

Pieter Peers

Computer Science Department,
College of William & Mary
McGlothlin-Street Hall 115
Williamsburg, VA, 23187
USA

+1-757-221-3466 (office)
+1-310-775-0547 (cell)
ppeers@siggraph.org

Professional Experience

- Associate Professor** 2016 - present
 - Computer Science Department, College of William & Mary
- Visiting Researcher** Aug-Sept, Dec 2016
 - Microsoft Research Asia
- Assistant Professor** 2010 - 2016
 - Computer Science Department, College of William & Mary
- Assistant Research Professor** 2009 - 2010
 - University of Southern California (USC)
- Senior Researcher** 2006 - 2010
 - Graphics Lab, University of Southern California, Institute for Creative Technologies (ICT/USC)

Education

- Katholieke Universiteit Leuven (K.U.Leuven)**, Leuven, Belgium August 2006
 - Ph.D. in Engineering: Computer Science (Computer Graphics).
- Katholieke Universiteit Leuven (K.U.Leuven)**, Leuven, Belgium September 2000
 - Licentiaat Informatica, (Master in Informatics).

Publications

- Books and Theses**
 - (B1) *Pieter Peers*, “Sampling Reflectance Functions for Image-based Relighting”, *Ph.D. thesis*, K.U.Leuven, August 22, 2006. 212+ix pages, ISBN 90-5682-735-9.
- Journal Publications**¹
 - (J1) Rui Xia, Yue Dong, *Pieter Peers*, and Xin Tong, “Recovering Shape and Spatially-Varying Surface Reflectance under Unknown Illumination”, *ACM Transactions on Graphics (TOG) (Proceedings of ACM SIGGRAPH Asia 2016)*, Volume 35, Issue 6, December 2016.
 - (J2) J r my Riviere, *Pieter Peers*, Abhijeet Ghosh, “Mobile Surface Reflectometry”, *Computer Graphics Forum*, Volume 35, Issue 1, February 2016.

¹ Includes 18 ACM Transactions on Graphics publications (of which 8 SIGGRAPH, and 7 SIGGRAPH Asia), which is the leading journal for computer graphics and interactive techniques.

- (J3) Bo Dong, Yue Dong, Xin Tong, and Pieter Peers, “Measurement-based Editing of Diffuse Albedo with Consistent Interreflections”, *ACM Transactions on Graphics (TOG) (Proceedings of ACM SIGGRAPH 2015)*, Volume 34, Issue 4, Article 112, August 2015.
- (J4) Han Li, and Pieter Peers, “Reflectance Transfer: Example-Based Radiometric Linearization of Photographs”, *Computer Graphics Forum*, Volume 34, Issue 4, June 2015.
- (J5) Yue Dong, Guojun Chen, Pieter Peers, Jiawan Zhang, and Xin Tong, “Appearance-from-Motion: Recovering Spatially Varying Surface Reflectance Under Unknown Lighting”, *ACM Transactions on Graphics (TOG) (Proceedings of ACM SIGGRAPH Asia 2014)*, Volume 33, Issue 6, Article 193, December 2014.
- (J6) Guojun Chen, Yue Dong, Pieter Peers, Jiawan Zhang, and Xin Tong, “Reflectance Scanning: Estimating Shading Frame and BRDF with Generalized Linear Light Sources”, *ACM Transactions on Graphics (TOG) (Proceedings of ACM SIGGRAPH 2014)*, Volume 33, Issue 4, Article 117, August 2014.
- (J7) Adam Brady, Jason Lawrence, Pieter Peers, and Westley Weimer, “genBRDF: Discovering New Analytic BRDFs with Genetic Programming”, *ACM Transactions on Graphics (TOG) (Proceedings of ACM SIGGRAPH 2014)*, Volume 33, Issue 4, Article 114, August 2014.
- (J8) Johannes Kopf, Ariel Shamir, and Pieter Peers, “Content-adaptive Image Downscaling”, *ACM Transactions on Graphics (TOG) (Proceedings of ACM SIGGRAPH Asia 2013)*, Volume 32, Issue 6, Article 173, December 2013.
- (J9) Kathleen D. Moore, and Pieter Peers, “An Empirical Study on the Effects of Translucency on Photometric Stereo”, *The Visual Computer*, Volume 29, Issue 6-8, Pages 817–824, June 2013.
- (J10) Yufeng Zhu, Pradeep Garigipati, Pieter Peers, Paul Debevec, and Abhijeet Ghosh, “Estimating Diffusion Parameters from Polarized Spherical Gradient Illumination”, *IEEE Computer Graphics & Applications – Special Issue on “Scattering, Acquisition, Modeling, and Rendering”*, Volume 33, Issue 3, pages 34–43, June 2013.
- (J11) Hao Li, Linjie Luo, Daniel Vlasic, Pieter Peers, Jovan Popović, Mark Pauly, and Szymon Rusinkiewicz, “Temporally Coherent Completion of Dynamic Shapes”, *ACM Transactions on Graphics (TOG)*, Volume 31, Issue 1, Article 2, January 2012.
- (J12) Guojun Chen, Pieter Peers, Jiawan Zhang, and Xin Tong, “Real-time Rendering of Deformable Heterogeneous Translucent Objects using Multiresolution Splatting”, *The Visual Computer*, Volume 28, Numbers 6-8, pages 701–711, April, 2012.
- (J13) Abhijeet Ghosh, Tongbo Chen, Pieter Peers, Cyrus A. Wilson, and Paul Debevec, “Circularly Polarized Spherical Illumination Reflectometry”, *ACM Transactions on Graphics (TOG) (Proceedings of ACM SIGGRAPH Asia)*, Volume 30, Issue 5, Article 5, December 2010.
- (J14) Cyrus A. Wilson, Abhijeet Ghosh, Pieter Peers, Jen-Yuan Chiang, Jay Busch, and Paul Debevec, “Temporal Upsampling of Performance Geometry using Photometric Alignment”, *ACM Transactions on Graphics (TOG)*, Volume 29, Issue 2, Article 17, March 2010.
- (J15) Daniel Vlasic, Pieter Peers, Ilya Baran, Paul Debevec, Jovan Popović, Szymon Rusinkiewicz, and Wojciech Matusik, “Dynamic Shape Reconstruction using Multi-View Photometric Stereo”, *ACM Transactions on Graphics (TOG) (Proceedings of ACM SIGGRAPH Asia 2009)*, Volume 28, Issue 5, Article 174, December 2009.
- (J16) Ying Song, Xin Tong, Fabio Pellacini, and Pieter Peers, “SubEdit: A Representation for Editing Measured Heterogeneous Subsurface Scattering”, *ACM Transactions on Graphics (TOG) (Proceedings of ACM SIGGRAPH 2009)*, Volume 28, Issue 3, Article 31, August 2009.
- (J17) Tim Weyrich, Pieter Peers, Wojciech Matusik, and Szymon Rusinkiewicz, “Fabricating Microgeometry for Custom Surface Reflectance”, *ACM Transactions on Graphics (TOG) (Proceedings of ACM SIGGRAPH 2009)*, Volume 28, Issue 3, Article 32, August 2009.
- (J18) Abhijeet Ghosh, Tongbo Chen, Pieter Peers, Cyrus A. Wilson, and Paul Debevec, “Estimating Specular Roughness and Anisotropy from Second Order Spherical Gradient Illumination”, *Computer Graphics*

Forum (Proceedings of the Eurographics Symposium on Rendering), Volume 28, Issue 4, pages 1161–1170, June 2009.

- (J19) Pieter Peers, Dhruv K. Mahajan, Bruce Lamond, Abhijeet Ghosh, Wojciech Matusik, Ravi Ramamoorthi, and Paul Debevec, “Compressive Light Transport Sensing”, *ACM Transactions on Graphics (TOG)*, Volume 28, Issue 1, Article 3, January 2009.
- (J20) Abhijeet Ghosh, Tim Hawkins, Pieter Peers, Sune Frederiksen, and Paul Debevec, “Practical Modeling and Acquisition of Layered Facial Reflectance”, *ACM Transactions on Graphics (TOG) (Proceedings of ACM SIGGRAPH Asia 2008)*, Volume 27, Issue 5, Article 139, December 2008.
- (J21) Wan-Chun Ma, Andrew Jones, Jen-Yuan Chiang, Tim Hawkins, Sune Frederiksen, Pieter Peers, Marko Vukovic, Ming Ouhyoung, and Paul Debevec, “Facial Performance Synthesis using Deformation-driven Polynomial Displacement Maps”, *ACM Transactions on Graphics (TOG) (Proceedings of ACM SIGGRAPH Asia 2008)*, Volume 27, Issue 5, Article 121, December 2008.
- (J22) Pieter Peers, Naoki Tamura, Wojciech Matusik, and Paul Debevec, “Post-Production Facial Performance Relighting using Reflectance Transfer”, *ACM Transactions on Graphics (TOG) (Proceedings of ACM SIGGRAPH 2007)*, Volume 26, Issue 3, Article 52, August 2007.
- (J23) Muath Sabha, Pieter Peers, and Philip Dutré, “Texture Synthesis using Exact Neighborhood Matching”, *Computer Graphics Forum*, Volume 26, Issue 2, pages 131–142, June 2007.
- (J24) Pieter Peers, Karl vom Berge, Wojciech Matusik, Ravi Ramamoorthi, Jason Lawrence, Szymon Rusinkiewicz, and Philip Dutré, “A Compact Factored Representation of Heterogeneous Subsurface Scattering”, *ACM Transactions on Graphics (TOG) (Proceedings of ACM SIGGRAPH 2006)*, Volume 25, Issue 3, pages 746–753, July 2006.
- (J25) Vincent Masselus, Pieter Peers, Philip Dutré, and Yves D. Willems, “Relighting with 4D Incident Light Fields”, *ACM Transactions on Graphics (TOG) (Proceedings of ACM SIGGRAPH 2003)*, Volume 22, Issue 3, pages 613–620, July 2003.

• **Internationally Refereed Conference Publications**

- (C1) Bo Dong, Kathleen D. Moore, Weiyi Zhang, and Pieter Peers, “Scattering Parameters and Surface Normals from Homogeneous Translucent Materials using Photometric Stereo”, *IEEE Conference on Vision and Pattern Recognition (CVPR)*, pages 2299 - 2306, June 2014.
- (C2) Murat Kurt, Aydin Ozturk, and Pieter Peers, “A Compact Tucker-Based Factorization Model for Heterogenous Subsurface Scattering”, *Conference on Theory and Practice of Computer Graphics (TPCG)*, September 2013.
- (C3) Giuseppe Claudio Guarnera, Pieter Peers, Paul Debevec, and Abhijeet Ghosh, “Estimating Surface Normals from Spherical Stokes Reflectance Fields”, *European Conference on Computer Vision (ECCV) – Workshop on Color & Photometry*, pages 340–349, October 2012.
- (C4) Cyrus A. Wilson, Oleg Alexander, Borom Tunwattanapong, Pieter Peers, Abhijeet Ghosh, Jay Busch, Arno Hartholt, and Paul Debevec, “Facial Cartography: Interactive High-Resolution Scan Correspondence”, *ACM/Eurographics Symposium on Computer Animation (SCA) 2011*, pages 205–214, August 2011.
- (C5) Bruce Lamond, Pieter Peers, Abhijeet Ghosh, Paul Debevec, “Image-based Separation of Diffuse and Specular Reflections using Environmental Structured Illumination”, *IEEE Computational Photography 2009*, April 2009.
- (C6) Wan-Chun Ma, Tim Hawkins, Pieter Peers, Charles-Felix Chabert, Malte Weiss, and Paul Debevec, “Rapid Acquisition of Specular and Diffuse Normal Maps from Polarized Spherical Gradient Illumination”, *Rendering Techniques 2007 (Eurographics Symposium on Rendering 2007)*, pages 183–194, June 2007.
- (C7) Thomas Koninckx, Pieter Peers, Philip Dutré, and Luc Van Gool, “Scene-adapted Structured Light”, *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR 2005)*, pages 611–618, June 20-25, 2005.

- (C8) Pieter Peers, and Philip Dutré, “Inferring Reflectance Functions from Wavelet Noise”, *Rendering Techniques 2005 (Eurographics Symposium on Rendering 2005)*, pages 173–182, June 2005.
- (C9) Vincent Masselus, Pieter Peers, Philip Dutré, and Yves D. Willems, “Smooth Reconstruction and Compact Representation of Reflectance Functions for Image-based Relighting”, *Rendering Techniques 2004 (Eurographics Symposium on Rendering 2004)*, pages 287–298, June 2004.
- (C10) Pieter Peers, and Philip Dutré, “Wavelet Environment Matting”, *Rendering Techniques 2003 (Eurographics Symposium on Rendering 2003)*, pages 157–166, June 2003.

- **Miscellaneous**

- (M1) Jérémy Riviere, Pieter Peers, and Abhijeet Ghosh, “Mobile Surface Reflectometry”, *ACM SIGGRAPH 2014*, Poster Presentation, August 2014.
- (M2) Yufeng Zhu, Pieter Peers, Paul Debevec, and Abhijeet Ghosh, “Estimating Diffusion Parameters from Polarized Spherical Gradient Illumination”, *ACM SIGGRAPH 2012*, Technical Talk, August 2012.
- (M3) Giuseppe Claudio Guarnera, Pieter Peers, Paul Debevec, and Abhijeet Ghosh, “Estimating Surface Normals from Spherical Stokes Reflectance Fields”, *ACM SIGGRAPH 2012*, Technical Talk, August 2012.
- (M4) Cyrus A. Wilson, Oleg Alexander, Borom Tunwattanapong, Pieter Peers, Abhijeet Ghosh, Jay Busch, Arno Hartholt, and Paul Debevec, “Facial Cartography: Interactive High-Resolution Scan Correspondence”, *ACM SIGGRAPH 2011*, Technical Talk, August 2011.
- (M5) Kaori Kikuchi, Bruce Lamond, Abhijeet Ghosh, Pieter Peers, and Paul Debevec, “Free-form Polarized Spherical Illumination Reflectometry”, *ACM SIGGRAPH Asia 2010*, Technical Sketch, December 2010.
- (M6) Cyrus A. Wilson, Abhijeet Ghosh, Pieter Peers, Jen-Yuan Chiang, Jay Busch, and Paul Debevec, “2D and 3D Facial Correspondences via Photometric Alignment”, *ACM SIGGRAPH 2009*, Technical Talk, August 2009.
- (M7) Abhijeet Ghosh, Tongbo Chen, Pieter Peers, Cyrus A. Wilson, and Paul Debevec, “Estimating Specular Roughness from Polarized Second Order Spherical Gradient Illumination”, *ACM SIGGRAPH 2009*, Technical Talk, August 2009.
- (M8) Wan-Chun Ma, Tim Hawkins, Pieter Peers, Charles-Felix Chabert, Malte Weiss, and Paul Debevec, “A High-Resolution Face-Scanning System Using Polarized Gradient Illumination”, *ACM SIGGRAPH 2007*, Technical Sketch, August 2007.
- (M9) Charles-Félix Chabert, Wan-Chun Ma, Tim Hawkins, Pieter Peers, and Paul Debevec, “Fast Rendering of Realistic Faces With Wavelength-Dependent Normal Maps”, *ACM SIGGRAPH 2007*, Poster Presentation, August 2007.
- (M10) Bruce Lamond, Pieter Peers, and Paul Debevec, “Fast Image-based Separation of Diffuse and Specular Reflections”, *ACM SIGGRAPH 2007*, Technical Sketch, August 2007.
- (M11) Philip Dutré, and Pieter Peers, “Wavelet Environment Matting”, *Hierarchical Methods in Computer Graphics*, Dagstuhl Seminar 03271, June 29–July 4, 2003.
- (M12) Pieter Peers, and Philip Dutré, “Accurate Image Based Re-lighting through optimization”, *13th Eurographics Workshop on Rendering*, Poster Presentation, June 2002.
- (M13) Pieter Peers, and Philip Dutré, “Accurate Image Based Re-lighting through optimization”, *ACM SIGGRAPH 2002*, Technical Sketch, July 2002.

- **Technical Reports**

- (T1) Hideshi Yamada, Pieter Peers, Paul Debevec, “Compact Representation of Reflectance Fields using Clustered Sparse Residual Factorization”, *ICT Technical Report*, ICT-TR-02-2009, June 17, 2009, ICT/USC, 11 pages.

- (T2) *Pieter Peers*, Dhruv K. Mahajan, Bruce Lamond, Abhijeet Ghosh, Wojciech Matusik, Ravi Ramamoorthi, Paul Debevec, “Compressive Light Transport Sensing”, *ICT Technical Report*, ICT-TR-05.2008, May 30, 2008, ICT/USC, 17 pages.
- (T3) Bruce Lamond, *Pieter Peers*, Paul Debevec, “Fast Image-based Separation of Diffuse and Specular Reflections”, *ICT Technical Report*, ICT-TR-02.2007, May 21, 2007, ICT/USC, 7 pages.
- (T4) *Pieter Peers*, Tim Hawkins, Paul Debevec, “A Reflective Light Stage”, *ICT Technical Report*, ICT-TR-04.2006, December 23, 2006, ICT/USC, 18 pages.
- (T5) *Pieter Peers* and Philip Dutré, “Update Rules for a Weighted Non-negative FH*G Factorization”, *Technical Report CW440*, Department of Computer Science, K.U.Leuven, April 2006, 7 pages.
- (T6) *Pieter Peers*, Vincent Masselus and Philip Dutré, “Free-form Acquisition of Shape and Appearance”, *Technical Report CW403*, Department of Computer Science, K.U.Leuven, February 2005, 18 pages.
- (T7) *Pieter Peers* and Philip Dutré, “Accurate Image Based Re-lighting through optimization”, *Technical Report CW336*, Department of Computer Science, K.U. Leuven, April 2002, 17 pages.

Patents

- (P1) #8,300,234, “Estimating spectral distribution of reflections from object surface based on low frequency illumination”, Oct. 30, 2012
- (P2) #8,988,599, “Illumination Sphere with Intelligent LED Lighting Units in Scalable Daisy Chain with Interchangeable Filters”, Mar. 31, 2015

Teaching Experience

- **(W&M) CSCI 427/527 - Fundamentals of Computer Graphics** Spring 2011-2016
A new course and syllabus.
- **(W&M) CSCI 420/680 - Introduction to Game Design and Game Development** Fall 2014, 2015
A new course and syllabus.
- **(W&M) CSCI 780 - Advanced Computer Graphics** Fall 2011, 2013, 2015
A new course and syllabus.
- **(W&M) CSCI 790 - Large Scale Scene Matching** Fall 2014
Reading class.
- **(W&M) CSCI 141 - Introduction to Computer Science** Fall 2013
Replaced instructor (Debbie Noonan) for 5 lectures.
- **(W&M) CSCI 790 - Advanced Global Illumination** Fall 2013
Reading class.
- **(W&M) CSCI 790 - Signal Processing for Rendering** Fall 2012
Reading class.
- **(W&M) CSCI 790 - Computer Vision** Spring 2012
Reading class.
- **(W&M) CSCI 780 - Topics in Computer Graphics** Fall 2010, 2012
A new course and syllabus.

- **(W&M) CSCI 790 - Polygon Mesh Processing** Spring 2011
Reading class.
- **(USC) CS 599 - Advanced Computer Graphics: Photographic Image Synthesis** Spring 2009-2010
(together with Prof. Paul Debevec, and Dr. Abhijeet Ghosh).
A new course and syllabus, highly rated by students.
- **(KUL) Practical Sessions Computer Graphics** 2000-2006
Designing and grading practical tests (approx. 60 students per year).
- **(KUL) Advanced Programming Structures** November 2005
Replaced Prof. Dr. ir. Yves D. Willems for a single lecture.
- **(KUL) Advanced Programming Structures** 2003-2005
Teaching of advanced programming techniques (practical sessions), such as backtracking. (approx. 45 students per year).
- **(KUL) Computer Graphics** October 2004
Replaced Prof. Dr. ir. Philip Dutré for a single lecture.
- **(KUL) Methodology of Computer Science** 2001-2004
Teaching of practical sessions on an introduction to JAVA.
Included the design and grading of practical tests (2 classes of 25 students per year).
- **(KUL) Structure and Organization of Computer Systems** 2000-2001
Teaching of practical sessions on an introduction to assembler languages. (3 classes of 25 students).

Honors, Prizes and Awards

- W&M Alumni Fellowship Award 2016

Professional Activities

- **Technical Program Chair**
 - Eurographic Symposium On Rendering (EGSR) 2014 (co-chair with Wojciech Jarosz).
- **Program Committees**
 - ACM Siggraph Asia 2013-2015.
 - ACM Siggraph Asia, Poster & Briefs, 2016
 - CGI 2011, 2015-2016.
 - ProCams 2011-2012.
 - Computational Cameras and Displays (CCD) 2013
 - VMV 2007 - 2009.
 - Eurographics (EG) 2009 - 2010, 2015.
 - Eurographics Symposium on Rendering (EGSR) 2009-2011, 2013, 2017.
 - Asian Conference on Computer Vision (ACCV) 2010, 2012, 2014, 2016.
 - Pacific Graphics 2013-2016.
 - SIBGRAPHI 2014-2016
- **Reviewing**
 - *Conference Reviewing*

- * ACM Siggraph 2004 - 2017.
- * ACM Siggraph Asia 2008 - 2016.
- * Eurographics Symposium on Rendering (EGSR) 2003 - 2013, 2015-2016.
- * Eurographics (EG) 2007 - 2017.
- * Vision, Modeling and Visualization (VMV) 2007 - 2009.
- * ProCams - 2011-2012.
- * Pacific Graphics (PG) 2006, 2013-2016.
- * Graphics Interface (GI) 2008.
- * IEEE International Conference on Computational Photography (ICCP) 2009.
- * Asian Conference on Computer Vision (ACCV) 2009-2012, 2014, 2016.
- *Journal Reviewing*
 - * ACM Transactions on Graphics (TOG).
 - * Computer Graphics Forum (CGF).
 - * IEEE Transactions on Visualization and Computer Graphics (TVCG).
 - * IEEE Transactions on Pattern Recognition and Machine Intelligence (PAMI)
 - * Pattern Recognition.
 - * Image and Vision Computing (IVC).
 - * Computer and Graphics (CAG).
 - * 3D Imaging, Processing and Modeling (SI:3D)

Professional Services

- Colloquium Committee (CSCI-W&M) Fall 2010 - Spring 2016
- Graduate Curriculum Committee (CSCI-W&M) Fall 2010 - Spring 2016
- Faculty Recruiting (CSCI-W&M) Fall 2013 - Spring 2016
- Committee for Natural and Comp. Sciences Thesis/Dissertation Awards (W&M) Spring 2012-2016
- Committee for Natural and Comp. Sciences Undergrad. Mentoring Award (W&M) Spring 2012-2016
- Freshmen Advising (W&M) Fall 2013-2016
- Graduate Research Symposium – Session Chair (W&M) Fall 2015
- Park Graduate Award Selection Committee (CSCI-W&M) Fall 2013-2015
- International Orientation Session - Speaker Accademic Culture (W&M) Summer 2013
- Committee for Thomas Jefferson Prize in Natural Philosophy (W&M) Fall 2013
- Graduate Admission Committee (CSCI-W&M) Fall 2010 - Spring 2013