiting doctoral student research, 2011-12, USC-ICT. Estimating surface normals from symmetric Stokes reflectance fields.

MSc/MEng

- MSc project supervision, summer 2017, Imperial College – Alix Feniès (Image based lighting reproduction using multispectral light stage)
- MEng project supervision, 2016-17, Imperial College – Xingze Tian (AR Animation with Google Tango).
- MSc project supervision, summer 2016, Imperial College – Luca Filipi (Mobile polarization imaging reflectometry), Desy Kristianti (image manipulations with flash no-flash image pairs).
- MEng project supervision, 2015-16, Imperial College – Zuhayr Chagpar (3D reconstruction of the Queen's Tower), Edwin Kamulegeya (Mobile light field capture and display).
- MSc project supervision, summer 2015, Imperial College – Ye Yu (Priors for Image deblurring), Jean Melou (Mobile light probe capture), Daiwei Guo (Face as light probe), Qiu Sun (Fitting analytic sky models to probes).
- MSc project supervision, summer 2014, Imperial College – Antoine Toisoul (Image based relighting using office room lighting), Tereza Drskova (Interface for image based relighting and editing), Susanne Hallauer (Relighting face in a photograph with known illumination), Kaiyang Chen (Face as a light probe).
- MEng project supervision, 2013-14, Imperial College – James Webb (Structured procedural worlds, distinguished project), David Elsey (Virtual game world).
- MSc project supervision, summer 2013, Imperial College – Jérémy Riviere (Parallel image based lighting using OpenCL), Pu Wang and Diana Bicazan (Rerendering landscape photographs), Ji Song (Global Illumination with Progressive Photon Mapping).
- Yufeng Zhu – Supervision of Masters directed research, 2011-12, USC-ICT. Real-time rendering with estimated layered subsurface scattering parameters.
- Kaori Kikuchi – Co-supervision (with Dr. Pieter Peers) of Master's thesis 2009-10, USC-ICT. Free-form polarized spherical illumination reflectometry.

BSc/BEng

- Nandor Licker – Supervision of BEng project, Nov. 2015 – June 2016, Imperial College. Mobile augmented reality (best BEng project prize).
- Sabin Bhattarai – Supervision of BEng project, Nov. 2014 – June 2015, Imperial College. Programming of camera and controlled lighting systems for reflectance capture.
- Matthew O'Toole – Supervision of undergraduate honors thesis 2006-07, University of British Columbia. Real-time rendering of acquired BRDFs.

Interns/UROP

- Husheng Deng - Supervision of 10 weeks UROP in summer of 2017, Imperial. Programming for multispectral Light Stage.
- Megan Lalla-Hamblin - Supervision of 10 weeks UROP in summer of 2013, Imperial. Reflectometry using Nvidia Tegra tablet.
- Pradeep Garigipati – Supervision of 3 month internship in summer 2012, USC-ICT. Analysis of spherical statistics of diffuse reflectance.
- Steven Breager – Supervision of 3 month internship in summer 2011, USC-ICT. Acquisition and analysis of higher order spherical statistics of material appearance.
- Jun Zheng – Supervision of 3 month internship in summer 2010, USC-ICT. Specular normal synthesis using stochastic super-resolution.
- Panagiota Stratou – Co-supervision (with Dr. Louis-Philippe Morency) of 3 month internship in summer 2009 and directed research in 2010, USC-ICT. Acquisition and relighting of facial expression and performance database.
- Tomohito Masueda – Co-supervision (with Dr. Paul Debevec) of 3 month internship in spring 2008, USC-ICT. Recovery of shape from specular reflection.

PhD COMMITTEE/EXAMINATION:

- Dr. Patrick Snape (Imperial) – Internal examiner of PhD thesis on 3D facial shape recovery, 2017.
- Dr. Jan Jachnik (Imperial) – Internal examiner of PhD thesis on light field and geometry acquisition, 2016.
- Dr. Katie Moore (College of William & Mary) – External examiner of PhD thesis on reflectance capture and editing techniques, 2016.
- Dr. Akis Tsotsios (Imperial) – Internal examiner of PhD thesis on under-water photometric stereo, 2015.
- Dr. Anustup Choudhury (USC) – Member of internal PhD advising and final examination committee on image enhancement techniques, 2010-12.
- Dr. Jun Zheng (UTEP) – External examiner of PhD thesis on stochastic super-resolution techniques, 2010.

PATENTS:

- **Multiview Face Capture using Polarized Spherical Gradient Illumination:** Paul Debevec, Abhijeet Ghosh, Graham Fyffe. U.S. Patent No. 9123116, September 1, 2015.
- **Illumination sphere with intelligent LED lighting units in scalable daisy chain with interchangeable filters:** Paul Debevec, Xueming Yu, Mark Bolas, Graham Fyffe, Jay Busch, Pieter Peers, Abhijeet Ghosh. U.S. Patent No. 8988599, March 24, 2015.
- **Apparatus and method for realistically expressing teeth:** Tae Hyun Rhee, Seon Min Rhee, Hyun Jung Shim, Do Kyoon Kim, Abhijeet Ghosh, Jay Busch, Matt Chiang, Paul Debevec. U.S. Patent No. 8976176, March 10, 2015.
- **Estimating spectral distribution of reflections from object surface based on low frequency illumination:** Paul E Debevec, Abhijeet Ghosh, Pieter Peers, Graham Fyffe. U.S. Patent No. 8300234, October 30, 2012.
- **Practical Modeling and Acquisition of Layered Facial Reflectance:** Paul E Debevec, Abhijeet Ghosh. U.S. Patent No. 8264490, September 11, 2012.

CONSULTING:

- Consultant on Facial Appearance Modelling, **Disney Research**, Zurich, 2016 - present.
- Consultant on Material Appearance Acquisition, **Foster + Partners**, London, 2015.
- Consultant on Facial Appearance Acquisition, **L'Oreal R&D**, Paris, 2014-15.
- Consultant on Light Stage based Facial Acquisition and Modeling, **Double Negative** visual effects, London, 2014.
- Consultant on Facial Reflectance Modeling for visual effects, **Jellyfish Pictures**, London, 2014.
- Consultant on Facial Reflectance Modeling for visual effects in **AVATAR**, **Weta Digital**, NZ, 2009.

INVITED TALKS:

- **Computational Imaging for Appearance and Shape Acquisition.** NTNU Color and Visual Computing Lab, Gjøvik, Norway, June 2017.
- **Computational Imaging for Appearance Modeling.** UCL Graphics and Vision group, Nov. 2016.
- **Measurement Based Appearance Modeling.** BMVC 2016 Conference Tutorial, York, September 2016.
- **Imaging Wave Effects in Appearance.** Royal Society International Scientific Seminar on "Imaging in Graphics, Vision & Beyond", Chicheley Hall, May 2016.
- **Acquisition and Modeling of Facial and Material Appearance.** University of Bath Graphics and Vision group, Sept. 2013; Double Negative VFX R&D, Apr. 2014; University of Surrey CVSSP, June 2014; Univ. of York CS Dept. seminar, April 2015.
- **Light Stage Based Acquisition of High Resolution Facial Geometry and Appearance.** Imperial GaME 2013 event, May 2013; Mosaic3DX 2013, Cambridge, Oct. 2013; Loughborough University, Apr. 2014.
- **Measuring Facial Microgeometry and Subsurface Scattering using Polarised Spherical Gradient Illumination.** UCL Graphics group, April 2013.
- **Appearance Modeling for Realistic Computer Graphics** – Dept. of Computing, Imperial College London, Feb. 2011; CS Department, UC Santa Cruz, CA, June 2011; CS Department, College of William and Mary, VA, Sept. 2011.
- **Polarized Illumination Reflectometry** – Optical Society of Southern California, Playa Vista, CA, Nov. 2010.
- **Polarized Spherical Illumination Reflectometry** – University of British Columbia, Vancouver, BC, Aug. 2010.
- **Measurement and Modeling of Layered Facial Reflectance** – Avon Product R&D, Suffern, NY, Sept. 2009.
- **Measurement and Modeling of Material and Facial Reflectance** – Florida State University, Tallahassee, July 2009.
- **Practical Modeling and Acquisition of Facial Appearance and Performance** – Weta Digital, Wellington, New Zealand, June 2009.
- **Measurement, Modeling and Rendering for Realistic Computer Graphics** – CS Colloquium, University of Southern California, March 2009.
- **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:

- **Measurement Based Synthesis of Facial Microgeometry.** SIGGRAPH 2012, Technical Talk, Aug. 2012.
- **Estimating Specular Normals from Spherical Stokes Reflectance Fields.** SIGGRAPH 2012 Technical Talk, Aug. 2012.
- **Estimating Diffusion Parameters From Polarized Spherical Gradient Illumination.** SIGGRAPH 2012 Technical Talk, Aug. 2012.
- **Multiview Face Capture using Polarized Spherical Gradient Illumination.** SIGGRAPH Asia 2011, Hong Kong, Dec. 2011.
- **Circularly Polarized Spherical Illumination Reflectometry.** SIGGRAPH Asia 2010, Seoul, Dec. 2010.
- **Estimating Specular Roughness and Anisotropy from Second Order Spherical Gradient Illumination.** EGSR 2009, Girona, Spain, June 2009; SIGGRAPH 2009 Technical Talk, Aug. 2009.
- **Practical Modeling and Acquisition of Layered Facial Reflectance.** SIGGRAPH Asia 2008, Singapore, Dec. 2008.
- **Estimating Multi-layer Scattering in Faces using Direct-Indirect Separation.** SIGGRAPH 2008 Technical Talk, Aug. 2008.

- **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.

PROFESSIONAL EXPERIENCE:

- Visiting researcher (May-June 2009), Weta Digital R&D. Hosted by Sebastian Sylwan.
- Research Internship (summer 2003), USC Institute for Creative Technologies. Supervised by Dr. Paul Debevec. Real-time rendering with high dynamic range lighting for 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.
- Research apprenticeship (1999 - 00), ISRO Space Application Centre, Ahmedabad, India. Multispectral classification of remote sensing data using artificial neural networks. Supervised by Dr. A Senthil Kumar.

SERVICE:

- **Conference Organization** – Full Papers chair, CVMP 2017; Organizer of Royal Society Research Fellow International Scientific Seminar (RFISS) on “Imaging in Graphics, Vision & Beyond”, May 2016; Short papers chair, CVMP 2016; Workshop and Program co-chair, IEEE Procams 2011.
- **Funding Panel** – EPSRC ICT Prioritisation Panel, December 2016; US NSF IIS 10-571 Graphics & Visualization program, 2011.
- **EPSRC Peer Review College** – Member, since 2015.
- **Senior Program Committee/Area Chair** – SIGGRAPH Asia 2017/2013-14, EGSR 2014-16/2011-12, Pacific Graphics 2013/2006.
- **Program Committee** – CAD/Graphics 2015, CVPR CCD 2012-15, IEEE Procams 2012, CVMP 2012-13, Eurographics STAR Reports 2015-17, SIGGRAPH Asia Sketches and Posters 2010-11, Eurographics Short papers 2011/2010/2008, 3D PVT 2010, Graphics Interface 2008.
- **Paper Session Chair** – CVMP 2016 (Motion capture), CVMP 2014 (Facial capture), CVMP 2013 (Stereo and Hardware), SIGGRAPH Asia 2010 (Rendering), GI 2008 (Color and HDR).
- **External Reviewer (papers)** – SIGGRAPH 2004-17, SIGGRAPH Asia 2015-16/2010-12, EG 2015-16/2013/2006-11, EGSR 2013/2006-10, ACM TOG, IEEE TVCG, IEEE PAMI, IEEE CG&A, JOSA, Computer Graphics Forum, IEEE TIP, ECCV 2012/2010, Pacific Graphics 2015/2012, GI 2009/2006, CGI 2006, I3D 03, VolVis-02, JGT, ACCV 2007, Computers&Graphics, IPSJ Trans. CVA, Computer Animation & Virtual Worlds.
- **External Reviewer (grants)** – EPSRC First Grant, 2015.
- **External Reviewer (courses)** – SIGGRAPH Asia 2008-09, Eurographics 2009.
- **Conference Tutorial** – BMVC 2016, SIGGRAPH Asia 2012.
- PhD mentor – mentor for cohort of PhD students, 2014-present, Imperial.
- Graduate Admissions – volunteer for evaluating graphics PhD applicants, 2012, USC.
- 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.

MEDIA COVERAGE:

- [Work on skin microgeometry deformation featured by Imperial communication and covered by Gizmodo, FXguide](#) – August 20, 2015.
- [Work on skin reflectance covered in New Scientist, The Times, Daily Mail and Gizmodo](#) – April 2, 2013.
- [Imperial academic wins Royal Society Wolfson Research Merit Award](#) – Feb. 8, 2013.
- [KTLA features work on ICT Light Stage](#) – Nov. 28, 2012.
- [fxguide podcast features Abhijeet Ghosh's interview](#) – Sept. 17, 2012.
- [ICT researcher earns special effects credit in AVATAR](#) – Dec. 18, 2009.
- [ICT computer scientist wins Alain Fournier Award](#) – Apr. 29, 2008.