Chris Wyman **Abbreviated CV**
chris.wyman@acm.org *For a resume format, visit my LinkedIn page* June 2018

Summary: Experienced researcher & teacher. Expertise in real-time computer graphics, incl. rendering, advanced light and material properties, efficient algorithms & data structures, GPU computing, VR, and applications of deep learning.

Education:

2004 PhD, Computer Science; University of Utah
1999 BS, Computer Science; BS, Mathematics; University of Minnesota

Employment:

Oct 2016 – Present	*Principal Research Scientist, NVIDIA*	*Redmond, WA*
Aug 2013 – Sept 2016	*Senior Research Scientist, NVIDIA*	*Redmond, WA*
May 2012 – Aug 2013	*Visiting Professor, NVIDIA*	*Salt Lake City, UT*
July 2010 – June 2014	*Associate Professor, University of Iowa*	*Iowa City, IA*
May 2011 – Dec 2011	*Contractor, SURVICE Engineering*	*Aberdeen, MD*
July 2004 – June 2010	*Assistant Professor, University of Iowa*	*Iowa City, IA*
Aug 1999 – June 2004	*Research Assistant, University of Utah*	*Salt Lake City, UT*
Sept 1997 – June 1999	*Teaching Assistant, University of Minnesota*	*Minneapolis, MN*
Summer 1998, '99, '01	*Teaching Assistant, Summer Science Program*	*Ojai, CA*

Refereed Journal Papers: (17)

Improved Alpha Testing Using Hashed Sampling, *IEEE Trans. Vis. Comput. Graph., to appear.*
Generating Stratified Random Lines in a Square, *Journal of Computer Graphics Techniques 6(2), 48-54.*
Towards Foveated Rendering for Gaze-Tracked Virtual Reality, *ACM Transactions on Graphics, 35(6), Article 179.*
Frustum-Traced Irregular Z-Buffers: Fast, Sub-pixel Accurate Hard Shadows, *IEEE Trans. Vis. Comput. Graph, 22(10), 2249-2261.*
CloudLight: A System for Amortizing Indirect Lighting in Real-Time Rendering, *Journal of Computer Graphics Techniques 4(4), 1-27.*
Adaptive Depth Bias for Shadow Maps, *Journal of Computer Graphics Techniques 3(4), 146-162.*
Analytic Fits for the CIE XYZ Color Matching Functions, *Journal of Computer Graphics Techniques 2(2), 1-11.*
Non-Pinhole Approximations for Interactive Rendering, *IEEE Computer Graphics & Applications 31(6), 33-40.*
Interactive, Multiresolution Image-Space Rendering for Dynamic Area Lights, *Computer Graphics Forum 29(4), 1279-1288.*
The General Pinhole Camera: Effective and Efficient Non-Uniform Sampling, *IEEE Trans. Vis Comput. Graph. 16(5), 777-790.*
Interactive Indirect Illumination Using Multiresolution Adaptive Splatting, *IEEE Trans. Vis. Comput. Graph. 16(5), 724-741.*
Hierarchical Image-Space Radiosity for Interactive Global Illumination, *Computer Graphics Forum 28(4), 1141-1149.*
Adaptive Caustic Maps Using Deferred Shading, *Computer Graphics Forum 28(2), 309-318.*
Improving Image-Space Caustics via Variable-Sized Splatting, *Journal of Graphics Tools 13(1), 1-17.*
Interactive Display of Isosurfaces with Global Illumination, *IEEE Trans. Vis. Comput. Graph. 12(2), 186-196.*
The Halfway Vector Disk for BRDF Modeling, *ACM Transactions on Graphics 25(1), 1-18.*
An Approximate Image-Space Approach for Interactive Refraction, *ACM Transactions on Graphics 24(3), 1050-1053.*

Refereed Conference Papers: (20)

Correlation-Aware Semi-Analytic Visibility for Antialiased Rendering, *2018 Symp. on High Performance Graphics (to appear)*.
Spatiotemporal Variance-Guided Filtering: Real-Time Reconstruction for Path Traced Global Illumination, *2017 Symp. on High Performance Graphics, Article 2.*
Hashed Alpha Testing, *2017 Symp. on Interactive 3D Graphics and Games, Article 7.*
Exploring and Expanding the Continuum of OIT Algorithms, *2016 Symp. on High Performance Graphics, 1-11.*
Decoupled Coverage Anti-aliasing, *2015 Symp. on High Performance Graphics, 33-42.*
Frustum-Traced Raster Shadows: Revisiting Irregular Z-Buffers, *2015 Symp. on Interactive 3D Graphics and Games, 15-23.*
Adaptive Depth Bias for Shadow Maps, *2014 Symp. on Interactive 3D Graphics and Games, 97-102.*
Imperfect Voxelized Shadow Volumes, *2013 Symp. on High Performance Graphics, 45-52.*
Efficient Rendering of Anatomical Tree Structures Using Geometry Proxies, *2013 Int'l Symp on Biomedical Imaging, 206-209.*
Voxelized Shadow Volumes, *2011 Symp. on High Performance Graphics, 33-40.*
Interactive Visualization of Hospital Contact Network Data on Multi-Touch Displays, *2010 MexiHC, 15-22.*
Multiresolution Splatting for Indirect Illumination, *2009 Symp. on Interactive 3D Graphics and Games, 83-90.*
Interactive Volumetric Shadows in Single-Scattering Media, *2008 Symp. on Interactive Ray Tracing, 87-92.*
Hierarchical Caustic Maps, *2008 Symp. on Interactive 3D Graphics and Games, 163-171.*
The Soft Shadow Occlusion Camera, *2007 Pacific Graphics, 189-198.*
Interactive Refractions with Total Internal Reflection, *2007 Graphics Interface, 185-190.*
Interactive Image-Space Techniques for Approximating Caustics, *2006 Symp. on Interactive 3D Graphics and Games, 153-160.*

Interactive Image-Space Refraction of Nearby Geometry, *2005 GRAPHITE, 205-211.*
Interactive Caustics Using Local Precomputed Irradiance, *2004 Pacific Graphics, 143-151.*
Penumbra Maps: Approximate Soft Shadows in Real Time, *2003 Eurographics Symposium on Rendering, 202-207.*

Book Chapters: (3)

Fast, Stencil-Based Multiresolution Splatting for Indirect Illumination, *in GPU Pro, AK Peters, 199-214.*
A Hybrid Method for Interactive Shadows in Homogeneous Media, *in Shader X7, Charles River Media, 331-344.*
Interactive Refractions and Caustics Using Image-Space Techniques, *in Shader X5, Charles River Media, 359-371.*

Co-Edited Proceedings: (4)

Proceedings of the 2017 ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games. ISBN 978-1-4503-4886-7
Proceedings of the 2016 ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games. ISBN 978-1-4503-4043-4
Proceedings of the 2011 ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games. ISBN 978-1-4503-0565-5
Proceedings of the 2010 ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games. ISBN 978-1-60558-939-8

Patents: (3)

System, method, and computer program for performing object-space shading. US Patent #9,747,718
System, method, and computer program product for shading using a dynamic object-space grid. US Patent #9,754,407
System, method, and computer program product for computing indirect lighting in a cloud network. US Patent #10,008,034

Publicly Available US Patent Applications: (4)

System and method for computing gathers using a single-instruction multiple-thread processor. US 20150221123 A1
Image illumination rendering system and method. US 20140375659 A1
Frustum tests for sub-pixel shadows. US 20160203635 A1
Perceptually-based foveated rendering using a contrast-enhancing filter. US 20170263046 A1

Grants: As faculty at Univ. of Iowa, received $900,000+ contract/grant funding as sole PI and an add'l $500,000+ with others.

Research Dissemination: Presented over 15 talks internationally and 40 talks domestically. Research code available online.

Advised Graduate Students (at University of Iowa):

Greg Nichols (PhD 2010), Noah Abrahamson (MS 2008), Zeng Dai (MS 2014), Scott Davis (MS 2007), Hang Dou (MS 2013), Ethan Kerzner (MS 2013), Qi Mo (MS 2007), Rajeev Penmatsa (MS 2012), Yajie Yan.

Supervised Interns (at NVIDIA):

Yuxiang Wang (2014), Ian Mallett (2015), Christoph Peters (2017)

Supervised Undergraduate Researchers (at University of Iowa):

Ethan Kerzner, Maranda Franke, Bruce Davis.

External Committee Member / Faculty Opponent:

Markus Billeter, 5/2014 (Chalmers University)

Major Conference Organization:

ACM SIGGRAPH
2013: General Submissions & Unified Jury Chair; **2012:** Late Breaking Submissions & Jury Chair;
2011: Research Section & Posters Chair
ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games
2010 & 2016: Conference Co-Chair; **2011 & 2017:** Papers Co-Chair; **2009 & 2015:** Posters Chair
Eurographics
2018: Industry Co-Chair

Editorial Boards:

J. Computer Graphics Techniques (2012-'17), *Computer Graphics Forum* (2011-'14), *J. Graphics Tools* (2008-'12)

Grant Reviews: National Science Foundation, US Army Research Office, Nebraska Research Institute, Fonds Wetenschappelijk Onderzoek

Faculty Promotion and Tenure Letters: One in 2016.

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International Program Committees:

ACM SIGGRAPH General Submissions Jury 2010-'13,'15-'16; ACM SIGGRAPH Late Breaking Jury 2010-'13,'15; ACM SIGGRAPH Posters Committee 2006, '16, '18; ACM SIGGRAPH Asia Technical Briefs Committee 2016-'18; ACM SIGGRAPH Asia Workshops Committee 2017; ACM Symposium on Interactive 3D Graphics and Games 2006, '08-09, '12-'15, '18; Eurographics 2006, '08-'09, '18; Eurographics Short Papers 2009; Eurographics Symposium on Rendering 2009-'11,'15-'16; Graphics Interface 2009-'10,'17; High Performance Graphics 2012, '17-'18; International Symposium on Visual Computing 2009-'10; Pacific Graphics 2006-'08, '11, '13-'18; Vision, Modeling and Visualization 2004-'06.

Book Reviews: Addison-Wesley, CRC Press, Elsevier, Morgan & Claypool, Prentice Hall

Paper Reviewer:

ACM Transactions on Graphics (ToG), Computer Graphics Forum (CGF), IEEE Transactions on Visualization and Computer Graphics (TVCG), Journal of Computer Graphics Techniques (JCGT), Journal of Graphics Tools (JGT), Journal of Zhejiang University Science, The Visual Computer, Computers & Graphics (C&G), Symposium on High Performance Graphics (HPG), ACM SIGGRAPH, ACM SIGGRAPH Asia, Symposium on Interactive 3D Graphics and Games (I3D), Symposium on Principles and Practice of Parallel Programming (PPoPP), Symposium on Virtual Reality Software and Technology (VRST), Eurographics (EG), Eurographics Symposium on Rendering (EGSR), Graphics Interface (GI), IEEE EIT, IEEE Visualization, International Symposium on Visual Computing (ISVC), Pacific Graphics (PG), Vision Modeling and Visualization (VMV).

Honors:

Best papers: HPG 2017 (1st), I3D 2015 (1st), IEEE CG&A 2011 (2nd), HPG 2016 (2nd), HPG 2011 (3rd), HPG 2015 (3rd), I3D 2009 (top 4); *Best Presentation*: I3D 2015 (1st); *Other Technical Awards:* 2016 Laval Virtual Award (from SIGGRAPH E-Tech); *Member:* 2009 DARPA Computer Science Study Group; *Educational Support:* University of Utah Wayne Brown Fellowship, WalMart Competitive Edge Scholarship, National Merit Scholarship

Miscellaneous: *Admissions Committee*, Summer Science Program 2010-'18 (http://www.summerscience.org)