Wojciech Jarosz

Associate Professor of Computer Science

Dartmouth College | Engineering and Computer Science Center, HB 6211, 15 Thayer Drive, Hanover, NH 03755
wojciech.k.jarosz@dartmouth.edu | cs.dartmouth.edu/~wjarosz | Google scholar profile
github.com/wkjarosz | bitbucket.org/wkjarosz | @wkjarosz | orcid.org/0000-0002-1652-0954

Academic Appointments

Associate Professor — July 2020 – Present
Assistant Professor — July 2015 – June 2020
Dartmouth College — Hanover, NH, USA
Department of Computer Science

Research Interests

My research is concerned with deriving *theoretical models* and developing *computational algorithms* for efficiently capturing, simulating, manipulating, and physically realizing complex visual appearance. In effect, I strive to understand why things look the way they do, how we can simulate their interaction with light efficiently, how we can intuitively author or edit that appearance, and how we can create physical objects with control over their appearance. My publications explore practical applications in several overlapping areas in computer graphics including: participating media rendering, appearance editing & stylization, complex illumination and materials, global illumination, Monte Carlo methods and efficient sampling, high-dynamic range imaging; and computational materials and displays.

Education

Ph.D. in Computer Science — Aug. 2003 – Sep. 2008
M.S. in Computer Science — March 2006
University of California, San Diego
Advisors: Henrik Wann Jensen & Matthias Zwicker
Efficient Monte Carlo Methods for Light Transport in Scattering Media

B.S. in Computer Science — May 2003
University of Illinois, Urbana–Champaign
Highest Honors
Advisors: John C. Hart & Michael Garland
Interactive Global Illumination for Improved Lighting Design Workflow

Employment History

Sr. Research Scientist — Jan. 2014 – Jun. 2015
Research Scientist — Sep. 2010 – Dec. 2013
Post-Doc — March 2009 – Sep. 2010
Disney Research — Zürich, Switzerland
Head of Rendering Group
The Walt Disney Company (Switzerland) GmbH
Supervisor: Markus Gross

Adjunct Lecturer — August 2009 – June 2015
ETH Zürich — Zürich, Switzerland
Department of Computer Science

Post-Doc — Oct. 2008 – Feb. 2009
University of California, San Diego
Department of Computer Science & Engineering
Supervisor: Henrik Wann Jensen

Research Intern — Summer 2008
Adobe Software Systems — San Jose, CA
Advanced Technology Labs
Supervisor: Nathan Carr

Research Intern — Summers of 2003, 2005, 2006
Industrial Light & Magic — San Francisco, CA
R&D Group
Supervisor: Florian Kainz

Student Researcher — June 2001 – June 2003
University of Illinois, Urbana–Champaign
Department of Computer Science
Supervisor: John C. Hart

Crafted with love in XeLaTeX. Last updated October 8, 2023.

Honors & Awards

National Science Foundation CAREER Award
2019

Awarded to ∼100 junior computer science faculty/year. The NSF's most prestigious awards in support of junior faculty who exemplify the role of teacher-scholars through outstanding research, excellent education and the integration of education and research.

Eurographics Young Researcher Award
2013

The most prestigious early career award for European researchers in computer graphics: "*given each year to two young researchers in the field who have already made a significant contribution. The intent of this award is to recognize people early on in their career who have already made a notable contribution and are likely to make more.*" See dartgo.org/jarosz-eg-award.

C. Troy Shaver 1969 Fellowship
2020-2021

Dartmouth College

Dartmouth Junior Faculty Fellowship
Spring2019

SIGGRAPH Best Paper Honorable Mention
2022

For the paper [J5]: "Grid-free Monte Carlo for PDEs with spatially varying coefficients", 2022.

Pacific Graphics Best Paper Award
2015

For the paper [J36]: "Dispersion-based Color Projection using Masked Prisms", 2015.

UCSD Rendering Competition, 1st Place
2004

Won a trip to SIGGRAPH 2004 for rendering a realistic scene using a personally-written renderer for CSE 168.

Karen E. Wetterhahn Memorial Award
2020-2021

for Distinguished Creative or Scholarly Achievement

Dartmouth College

Computer Graphics Forum Cover Images
2015, 2017

Winning images are used on the cover of *Computer Graphics Forum* journal for the duration of the year. Co-authors of the 2015 image are J. Křivánek, M. Sik, I. Georgiev, T. Hachisuka, P. Vevoda, D. Nowrouzezahrai and W. Jarosz. Co-authors of the 2017 image are A. Marra, M. Nitti, M. Papas, T. Müller, M. Gross, W. Jarosz and J. Novák.

CRA Outstanding Undergraduate Award
2003

Honorable Mention

UIUC Dean's List
Fall 1999 – Spring 2003

Funding

Current funding

- $ NASA, Future Investigators in NASA Earth and Space Science Technology. ($100K), Sole-PI with Kate Salesin as FI). 2023–2025
  Differentiable polarimetric rendering for remote sensing
- $ National Science Foundation, CAREER. ($550K), Sole-PI. July 2019–June 2024
  Automatic and general light transport algorithms for use by humans and machines
- $ NVIDIA Corp. Unrestricted Gift. ($75K), Sole-PI. 2020, 2022
- $ Autodesk/Solid Angle Corp. Unrestricted Gift. ($245K), Sole-PI. 2017–2021
- $ Adobe Systems Inc. Unrestricted Gift. ($10K), Sole-PI. 2022

Past funding

- $ NASA, Goddard Space Flight Center (GSFC). ($104K), Sole-PI. 2022–2023
  Differentiable polarimetric rendering for remote sensing
- $ NVIDIA Corp. Hardware donation for CS 87/287 rendering competition grand prize ($9,500 value). 2019, 2021, 2022
- $ National Science Foundation, Information and Intelligent Systems. ($495K), Sole-PI. August 2018–July 2021
  Higher-Order Monte Carlo Samples for Computer Graphics Rendering
- $ Burke Award. ($25K), Sole-PI. 2015–2021
- $ Neukom Institute CompX Faculty Grant. (compute cluster resources). Sole-PI. 2020
  Computational appearance matching of translucent materials
- $ Activision Corp. Unrestricted Gift. ($45K), Sole-PI. 2017, 2018, 2019
- $ Microsoft Corp. Azure Research Award. ($20K), Sole-PI. September 2017–September 2018
- $ Dartmouth CS Department Equipment Grant. ($14K), Co-PI with Devin Balkcom. 2017
  ABB Robotics - IRB 120 multipurpose industrial robot arm

$ Microsoft Corp. HoloLens Research Grant. ($100K), Co-PI with Emily Cooper and Xing-Dong Yang. 2016–2017
Augmenting Reality for the Visually Impaired

$ NVIDIA Corp. Hardware gift. October 2017

Research Impact

OpenEXR

openexr.org

I designed and implemented tiled/multi-resolution image support as well as multi-threading in the OpenEXR high-dynamic range image format and library while working at Industrial Light & Magic. The work was funded by a grant from The Academy of Motion Picture Arts and Sciences. These features were first used in *Star Wars Episode III: Revenge of the Sith* and have since been adopted by all major film renderers (RenderMan, Arnold, etc.) and commercial image editing packages (Photoshop, etc.). OpenEXR is now the de-facto standard high-dynamic range image file format for professional film production, having been used in hundreds of films.

Academy Award of Technical Achievement (Technical Oscar)

dartgo.org/openexr-oscar

My contributions to OpenEXR were recognized in an Academy Award of Technical Achievement in 2007, awarded to Florian Kainz: "*Widely adopted, OpenEXR is engineered to meet the requirements of the visual effects industry by providing for lossless and lossy compression of tiered and tiled images.*"

Rendering Software

My research has been incorporated into commercial, proprietary and open-source rendering tools.

Pixar's *RenderMan* renderman.pixar.com
Hierarchical sample warping [J72] for importance sampling environment maps, photon beams [J63], residual ratio tracking [J44] and unified points, beams & paths [J45] for participating media, and photon beam diffusion [J50] for subsurface scattering have all been incorporated into RenderMan.

Disney's *Hyperion* dartgo.org/hyperion
Residual ratio tracking [J44] for participating media has also been incorporated into Disney's proprietary renderer *Hyperion*—used to produce all of Disney's animated films since *Big Hero 6*.

PBRT pbrt.org
Several of the techniques developed in my research (including photon beam diffusion [J50] and residual ratio tracking [J44]) have been incorporated into the open-source *PBRT* rendering system, which is a standard rendering framework used in hundreds of academic publications.

Radiance radiance-online.org
Our Hessian-based irradiance caching technique [J52] is part of the *Radiance* architectural lighting simulation system.

Movie Credits

dartgo.org/jarosz-imdb

I have worked on, and been credited in a number of feature films for my contributions to computer graphics research.

Big Hero 6 2014
"Senior Research Scientist (Disney Research)"
For co-developing (with Jan Novák and Andrew Selle) the residual ratio tracking technique [J44] used to render the fog, clouds, and other volumetric effects throughout the film.

Planes: Fire & Rescue 2014
"Research Scientist (Disney Research)"
For contributing (with Dr. Ralf Habel) a method for artist-tunable but physically based, secondary motion of trees.

Frozen 2013
"Research Scientist (Disney Research)"
While researching the appearance of granular materials [J37], we took measurements (along with Dr. Marios Papas & Dr. Ralf Habel) of real snow using our custom capture device [J49], leading to the improved realism of all snow and ice in the film.

Tangled 2010
"Research Scientist (Research)"
For co-developing (with Andrew Selle, Dylan Lacewell, and Jared Johnson) the artistic volumetric lighting system [J60] used for two shots in the film, including the climactic revival sequence.

Supervision

Current Ph.D. Students

Alexander DeJournett, PhD 2021–Present
Katherine Salesin, PhD 2018–Present
NASA PhD Fellowship awardee (2022-Present)
Dario Seyb, PhD 2018–Present
Zack Misso, PhD 2017–Present
Facebook PhD Fellowship awardee (2020-2022)

Past Ph.D. Students and Postdocs

Benedikt Bitterli, PhD (now @ NVIDIA) 2016–2021
Correlations and Reuse for Fast and Accurate Physically Based Light Transport
NVIDIA Graduate Fellowship awardee (2020-2021)

Shaojie Jiao, PhD 2018–2022
left the program

Srinath Ravichandran, PhD (now @ SideFx) 2015–2017
left the program with a Masters

Other Ph.D. Dissertation Committees

- Tizian Zeltner, PhD (EPFL) — 2021
  - *Light Path Gradients for Forward and Inverse Rendering*
- Iliyan Georgiev, PhD (Saarland University) — 2015
  - *Path Sampling Techniques for Efficient Light Transport Simulation*
- Jan Novák, PhD (Karlsruhe Institute of Technology) — 2014
  - *Efficient Many-Light Rendering of Scenes with Participating Media*
- Laurent Belcour, PhD (Université de Grenoble) — 2012
  - *A Frequency Analysis of Light Transport*
- Adolfo Muños, PhD (Universidad de Zaragoza) — 2010
  - *Light Transport in Participating Media*

Ph.D. Habilitation Committees

- Cyril Soler (Université de Grenoble) — June 2014
  - *Models and Analyses for Image Synthesis*

Bachelor Theses/Projects

- Tanli Su — 2021–2022
  - *Computational Modeling of Snow Light Transport*
- Yusuf Olokoba — 2019–2020
  - *Deep Bilateral Exposure Fusion*
- Neerja Thakkar — 2018–2019
  - *Rendering for Depth: A Dataset and Analysis of Physically-Based Rendering Algorithms for Training Monocular Depth Prediction*
- Afnan Enayet — 2018–2019
  - *Orthogonal Array Sampling for Monte Carlo Based Rendering*
- Bailey Miller — 2017–2018
  - *A Null Path Integral Formulation for Volumetric Rendering of Heterogenous, Spectral Media*
- George J. Hito — 2017–2018
  - *Overlaying Virtual Scale Models on Real Environments Without the Use of Peripherals*
- Jonathan Huang — 2016–2017
  - *A HoloLens Application to Aid People who are Visually Impaired in Navigation Tasks*
- Simon Kallweit — 2013
  - *Photon Beam Methods in Rendering*
- Benedikt Bitterli — 2012–2013
  - *BSSRDF Explorer: A Rendering Framework for the BSSRDF*
- Jakob Progsch — 2012–2013
  - *BRDF Fitting using Nonlinear Optimization Methods*
- Sebastien Millius — 2011
  - *Fabrication Method Analysis for Goal-Based Caustics Surfaces*
- Adrian Blumer — 2011
  - *Visibility Silhouette Level-of-Detail*

Interns

- Adrian Blumer — Fall 2014
- David Koerner — Fall 2014
- Hugo Loi — Summer 2014
- Oliver Klehm — Summer 2014
- Rafael Hostettler — Summer 2014
- Simon Kallweit — Summer 2014
- Nicolas Vibert, visiting PhD from McGill — Fall 2017
- Gurprit Singh, Postdoc (now @ MPI) — 2015–2017
- Marios Papas, PhD (now @ Disney Research) — 2011–2016
  - *A computational appearance fabrication framework, and derived applications*
- Romain Prévost, PhD — 2013–2016
  - *Physics-based optimization for assisted creation of tangible artifacts*
- Fabrice Rousselle, Postdoc (now @ NVIDIA Research) — 2014–2015
- Jan Novák, Postdoc (now @ NVIDIA Research) — 2014–2015
- Ralf Habel, Postdoc (now @ Disney Animation) — 2012–2014
- Derek Nowrouzezahrai, Postdoc (now Prof. @ McGill) — 2010–2011
- Christian Regg, PhD — 2010–2011

Masters Theses

- Zihong Zhou — 2023–Present
- Ruomai Yang — 2023–Present
- Ziyuan Qu — 2023–Present
- Ziyi Zhou — 2023–Present
- Eammon Littler — 2021–2022
  - *Automated Filament Inking for Multi-color FFF 3D Printing*
- Yang Liu — 2021–2022
  - *Temporally sliced photon primitives for volumetric time-of-flight rendering*
- Yang Qi — 2021–2022
  - *A bidirectional formulation for walk on spheres*
- Hsu (Carter) Cheng — 2020–2021
  - *Line Sampling in Participating Media*
- Hannes Hergeth, visiting M.S. from Aachen — 2019
  - *Higher Dimensional Photon Primitives for Surface Illumination*
- Annie Dai — 2018–2019
  - *Computational Fabrication - String Art*
- Xi Deng — 2017–2019
  - *Photon Surfaces: Rendering volume robustly with unbiased density estimators*
- Shaojie Jiao — 2017–2018
  - *Photon Surfaces: Volumetric light transport using multiple importance sampled 2D photon samples*
- Thomas Müller — 2015–2016
  - *Modeling and Rendering Heterogeneous Granular Materials*
- Benedikt Bitterli — 2015
  - *Informed Choices in Primary Sample Space*
- Adrian Blumer — 2013–2014
  - *Modular Radiance Transfer for Trees*
- Romain Prévost — 2012–2013
  - *A Multi-Layering Framework for Raytraced Diffusion Curves*
- Jorge Schwarzhaupt (now @ Weta Digital) — 2011–2012
  - *Occlusion-Aware Hessians for Error Control in Irradiance Caching*
- Marina Späni — 2011–2012
  - *Rendering Dynamic Objects in Dynamic Environments*
- Thomas Houit — 2011–2012
  - *The Magic Lens: Refractive Steganography*
- Thomas Siegrist — 2011–2012
  - *Stereoscopic Perception of Material Reflectance*
- Michael Morandi — 2011–2012
  - *Directional Occlusion Volumes*

- Benedikt Bitterli — 2014
- Shuoran Yang — 2014
- Károly Zsolnai — Summer 2013
- Johannes Meng (now @ Weta Digital) — Summers 2012, 2013
- Iliyan Georgiev (now @ Adobe) — Summer 2012
- Jan Novák (now @ NVIDIA) — Summers 2011, 2012
- Wenzel Jakob (now Prof. @ EPFL) — 2010–2011
- Robert Thomas — Summer 2010
- Marios Papas (now @ Disney Research) — Summer 2010
- Jared M. Johnson (now @ Google) — Summer 2010
- Derek Nowourzezahrai (now Prof. @ McGill) — Summer 2009

- Philipp Keller — 2011
  - *Manufacturing Layered Attenuators for Multiple Prescribed Shadow Images*
- Silvan Tschopp — 2011
  - *Facial Performance Appearance Capture and Rendering*
- Stefan Geiger — 2010–2011
  - *An Immersive 3D Augmented Reality Lens*
- Benjamin Müller — 2010–2011
  - *Analytic Lighting in the Presence of Participating Media*
- Pascal Goffin — 2009–2010
  - *Fast Ray Tracing of Line Primitives*

Teaching

Professor, Department of Computer Science, Dartmouth College — Fall 2015 – Present

- *Sabbatical leave* — Spring 2024
- *Sabbatical leave* — Winter 2024
- *Sabbatical leave* — Fall 2023

- COSC 77/277: Computer Graphics — Spring 2023
- COSC 70: Foundations of Applied Computer Science — Winter 2023
- COSC 87/287: Rendering Algorithms — Fall 2022

- COSC 77/277: Computer Graphics — Spring 2022
- COSC 70: Foundations of Applied Computer Science — Winter 2022
- COSC 87/287: Rendering Algorithms — Fall 2021

- COSC 1: Introduction to Programming and Computation — Spring 2021
- COSC 70: Foundations of Applied Computer Science — Winter 2021
- COSC 73/173: Computational Aspects of Digital Photography — Fall 2020

- COSC 70: Foundations of Applied Computer Science — Spring 2020
- COSC 77/177: Computer Graphics — Winter 2020
- COSC 87/187: Rendering Algorithms — Fall 2019

- *Junior Faculty Fellowship* — Spring 2019
- COSC 11: Foundations of Applied Computer Science — Winter 2019
- COSC 77/177: Computer Graphics — Fall 2018

- COSC 87/187: Rendering Algorithms — Spring 2018
- COSC 89.15/189.02: Computational Aspects of Digital Photography — Winter 2018
- COSC 77/177: Computer Graphics — Fall 2017

- COSC 87/187: Rendering Algorithms — Spring 2017
- *Free term* — Winter 2017
- COSC 77/177: Computer Graphics — Fall 2016

- COSC 87/187: Rendering Algorithms — Spring 2016
- *Parental leave* — Winter 2016
- COSC 89.15/189.5: Computational Aspects of Digital Photography — Fall 2015

Lecturer, Department of Computer Science, ETH Zürich, Switzerland — Fall 2009 – Spring 2015

- 252-5705-00G: Image Synthesis (with Wenzel Jakob) — Spring 2015
- 252-5705-00G: Image Synthesis — Spring 2014
- 252-5705-00G: Image Synthesis — Spring 2013

- 252-5705-00G: Image Synthesis — Spring 2012
- 252-0543-01L: Computer Graphics (with Alex Hornung & Ilya Baran) — Fall 2010
- 252-0543-01L: Computer Graphics (with Alex Hornung) — Fall 2009

Teaching Assistant, Dept. of Computer Science & Engineering, UC San Diego — Fall 2005 – Spring 2008

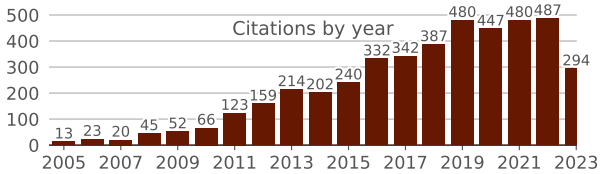
- CSE 168: Rendering Algorithms (teaching assistant, guest lecturer) — Spring 2008
- CSE 168: Rendering Algorithms (teaching assistant, guest lecturer) — Spring 2007
- CSE 168: Rendering Algorithms (teaching assistant, guest lecturer) — Spring 2006
- CSE 169: Computer Animation (teaching assistant) — Winter 2006
- CSE 167: Introduction to Computer Graphics (teaching assistant) — Fall 2005
- CSE 168: Rendering Algorithms (teaching assistant, guest lecturer) — Spring 2005

Publications

Publication Impact: total citations: 4,258

***h*-index: 42; i100-index: 11; i10-index: 81**

h-index = largest number *h* such that *h* publications have at least *h* citations.
i*N*-index = number of publications with at least *N* citations.
Citation statistics according to Google Scholar as of September 2023.



Below you can find a list of my academic publications and patents (separated by type and sorted by year), along with links to accompanying project pages, direct PDF downloads, and approximate citation counts scraped from my Google Scholar ***profile***.

Notation:
Bold underline author: **Self**.
Bold authors with superscripts: **Postdoc**§, **PhD**‡, **MS**†, **BS***, and **intern**ⁱ advisees at the time work was performed.
SIGGRAPH publications also in bold.

Edited Issues & Volumes

[E1] **W. Jarosz** and P. Peers, eds. *Proceedings of the Eurographics Symposium on Rendering 2014*. Vol. 33. Computer Graphics Forum 4. June 2014.

[E2] D. Gutierrez and **W. Jarosz**, eds. *Scattering: Acquisition, Modeling, and Rendering*. Vol. 33. IEEE Computer Graphics and Applications 3. Los Alamitos, CA, USA: IEEE Computer Society, May 2013. DOI: 10.1109/MCG.2013.46.

Theses

[T1] **W. Jarosz**. "Efficient Monte Carlo Methods for Light Transport in Scattering Media". PhD thesis. La Jolla, CA, USA: UC San Diego, Sept. 2008. ISBN: 978-0-549-72071-3. citations: 97.

[T2] **W. Jarosz**. "Interactive Global Illumination for Improved Lighting Design Workflow". Bachelors thesis. University of Illinois, Urbana–Champaign, Jan. 2002. webpage, pdf.

Peer-Reviewed Journal Articles

[J1] J. Kim, I. Gkioulekas, **W. Jarosz**, and A. Pediredla. "Doppler Time-of-Flight Rendering". In: ***ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia)*** (Nov. 2023). DOI: 10 . 1145 / 3618335. Awaiting publication. webpage, pdf.

Peer-Reviewed Conference Papers

[P1] **Z. Misso**‡, Y. K. Li, B. Burley, D. Teece, and **W. Jarosz**. "Progressive null-tracking for volumetric rendering". In: *ACM SIGGRAPH Conference Papers*. July 2023. DOI: 10/kmdw. webpage, pdf.

[P2] **E. Littler**†, B. Zhu, and **W. Jarosz**. "Automated Filament Inking for Multi-color FFF 3D Printing". In: *ACM Symposium on User Interface Software and Technology (UIST)*. Oct. 2022. DOI: 10/jjp9. webpage, pdf, citations: 5.

[P3] **K. Salesin**‡, **D. Seyb**‡, **S. Friday**‡, and **W. Jarosz**. "DIY hyperspectral imaging via polarization-induced spectral filters". In: *International Conference on Computational Photography (ICCP)*. Aug. 2022. DOI: 10/jgzs. webpage, pdf, citations: 1.

[P4] A. Dubouchet, P.-P. Sloan, **W. Jarosz**, and D. Nowrouzezahrai. "Impulse responses for precomputing light from volumetric media". In: *Proceedings of the Eurographics Symposium on Rendering (EGSR)*. The Eurographics Association, July 2019. DOI: 10 / gf6rx8. webpage, pdf, citations: 2.

[P5] L. Maguire, **M. Papas**‡, **W. Jarosz**, P. Fox, G. Dicinoski, and M. Olivares. "The modelling of caustics to produce a projection image". In: *Optical Security Documents Conference*. Jan. 2018. webpage, pdf.

[J2] **Y. Liu**[†], **S. Jiao**[‡], and **W. Jarosz**. "Temporally sliced photon primitives for time-of-flight rendering". In: Computer Graphics Forum (Proceedings of EGSR) 41.4 (July 2022). ISSN: 1467-8659. DOI: 10/jgzq. webpage, pdf.

[J3] **Z. Misso**[‡], **B. Bitterli**[‡], I. Georgiev, and **W. Jarosz**. "Unbiased and consistent rendering using biased estimators". In: ***ACM Transactions on Graphics (Proceedings of SIGGRAPH)*** 41.4 (July 2022). DOI: 10/gqjn66. webpage, pdf, citations: 6.

[J4] **Y. Qi**[†], **D. Seyb**[‡], **B. Bitterli**[‡], and **W. Jarosz**. "A bidirectional formulation for Walk on Spheres". In: Computer Graphics Forum (Proceedings of EGSR) 41.4 (July 2022). ISSN: 1467-8659. DOI: 10/jgzr. webpage, pdf, citations: 7.

[J5] R. Sawhney, **D. Seyb**[‡], **W. Jarosz**, and K. Crane. "Grid-free Monte Carlo for PDEs with spatially varying coefficients". In: ***ACM Transactions on Graphics (Proceedings of SIGGRAPH)*** 41.4 (July 2022). DOI: 10 / gqjn65. webpage, pdf, citations: 7. **Best Paper (Honorable Mention)**

[J6] **B. Bitterli**[‡], C. Wyman, M. Pharr, P. Shirley, A. Lefohn, and **W. Jarosz**. "Spatiotemporal reservoir resampling for real-time ray tracing with dynamic direct lighting". In: ***ACM Transactions on Graphics (Proceedings of SIGGRAPH)*** 39.4 (July 2020). DOI: 10/gg8xc7. webpage, pdf, citations: 87.

[J7] **D. Seyb**[‡], P.-P. Sloan, A. Silvennoinen, M. Iwanicki, and **W. Jarosz**. "The design and evolution of the UberBake light baking system". In: ***ACM Transactions on Graphics (Proceedings of SIGGRAPH)*** 39.4 (July 2020). DOI: 10/gg8xc9. webpage, pdf, citations: 19.

[J8] **B. Bitterli**[‡] and **W. Jarosz**. "Selectively Metropolised Monte Carlo light transport simulation". In: ***ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia)*** 38.6 (Nov. 2019). DOI: 10/dffp. webpage, pdf, citations: 18.

[J9] I. Georgiev, **Z. Misso**[‡], T. Hachisuka, D. Nowrouzezahrai, J. Křivánek, and **W. Jarosz**. "Integral formulations of volumetric transmittance". In: ***ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia)*** 38.6 (Nov. 2019). DOI: 10/dffn. webpage, pdf, citations: 29.

[J10] **D. Seyb**[‡], A. Jacobson, D. Nowrouzezahrai, and **W. Jarosz**. "Nonlinear sphere tracing for rendering deformed signed distance fields". In: ***ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia)*** 38.6 (Nov. 2019). DOI: 10 / dffm. webpage, pdf, citations: 24.

[J11] J. Marco, I. Guillén, **W. Jarosz**, D. Gutierrez, and A. Jarabo. "Progressive transient photon beams". In: Computer Graphics Forum 38.6 (Sept. 2019), pp. 19–30. DOI: 10/gfvr9w. webpage, pdf, citations: 20.

[J12] **X. Deng**[†], **S. Jiao**[‡], **B. Bitterli**[‡], and **W. Jarosz**. "Photon surfaces for robust, unbiased volumetric density estimation". In: ***ACM Transactions on Graphics (Proceedings of SIGGRAPH)*** 38.4 (July 2019). ISSN: 0730-0301. DOI: 10 / gf6rx9. webpage, pdf, citations: 24.

[J13] **W. Jarosz**, **A. Enayet**[*], A. Kensler, C. Kilpatrick, and P. Christensen. "Orthogonal array sampling for Monte Carlo rendering". In: Computer Graphics Forum (Proceedings of EGSR) 38.4 (July 2019), pp. 135–147. DOI: 10/gf6rx5. webpage, pdf, citations: 13.

[P6] M. Mara, M. McGuire, **B. Bitterli**[‡], and **W. Jarosz**. "An Efficient Denoising Algorithm for Global Illumination". In: *Proceedings of High Performance Graphics*. Los Angeles, California, USA: ACM, July 2017. ISBN: 978-1-4503-5101-0. DOI: 10 / gfzndq. webpage, pdf, citations: 75.

[P7] T. Hachisuka, I. Georgiev, **W. Jarosz**, J. Křivánek, and D. Nowrouzezahrai. "Extended Path Integral Formulation for Volumetric Transport". In: *Proceedings of EGSR (Experimental Ideas & Implementations)*. The Eurographics Association, June 2017. DOI: 10 / gfznb3. webpage, pdf, citations: 6.

[P8] J. Marco, **W. Jarosz**, D. Gutierrez, and A. Jarabo. "Transient Photon Beams". In: *Spanish Computer Graphics Conference (CEIG)*. The Eurographics Association, June 2017. ISBN: 978-3-03868-046-8. DOI: 10/gfzncc. webpage, pdf, citations: 11. **CEIG 2017 Best Paper Award!**

[P9] **R. Prévost**[‡], M. Bächer, **W. Jarosz**, and O. Sorkine-Hornung. "Balancing 3D Models with Movable Masses". In: *Proceedings of the Vision, Modeling and Visualization Workshop (VMV)*. Eurographics Association, Oct. 2016. DOI: 10/gfznds. webpage, pdf, citations: 21.

[P10] **D. Koerner**[i], J. Novák, P. Kutz, R. Habel, and **W. Jarosz**. "Subdivision Next-Event Estimation for Path-Traced Subsurface Scattering". In: *Proceedings of EGSR (Experimental Ideas & Implementations)*. The Eurographics Association, June 2016. DOI: 10 / gf6rzj. webpage, pdf, citations: 11.

[P11] A. Chapiro, C. O'Sullivan, **W. Jarosz**, M. Gross, and A. Smolic. "Stereo from Shading". In: *Proceedings of EGSR (Experimental Ideas & Implementations)*. June 2015. DOI: 10/gf6rzk. webpage, pdf, citations: 1.

[P12] T.-W. Schmidt, F. Pellacini, D. Nowrouzezahrai, **W. Jarosz**, and C. Dachsbacher. "State of the Art in Artistic Editing of Appearance, Lighting, and Material". In: *Eurographics 2014 - State of the Art Reports*. Strasbourg, France: Eurographics Association, Apr. 2014. DOI: 10 / gf6rzr. webpage, pdf, citations: 56.

[P13] B. J. Loos, **D. Nowrouzezahrai**[§], **W. Jarosz**, and P.-P. Sloan. "Delta Radiance Transfer". In: *Proceedings of ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games*. Costa Mesa, CA: ACM, Mar. 2012. DOI: 10/gfzndh. webpage, pdf, citations: 12.

[P14] **D. Nowrouzezahrai**[§], S. Geiger, K. Mitchell, R. Sumner, **W. Jarosz**, and M. Gross. "Light Factorization for Mixed-Frequency Shadows in Augmented Reality". In: *10th IEEE International Symposium on Mixed and Augmented Reality (Proceedings of ISMAR 2011)*. Oct. 2011. DOI: 10 / ccdrz4. webpage, pdf, citations: 59.

[P15] J. van Baar, S. Poulakos, **W. Jarosz**, **D. Nowrouzezahrai**[§], R. Tamstorf, and M. Gross. "Perceptually-Based Compensation of Light Pollution in Display Systems". In: *Proceedings of the 2011 ACM Symposium on Applied Perception in Graphics and Visualization*. New York, NY, USA: ACM, Aug. 2011. DOI: 10/b9z7b2. webpage, pdf, citations: 8.

[J14] **B. Miller**[*], I. Georgiev, and **W. Jarosz**. "A null-scattering path integral formulation of light transport". In: ***ACM Transactions on Graphics (Proceedings of SIGGRAPH)*** 38.4 (July 2019). ISSN: 0730-0301. DOI: 10/gf6rzb. webpage, pdf, citations: 34.

[J15] **K. Salesin**[‡] and **W. Jarosz**. "Combining point and line samples for direct illumination". In: Computer Graphics Forum (Proceedings of EGSR) 38.4 (July 2019), pp. 159–169. DOI: 10/gf6rx6. webpage, pdf, citations: 3.

[J16] N. Vibert, A. Gruson, H. Stokholm, T. Mortensen, **W. Jarosz**, T. Hachisuka, and D. Nowrouzezahrai. "Scalable virtual ray lights rendering for participating media". In: Computer Graphics Forum (Proceedings of EGSR) 38.4 (July 2019), pp. 57–65. DOI: 10/gf6rx7. webpage, pdf, citations: 3.

[J17] G. Singh, C. Öztireli, A. G. Ahmed, D. Coeurjolly, K. Subr, O. Deussen, V. Ostromoukhov, R. Ramamoorthi, and **W. Jarosz**. "Analysis of sample correlations for Monte Carlo rendering". In: Computer Graphics Forum (Proceedings of Eurographics - State of the Art Reports) 38.2 (May 2019), pp. 473–491. ISSN: 1467-8659. DOI: 10/gf6rzc. webpage, pdf, citations: 17.

[J18] G. Singh, K. Subr, D. Coeurjolly, V. Ostromoukhov, and **W. Jarosz**. "Fourier analysis of correlated Monte Carlo importance sampling". In: Computer Graphics Forum 38.1 (Apr. 2019). DOI: 10/gfznck. webpage, pdf, citations: 9.

[J19] **J. Huang**[*], M. Kinateder, M. J. Dunn, **W. Jarosz**, X.-D. Yang, and E. A. Cooper. "An augmented reality sign-reading assistant for users with reduced vision". In: PLOS ONE 14.1 (Jan. 2019), pp. 1–9. DOI: 10/gfznd2. webpage, pdf, citations: 53.

[J20] **B. Bitterli**[‡], **S. Ravichandran**[‡], T. Müller, M. Wrenninge, J. Novák, S. Marschner, and **W. Jarosz**. "A radiative transfer framework for non-exponential media". In: ***ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia)*** 37.6 (Nov. 2018), 225:1–225:17. DOI: 10 / gfz2cm. webpage, pdf, citations: 54. **Featured on the proceedings front cover!**

[J21] M. Kinateder, **J. Gualtieri**[*], M. J. Dunn, **W. Jarosz**, X.-D. Yang, and E. A. Cooper. "Using an augmented reality device as a distance-based vision aid—promise and limitations". In: Optometry and Vision Science (June 2018). ISSN: 1538-9235. DOI: 10/gd7x2n. webpage, pdf, citations: 48.

[J22] J. Novák, I. Georgiev, J. Hanika, and **W. Jarosz**. "Monte Carlo methods for volumetric light transport simulation". In: Computer Graphics Forum (Proceedings of Eurographics - State of the Art Reports) 37.2 (May 2018). DOI: 10/gd2jqq. webpage, pdf, citations: 125.

[J23] J. Marco, A. Jarabo, **W. Jarosz**, and D. Gutierrez. "Second-order occlusion-aware volumetric radiance caching". In: ***ACM Transactions on Graphics (Presented at SIGGRAPH)*** 37.2 (Apr. 2018). DOI: 10/gdv86k. webpage, pdf, citations: 18.

[J24] L. Belcour, G. Xie, C. Hery, M. Meyer, **W. Jarosz**, and **D. Nowrouzezahrai**[§]. "Integrating clipped spherical harmonics expansions". In: ***ACM Transactions on Graphics (Presented at SIGGRAPH)*** 37.2 (Mar. 2018). DOI: 10/gd52pf. webpage, pdf, citations: 23.

[P16] J. Chen, I. Baran, F. Durand, and **W. Jarosz**. "Real-Time Volumetric Shadows using 1D Min-Max Mipmaps". In: *Proceedings of ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games*. I3D 2011. New York, NY, USA: ACM, Feb. 2011. DOI: 10 / ftbtdp. webpage, pdf, citations: 46. **i3D 2011 Best Presentation Award!**

[P17] J. C. Hart, E. Bachta, **W. Jarosz**, and T. Fleury. "Using Particles to Sample and Control More Complex Implicit Surfaces". In: *SMI '02: Proceedings of the Shape Modeling International 2002 (SMI'02)*. Washington, DC, USA: IEEE Computer Society, Aug. 2002, p. 129. DOI: 10/dfw2ss. webpage, pdf, citations: 62.

¶ Refereed Sketches, Abstracts, Posters, & Talks

[S1] T. Kim, H. Rushmeier, J. Dorsey, D. Nowrouzezahrai, R. Syed, **W. Jarosz**, and A. M. Dark. "Countering Racial Bias in Computer Graphics Research". In: *ACM SIGGRAPH 2022 Talks*. Aug. 2022. DOI: 10/jgzt. citations: 10.

[S2] **E. Littler**[†], B. Zhu, and **W. Jarosz**. "Automated Filament Pigmenting for Multi-color 3D Printing". In: *ACM Symposium on Computational Fabrication (SCF), Demos*. Oct. 2021. citations: 5.

[S3] **K. Salesin**[‡], **D. Seyb**[‡], and **W. Jarosz**. "DIY hyperspectral imaging via polarization-induced spectral filters". In: *International Conference on Computational Photography, Posters*. Aug. 2021. citations: 1.

[S4] **T. Su**[*], **W. Jarosz**, and C. Meyer. "Computational modeling of snow and glacier light transport". In: *Wetterhahn Poster Showcase, Dartmouth College*. May 2021.

[S5] **B. Bitterli**[‡], **S. Ravichandran**[‡], T. Müller, M. Wrenninge, J. Novák, S. Marschner, and **W. Jarosz**. "A radiative transfer framework for non-exponential media in computer graphics". In: *International Conference on Transport Theory (ICTT)*. Paris, France, Sept. 2019.

[S6] **X. Deng**[†], **S. Jiao**[‡], **B. Bitterli**[‡], and **W. Jarosz**. "Photon surfaces for robust, unbiased volumetric density estimation in computer graphics". In: *International Conference on Transport Theory (ICTT)*. Paris, France, Sept. 2019.

[S7] **B. Miller**[*], I. Georgiev, and **W. Jarosz**. "A null-scattering path integral formulation of light transport". In: *International Conference on Transport Theory (ICTT)*. Paris, France, Sept. 2019. citations: 34.

[S8] **W. Jarosz** and **B. Bitterli**[‡]. "Beyond Points and Beams: Higher-Dimensional Photon Samples for Volumetric Light Transport". In: *International Conference on Transport Theory (ICTT)*. Monterey, CA, Oct. 2017. citations: 47.

[S9] J. Křivánek, **I. Georgiev**[i], T. Hachisuka, P. Vévoda, M. Šik, D. Nowrouzezahrai, and **W. Jarosz**. "Unifying Points, Beams, and Paths in Volumetric Light Transport Simulation". In: *International Conference on Transport Theory (ICTT)*. Taormina, Italy, Sept. 2015. citations: 115.

[S10] **J. M. Johnson**[i], D. Lacewell, A. Selle, and **W. Jarosz**. "Gaussian Quadrature for Photon Beams in Tangled". In: *ACM SIGGRAPH 2011 Talks*. Vancouver, Canada: ACM, Aug. 2011. DOI: 10/b7tx5z. citations: 8.

[J25] **B. Bitterli**[‡], W. Jakob, **J. Novák**[§], and **W. Jarosz**. "Reversible jump Metropolis light transport using inverse mappings". In: ***ACM Transactions on Graphics (Presented at SIGGRAPH)*** 37.1 (Jan. 2018). DOI: 10/gd52ph. webpage, pdf, citations: 42.

[J26] **B. Bitterli**[‡] and **W. Jarosz**. "Beyond Points and Beams: Higher-Dimensional Photon Samples for Volumetric Light Transport". In: ***ACM Transactions on Graphics (Proceedings of SIGGRAPH)*** 36.4 (July 2017). DOI: 10/gfznbr. webpage, pdf, citations: 47.

[J27] **G. Singh**[§] and **W. Jarosz**. "Convergence analysis for anisotropic Monte Carlo sampling spectra". In: ***ACM Transactions on Graphics (Proceedings of SIGGRAPH)*** 36.4 (July 2017). DOI: 10/gbxfhj. webpage, pdf, citations: 12.

[J28] **G. Singh**[§], **B. Miller**[*], and **W. Jarosz**. "Variance and convergence analysis of Monte Carlo Line and Segment Sampling". In: Computer Graphics Forum (Proceedings of EGSR) 36.4 (June 2017). DOI: 10/gfzncj. webpage, pdf, citations: 5.

[J29] T. Müller, **M. Papas**[‡], M. Gross, **W. Jarosz**, and J. Novák. "Efficient Rendering of Heterogeneous Polydisperse Granular Media". In: ***ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia)*** 35.6 (Dec. 2016), 168:1–168:14. DOI: 10/f9cm65. webpage, pdf, citations: 60.

[J30] F. Rousselle, **W. Jarosz**, and J. Novák. "Image-space Control Variates for Rendering". In: ***ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia)*** 35.6 (Dec. 2016), 169:1–169:12. DOI: 10/f9cphw. webpage, pdf, citations: 32.

[J31] **A. Blumer**[i], J. Novák, R. Habel, D. Nowrouzezahrai, and **W. Jarosz**. "Reduced Aggregate Scattering Operators for Path Tracing". In: Computer Graphics Forum (Proceedings of Pacific Graphics) 35.7 (Oct. 2016), pp. 461–473. DOI: 10 / f9c6w6. webpage, pdf, citations: 8.

[J32] P. H. Christensen and **W. Jarosz**. "The Path to Path-Traced Movies". In: Foundations and Trends in Computer Graphics and Vision 10.2 (Oct. 2016), pp. 103–175. ISSN: 1572-2740. DOI: 10/gfjwjc. webpage, pdf, citations: 56.

[J33] **B. Bitterli**[i], F. Rousselle, B. Moon, J. A. Iglesias-Guitián, D. Adler, K. Mitchell, **W. Jarosz**, and J. Novák. "Nonlinearly Weighted First-order Regression for Denoising Monte Carlo Renderings". In: Computer Graphics Forum (Proceedings of EGSR) 35.4 (June 2016), pp. 107–117. DOI: 10/f842kc. webpage, pdf, citations: 112.

[J34] **R. Prévost**[‡], A. Jacobson, **W. Jarosz**, and O. Sorkine-Hornung. "Large-Scale Painting of Photographs by Interactive Optimization". In: Computers & Graphics 55 (Apr. 2016), pp. 108–117. DOI: 10/f8g49d. webpage, pdf, citations: 20.

[J35] T.-W. Schmidt, F. Pellacini, D. Nowrouzezahrai, **W. Jarosz**, and C. Dachsbacher. "State of the Art in Artistic Editing of Appearance, Lighting, and Material". In: Computer Graphics Forum 35.1 (Feb. 2016), pp. 216–233. DOI: 10 / f8c8qv. webpage, pdf, citations: 56.

[J36] **R. Hostettler**[i], R. Habel, M. Gross, and **W. Jarosz**. "Dispersion-based Color Projection using Masked Prisms". In: Computer Graphics Forum (Proceedings of Pacific Graphics) 34.7 (Oct. 2015). DOI: 10 / f7v22b. webpage, pdf, citations: 5.
Pacific Graphics 2015 Best Paper Award!

[S11] B. J. Loos, L. Antani, K. Mitchell, **D. Nowrouzezahrai**[§], **W. Jarosz**, and P.-P. Sloan. "Runtime Implementation of Modular Radiance Transfer". In: *ACM SIGGRAPH 2011 Talks*. Vancouver, Canada: ACM, Aug. 2011. DOI: 10/cbvr8m. webpage, pdf, citations: 1.

[S12] T. Hachisuka, **W. Jarosz**, and H. W. Jensen. "An Error Estimation Framework for Photon Density Estimation". In: *ACM SIGGRAPH 2010 Talks*. Los Angeles, California: ACM, Aug. 2010, 3:1–3:1. DOI: 10/djxpqn. citations: 2.

[S13] **W. Jarosz**, C. Donner, M. Zwicker, and H. W. Jensen. "Radiance caching for Participating Media". In: *ACM SIGGRAPH 2007 Sketches*. SIGGRAPH 2007. San Diego, California: ACM, Aug. 2007. DOI: 10/gfzndp. citations: 93.

Refereed Courses/Classes

[C1] C. Wyman, M. Kettunen, D. Lin, B. Bitterli, C. Yuksel, **W. Jarosz**, and P. Kozlowski. "A gentle introduction to ReSTIR: Path reuse in real-time". In: *ACM SIGGRAPH Courses*. Los Angeles, California: ACM, Aug. 2023. DOI: 10/knqq.

[C2] J. Novák, I. Georgiev, J. Hanika, J. Křivánek, and **W. Jarosz**. "Monte Carlo methods for physically based volume rendering". In: *ACM SIGGRAPH Courses*. Aug. 2018. ISBN: 978-1-4503-5809-5. DOI: 10/c5fj. webpage, pdf, citations: 22.

[C3] K. Subr, **G. Singh**[§], and **W. Jarosz**. "Fourier Analysis of Numerical Integration in Monte Carlo Rendering: Theory and Practice". In: *ACM SIGGRAPH Courses*. Anaheim, California: ACM, July 2016. DOI: 10/gfzncn. webpage, pdf, citations: 10.

[C4] T. Hachisuka, **W. Jarosz**, I. Georgiev, A. Kaplanyan, and D. Nowrouzezahrai. "State of the Art in Photon Density Estimation". In: *ACM SIGGRAPH Asia Courses*. Hong Kong, China: ACM, Nov. 2013. DOI: 10/gfzndj. citations: 31.

[C5] T. Hachisuka, **W. Jarosz**, G. Bouchard, P. H. Christensen, J. R. Frisvad, W. Jakob, H. W. Jensen, M. Kaschalk, C. Knaus, A. Selle, and B. Spencer. "State of the Art in Photon Density Estimation". In: *ACM SIGGRAPH Courses*. Los Angeles, California: ACM, July 2012. DOI: 10/gfzndm. citations: 31.

[C6] D. Gutierrez, H. W. Jensen, **W. Jarosz**, and C. Donner. "Scattering". In: *ACM SIGGRAPH Asia Courses*. Yokohama, Japan: ACM, Dec. 2009, 15:1–15:620. DOI: 10 / b9gsw9. citations: 56.

[C7] D. Gutierrez, **W. Jarosz**, C. Donner, and S. G. Narasimhan. "Scattering". In: *ACM SIGGRAPH Courses*. New Orleans, Louisiana: ACM, Aug. 2009, 21:1–21:397. DOI: 10/dskkwn. citations: 56.

[C8] D. Gutierrez, S. G. Narasimhan, H. W. Jensen, and **W. Jarosz**. "Scattering". In: *ACM SIGGRAPH Asia Courses*. Singapore: ACM, Dec. 2008, 57:1–57:12. DOI: 10/c8nckn. citations: 56.

[J37] **J. Meng**[i], M. Papas, R. Habel, C. Dachsbacher, S. Marschner, M. Gross, and **W. Jarosz**. "Multi-Scale Modeling and Rendering of Granular Materials". In: ***ACM Transactions on Graphics (Proceedings of SIGGRAPH)*** 34.4 (July 2015). DOI: 10 / gfzndr. webpage, pdf, citations: 70.

[J38] **B. Bitterli**[i], J. Novák, and **W. Jarosz**. "Portal-Masked Environment Map Sampling". In: Computer Graphics Forum (Proceedings of EGSR) 34.4 (June 2015). DOI: 10/f7mbx7. webpage, pdf, citations: 19.

[J39] H. Zimmer, **F. Rousselle**[§], W. Jakob, O. Wang, D. Adler, **W. Jarosz**, O. Sorkine-Hornung, and A. Sorkine-Hornung. "Path-space Motion Estimation and Decomposition for Robust Animation Filtering". In: Computer Graphics Forum (Proceedings of EGSR) 34.4 (June 2015). DOI: 10 / f7mb34. webpage, pdf, citations: 60.

[J40] **O. Klehm**[i], F. Rousselle, M. Papas, D. Bradley, C. Hery, B. Bickel, **W. Jarosz**, and T. Beeler. "Recent Advances in Facial Appearance Capture". In: Computer Graphics Forum (Proceedings of Eurographics - State of the Art Reports) 34.2 (May 2015), pp. 709–733. DOI: 10 / f7mb4b. webpage, pdf, citations: 64.

[J41] M. Zwicker, **W. Jarosz**, J. Lehtinen, B. Moon, R. Ramamoorthi, **F. Rousselle**[§], P. Sen, C. Soler, and S.-E. Yoon. "Recent Advances in Adaptive Sampling and Reconstruction for Monte Carlo Rendering". In: Computer Graphics Forum (Proceedings of Eurographics - State of the Art Reports) 34.2 (May 2015), pp. 667–681. DOI: 10/f7k6kj. webpage, pdf, citations: 193.

[J42] **R. Prévost**[†], **W. Jarosz**, and O. Sorkine-Hornung. "A Vectorial Framework for Ray Traced Diffusion Curves". In: Computer Graphics Forum 34.1 (Feb. 2015), pp. 253–264. ISSN: 1467-8659. DOI: 10/f6497s. webpage, pdf, citations: 20.

[J43] A. Jarabo, J. Marco, A. Munoz, R. Buisan, **W. Jarosz**, and D. Gutierrez. "A Framework for Transient Rendering". In: ***ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia)*** 33.6 (Nov. 2014). DOI: 10/gfznb8. webpage, pdf, citations: 121.

[J44] **J. Novák**[i], A. Selle, and **W. Jarosz**. "Residual Ratio Tracking for Estimating Attenuation in Participating Media". In: ***ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia)*** 33.6 (Nov. 2014). DOI: 10/f6r2nq. webpage, pdf, citations: 94.

[J45] J. Křivánek, **I. Georgiev**[i], T. Hachisuka, P. Vévoda, M. Šik, D. Nowrouzezahrai, and **W. Jarosz**. "Unifying Points, Beams, and Paths in Volumetric Light Transport Simulation". In: ***ACM Transactions on Graphics (Proceedings of SIGGRAPH)*** 33.4 (July 2014). DOI: 10/f6cz72. webpage, pdf, citations: 115.

[J46] K. Subr, D. Nowrouzezahrai, **W. Jarosz**, J. Kautz, and K. Mitchell. "Error analysis of estimators that use combinations of stochastic sampling strategies for direct illumination". In: Computer Graphics Forum (Proceedings of EGSR) 33.4 (June 2014), pp. 93–102. DOI: 10/f6fgw4. webpage, pdf, citations: 18.

[J47] **D. Nowrouzezahrai**[§], I. Baran, K. Mitchell, and **W. Jarosz**. "Visibility Silhouettes for Semi-Analytic Spherical Integration". In: Computer Graphics Forum 33.1 (Feb. 2014), pp. 105–117. DOI: 10/f5t6tf. webpage, pdf, citations: 14.

[C9] **W. Jarosz**, H. W. Jensen, and C. Donner. "Advanced global illumination using photon mapping". In: *ACM SIGGRAPH Courses*. Los Angeles, California: ACM, Aug. 2008, 2:1–2:112. DOI: 10/fwwxzd. citations: 35.

Technical Reports

[TR1] **G. Singh**[§] and **W. Jarosz**. *Monte Carlo convergence analysis for anisotropic sampling power spectra*. Tech. rep. TR2016-816. Hanover, NH: Dartmouth College, Computer Science, Aug. 2016. webpage, pdf.

[TR2] **R. Habel**[§], P. H. Christensen, and **W. Jarosz**. *Classical and Improved Diffusion Theory for Subsurface Scattering*. Tech. rep. Disney Research Zürich, June 2013. webpage, pdf, citations: 5.

[TR3] **W. Jarosz**, M. Zwicker, and H. W. Jensen. *The Beam Radiance Estimate for Volumetric Photon Mapping*. Tech. rep. CS2008-0914. San Diego, CA: UC San Diego, Jan. 2008. citations: 149.

Patents

[PT1] H. Zimmer, O. Sorkine-Hornung, O. Wang, A. Sorkine-Hornung, W. Jakob, F. P. A. Rousselle, W. K. Jarosz, and D. M. Adler. Image decomposition and path-space motion estimation. Patent 10832375 B2 (US). Nov. 2020. google patents.

[PT2] J. Novák, W. A. Jakob, **W. Jarosz**, and B. Bitterli. Informed choices in primary sample space for light transport simulation. Patent 10580194 B2 (US). Mar. 2020. google patents.

[PT3] J. Novak, T. Muller, M. Papas, and **W. Jarosz**. Efficient rendering of heterogeneous polydisperse granular media. Patent 10169910 B2 (US). Jan. 2019. google patents.

[PT4] M. Papas, C. Regg, S. Marschner, **W. Jarosz**, W. Matusik, P. J. Jackson, and B. Bickel. Method of fabricating translucent materials with desired appearance. Patent 9939377 B2 (US). Apr. 2018. google patents.

[PT5] J. Novák, D. Koerner, **W. Jarosz**, P. Kutz, and R. Habel. Ray tracing across refractive boundaries. Patent 9916677 B2 (US). Mar. 2018. google patents.

[PT6] B. Bitterli, **W. Jarosz**, and J. Novák. Indoor scene illumination. Patent 9852541 B2 (US). Dec. 2017. google patents.

[PT7] J. Novak, **W. Jarosz**, and A. Selle. Residual ratio tracking for estimating attenuation in heterogeneous volumes. Patent 9767601 B2 (US). Sept. 2017. google patents.

[PT8] K. Subr, K. Mitchell, **W. Jarosz**, and D. Nowrouzezahrai. Combining sampling arrangements and distributions for stochastic integration in rendering. Patent 9741153 B2 (US). Aug. 2017. google patents.

[PT9] **W. Jarosz** and N. A. Carr. Method and apparatus for converting spherical harmonics representations of functions into multi-resolution representations. Patent 9703756 B2 (US). July 2017. google patents.

[J48] **I. Georgiev**[i], J. Křivánek, T. Hachisuka, D. Nowrouzezahrai, and **W. Jarosz**. "Joint Importance Sampling of Low-Order Volumetric Scattering". In: ***ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia)*** 32.6 (Nov. 2013). DOI: 10 / gbd5qs. webpage, pdf, citations: 55.

[J49] **M. Papas**[‡], C. Regg, **W. Jarosz**, B. Bickel, P. Jackson, W. Matusik, S. Marschner, and M. Gross. "Fabricating Translucent Materials using Continuous Pigment Mixtures". In: ***ACM Transactions on Graphics (Proceedings of SIGGRAPH)*** 32.4 (July 2013). DOI: 10/gbdg3p. webpage, pdf, citations: 62.

[J50] **R. Habel**[§], P. H. Christensen, and **W. Jarosz**. "Photon Beam Diffusion: A Hybrid Monte Carlo Method for Subsurface Scattering". In: Computer Graphics Forum (Proceedings of EGSR) 32.4 (June 2013). DOI: 10/f445m4. webpage, pdf, citations: 85. **Featured on the proceedings back cover!**

[J51] **M. Papas**[‡], T. Houit, D. Nowrouzezahrai, M. Gross, and **W. Jarosz**. "The Magic Lens: Refractive Steganography". In: ***ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia)*** 31.6 (Nov. 2012). DOI: 10/kdc. webpage, pdf, citations: 65. **Featured on the proceedings back cover and the papers fast forward video!**

[J52] **J. Schwarzhaupt**[†], H. W. Jensen, and **W. Jarosz**. "Practical Hessian-Based Error Control for Irradiance Caching". In: ***ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia)*** 31.6 (Nov. 2012). DOI: 10/gbb6n4. webpage, pdf, citations: 44. **Included in the Radiance Synthetic Imaging System!**

[J53] **W. Jarosz**, V. Schönefeld, L. Kobbelt, and H. W. Jensen. "Theory, Analysis and Applications of 2D Global Illumination". In: ***ACM Transactions on Graphics (Presented at SIGGRAPH)*** 31.5 (Sept. 2012), 125:1–125:21. DOI: 10 / gbbrkb. webpage, pdf, citations: 33.

[J54] **J. Novák**[i], D. Nowrouzezahrai, C. Dachsbacher, and **W. Jarosz**. "Virtual Ray Lights for Rendering Scenes with Participating Media". In: ***ACM Transactions on Graphics (Proceedings of SIGGRAPH)*** 31.4 (July 2012). DOI: 10/gbbwk2. webpage, pdf, citations: 99.

[J55] **J. Novák**[i], D. Nowrouzezahrai, C. Dachsbacher, and **W. Jarosz**. "Progressive Virtual Beam Lights". In: Computer Graphics Forum (Proceedings of EGSR) 31.4 (June 2012). DOI: 10/gfzndw. webpage, pdf, citations: 57. **Featured on the proceedings back cover!**

[J56] I. Baran, **P. Keller**[†], D. Bradley, S. Coros, **W. Jarosz**, D. Nowrouzezahrai, and M. Gross. "Manufacturing Layered Attenuators for Multiple Prescribed Shadow Images". In: Computer Graphics Forum (Proceedings of Eurographics) 31.2 (May 2012), pp. 603–610. ISSN: 0167-7055. DOI: 10 / gbbdcg. webpage, pdf, citations: 31.

[J57] I. Sadeghi, A. Munoz, P. Laven, **W. Jarosz**, F. Seron, D. Gutierrez, and H. W. Jensen. "Physically-based Simulation of Rainbows". In: ***ACM Transactions on Graphics (Presented at SIGGRAPH)*** 31.1 (Feb. 2012), 3:1–3:12. DOI: 10 / gfzndf. webpage, pdf, citations: 90.

[PT10] **W. Jarosz**, I. Georgiev, J. Krivanek, T. Hachisuka, and D. Nowrouzezahrai. Methods and systems of joint path importance sampling. Patent 9665974 B2 (US). May 2017. google patents.

[PT11] D. Nowrouzezahrai, I. Baran, K. Mitchell, and **W. Jarosz**. Visibility silhouettes for masked spherical integration. Patent 9501862 B2 (US). Nov. 2016. google patents.

[PT12] **W. Jarosz**, J. Meng, M. Papas, R. Habel, C. Dachsbacher, and S. Marschner. Bidirectional point distribution functions for rendering granular media. Patent 9472016 B2 (US). Oct. 2016. google patents.

[PT13] R. Habel and **W. Jarosz**. Photon beam diffusion. Patent 9401043 B1 (US). July 2016. google patents.

[PT14] D. Nowrouzezahrai, **W. Jarosz**, J. Johnson, J. D. Lacewell, A. Selle, and M. Kaschalk. Programmable system for artistic volumetric lighting. Patent 9396580 B1 (US). July 2016. google patents.

[PT15] J. Chen, I. Baran, F. Durand, and **W. Jarosz**. Rendering images with volumetric shadows using rectified height maps for independence in processing camera rays. Patent 9280848 B1 (US). Mar. 2016. google patents.

[PT16] M. Papas, **W. Jarosz**, W. A. Jakob, S. M. Rusinkiewicz, W. Matusik, and T. A. Weyrich. Reflective and refractive surfaces configured to project desired caustic pattern. Patent 9188783 B1 (US). Nov. 2015. google patents.

[PT17] W. Jakob, C. Regg, and **W. Jarosz**. Progressive expectation–maximization for hierarchical rendering of participating media. Patent 9013484 B1 (US). Apr. 2015. google patents.

[PT18] **W. Jarosz**, M. Papas, D. Nowrouzezahrai, and T. Houit. Refractive steganography lens and method for determining milling plan for same. Patent 8964295 B2 (US). Apr. 2015. google patents.

[PT19] H. Bowles, K. Mitchell, R. Sumner, **W. Jarosz**, and M. Gross. Iterative reprojection of images. Patent 8624891 B2 (US). Jan. 2014. google patents.

[PT20] **W. Jarosz**, D. Nowrouzezahrai, R. Thomas, P.-P. Sloan, and M. Zwicker. Image processing using iterative generation of intermediate images using photon beams of varying parameters. Patent 8638331 B1 (US). Jan. 2014. google patents.

[PT21] **W. Jarosz**, D. Nowrouzezahrai, and S. Watson. Compensation for self-scattering on concave screens. Patent 8611005 B2 (US). Dec. 2013. google patents.

[PT22] S. C. Geiger, **W. Jarosz**, M. J. Lang, K. J. Mitchell, D. Nowrouzezahrai, R. W. Sumner, and T. Williams. Virtual lens - rendering for augmented reality. Patent 9164723 B1 (US). Jan. 2013. google patents.

Invited Talks & Lectures

[L1] "Debiasing Computer Graphics Research". Invited talk, Dartmouth MSDA reading course, CS294. Feb. 2023.

[L2] "Debiasing Computer Graphics Research". Invited talk, Dartmouth MSDA reading course, CS294. Feb. 2022.

[J58] **W. Jarosz**, **D. Nowrouzezahrai**[§], R. Thomas, P.-P. Sloan, and M. Zwicker. "Progressive Photon Beams". In: ***ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia)*** 30.6 (Dec. 2011). DOI: 10/fn5xzj. webpage, pdf, citations: 163. **Featured in the proceedings inside cover and the papers fast forward video!**

[J59] B. J. Loos, L. Antani, K. Mitchell, **D. Nowrouzezahrai**[§], **W. Jarosz**, and P.-P. Sloan. "Modular Radiance Transfer". In: ***ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia)*** 30.6 (Dec. 2011). DOI: 10/ddfbh9. webpage, pdf, citations: 36. **Featured in the papers fast forward video!**

[J60] **D. Nowrouzezahrai**[§], J. Johnson, A. Selle, D. Lacewell, M. Kaschalk, and **W. Jarosz**. "A Programmable System for Artistic Volumetric Lighting". In: ***ACM Transactions on Graphics (Proceedings of SIGGRAPH)*** 30.4 (Aug. 2011), 29:1–29:8. ISSN: 0730-0301. DOI: 10 / fpvjt2. webpage, pdf, citations: 44. **Featured on the proceedings back cover and the papers fast forward video!**

[J61] **W. Jakob**[¡], C. Regg, and **W. Jarosz**. "Progressive Expectation–Maximization for Hierarchical Volumetric Photon Mapping". In: Computer Graphics Forum (Proceedings of EGSR) 30.4 (June 2011). DOI: 10/dtwcjj. webpage, pdf, citations: 45.

[J62] **M. Papas**[¡], **W. Jarosz**, W. Jakob, S. Rusinkiewicz, W. Matusik, and T. Weyrich. "Goal-based Caustics". In: Computer Graphics Forum (Proceedings of Eurographics) 30.2 (June 2011), pp. 503–511. DOI: 10/cqjmhv. webpage, pdf, citations: 115. **Selected for the Best of EUROGRAPHICS session at FMX 2011!**

[J63] **W. Jarosz**, **D. Nowrouzezahrai**[¡], I. Sadeghi, and H. W. Jensen. "A Comprehensive Theory of Volumetric Radiance Estimation Using Photon Points and Beams". In: ***ACM Transactions on Graphics (Presented at SIGGRAPH)*** 30.1 (Jan. 2011), 5:1–5:19. DOI: 10/fcdh2f. webpage, pdf, citations: 181.

[J64] T. Hachisuka, **W. Jarosz**, and H. W. Jensen. "A Progressive Error Estimation Framework for Photon Density Estimation". In: ***ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia)*** 29.6 (Dec. 2010), 144:1–144:12. ISSN: 0730-0301. DOI: 10 / czxq2t. webpage, pdf, citations: 51.

[J65] **W. Jarosz**, N. A. Carr, and H. W. Jensen. "Importance Sampling Spherical Harmonics". In: Computer Graphics Forum (Proceedings of Eurographics) 28.2 (Apr. 2009), pp. 577–586. DOI: 10 / b523xg. webpage, pdf, citations: 54.

[J66] T. Hachisuka, **W. Jarosz**, R. P. Weistroffer, K. Dale, G. Humphreys, M. Zwicker, and H. W. Jensen. "Multidimensional Adaptive Sampling and Reconstruction for Ray Tracing". In: ***ACM Transactions on Graphics (Proceedings of SIGGRAPH)*** 27.3 (Aug. 2008), 33:1–33:10. DOI: 10 / fm6c2w. webpage, pdf, citations: 230.

[J67] S. Paris, W. Chang, O. I. Kozhushnyan, **W. Jarosz**, W. Matusik, M. Zwicker, and F. Durand. "Hair Photobooth: Geometric and Photometric Acquisition of Real Hairstyles". In: ***ACM Transactions on Graphics (Proceedings of SIGGRAPH)*** 27.3 (Aug. 2008), 30:1–30:9. DOI: 10/df2r3s. webpage, pdf, citations: 145.

[J68] **W. Jarosz**, M. Zwicker, and J. Schulze. "EvalWare: Virtual Reality and Visualization Resources [Best of the Web]". In: Signal Processing Magazine, IEEE 25.4 (July 2008), pp. 123–127. ISSN: 1053-5888. DOI: 10/b3pb3g. citations: 2.

[L3] "Nonclassical Transport: From Graphics to Nuclear Engineering and Remote Sensing (and back again)". Invited talk, UC San Diego Pixel Cafe. Dec. 2020.

[L4] "Towards Point-and-Shoot Rendering: Robust and Automatic Light Transport Algorithms for Humans and Machines". Invited talk, New England Symposium on Graphics. Apr. 2019.

[L5] "Computer Graphics: Bridging the gap between art & science". Invited talk, Dartmouth/Hanover High School STEM Pathways series. Sept. 2018.

[L6] "Mastering the Interaction of Light & Matter: From Real to Virtual, and Back Again". MIT CSAIL, Graphics Lunch. Feb. 2016.

[L7] "Mastering the Interaction of Light & Matter: From Real to Virtual, and Back Again". Invited Talk at BBN/Raytheon Technologies. Feb. 2016.

[L8] "Visual Computing Lab Research Overview". Invited talk, Dartmouth Thayer School of Engineering Colloquium. Feb. 2016.

[L9] "Mastering the Interaction of Light & Matter: From Real to Virtual, and Back Again". Computer Science Colloquium, Williams College. Oct. 2015.

[L10] "High Dynamic Range Photography". Invited Talk, Universidad de Zaragoza. Mar. 2015.

[L11] "Mastering the Interaction of Light & Matter: From Real to Virtual, and Back Again". Invited Talk, Visual Computing Lab, UC Berkeley. Aug. 2014.

[L12] "Mastering the Interaction of Light & Matter: From Real to Virtual, and Back Again". Stanford University. Computer Science Seminar, Invited Talk. Mar. 2014.

[L13] "Mastering the Interaction of Light & Matter: From Real to Virtual, and Back Again". Dartmouth College, Computer Science Colloquium. Feb. 2014.

[L14] "The Perils of Evolutionary Rendering Research: Beyond the Point Sample". Invited Talk, EGSR 2013. June 2013.

[L15] "The Perils of Evolutionary Rendering Research: Beyond the Point Sample". Keynote Talk. Journées du groupe de travail rendu. Mar. 2013.

[L16] "The Perils of Evolutionary Rendering Research: Beyond the Point Sample". Invited Talk, TU Wien Graphics Konversatorium. Feb. 2013.

[L17] "*Tangled*: Behind the Magic". Scientifica[11]: Zürcher Wissenschaftstage, Disney-Night. Aug. 2011.

[L18] "The Research Behind the Magic". Computer Science - Distinguished Lecture Series, UIUC. Nov. 2010.

[L19] "Non-Photorealistic Rendering". Invited lecture for CSE 168, UCSD. June 2008.

[L20] "Textures, Environment mapping, and Procedurals". Invited lecture for CSE 168, UCSD. May 2008.

[L21] "Efficient Light Transport in Scattering Media". Invited Talk, Walt Disney Animation Studios, Los Angeles. Feb. 2008.

[J69] **W. Jarosz**, M. Zwicker, and H. W. Jensen. "Irradiance Gradients in the Presence of Participating Media and Occlusions". In: Computer Graphics Forum (Proceedings of EGSR) 27.4 (June 2008), pp. 1087–1096. DOI: 10/bg8nww. webpage, pdf, citations: 27. **Featured on the proceedings back cover!**

[J70] **W. Jarosz**, M. Zwicker, and H. W. Jensen. "The Beam Radiance Estimate for Volumetric Photon Mapping". In: Computer Graphics Forum (Proceedings of Eurographics) 27.2 (Apr. 2008), pp. 557–566. DOI: 10/bjsfsx. webpage, pdf, citations: 149.

[J71] **W. Jarosz**, C. Donner, M. Zwicker, and H. W. Jensen. "Radiance Caching for Participating Media". In: ***ACM Transactions on Graphics (Presented at SIGGRAPH)*** 27.1 (Mar. 2008), 7:1–7:11. ISSN: 0730-0301. DOI: 10/cwnw78. webpage, pdf, citations: 93.

[J72] P. Clarberg, **W. Jarosz**, T. Akenine-Möller, and H. W. Jensen. "Wavelet Importance Sampling: Efficiently Evaluating Products of Complex Functions". In: ***ACM Transactions on Graphics (Proceedings of SIGGRAPH)*** 24.3 (Aug. 2005), pp. 1166–1175. DOI: 10/c79g6q. webpage, pdf, citations: 210. **Featured on the proceedings back cover!**

[L22] "Efficient Light Transport in Scattering Media". Invited lecture for CSE 272, UCSD. Dec. 2007.

[L23] "Texturing". Invited lecture for CSE 168, UCSD. May 2007.

[L24] "Global Illumination". Invited lecture for CSE 168, UCSD. May 2006.

[L25] "OpenEXR: Towards Realtime Playback". SIGGRAPH 2005 OpenEXR Birds of a Feather. Aug. 2005.

[L26] "Non-Photorealistic Rendering". Invited lecture for CSE 168, UCSD. June 2005.

Service & Professional Activities

Chairing & Editorial duties

- **Co-editor and Technical Papers Assistant Chair**, *ACM Transactions on Graphics (SIGGRAPH 2024)* — 2023–2024
- **Associate editor**, *Journal of Computer Graphics Techniques (JCGT)* — 2015–Present
- **Associate editor**, *ACM Transactions on Graphics (TOG)* — 2020–2023
- **Associate editor**, *Computer Graphics Forum* (Wiley) — 2014–2017
- **Co-editor and Papers co-chair**, *Computer Graphics Forum (Eurographics Symposium on Rendering (EGSR))* — June 2014 issue
- **Co-editor**, *IEEE Computer Graphics & Applications (CG&A)* — May 2013 issue

Conference Committees

- **Steering Committee**, Eurographics Symposium on Rendering (EGSR) — 2017–2023
- **Technical Papers Committee**, ACM SIGGRAPH Asia — 2017, 2021
- **Technical Papers Conflict-of-Interest Coordinator**, ACM SIGGRAPH — 2021
- **Technical Papers Committee**, ACM SIGGRAPH — 2012, 2013, 2015, 2019, 2020
- **Papers Committee**, Eurographics Symposium on Rendering (EGSR) — 2010–2012, 2016, 2017, 2019, 2020, 2022, 2023
- **Program Committee**, IEEE International Conference on Computational Photography (ICCP) — 2021, 2022
- **Full Papers International Program Committee**, Eurographics (EG) — 2013, 2014, 2016, 2019
- **International Program Committee**, GRAPP — 2015
- **Technical Program Committee**, SIBGRAPI — 2014
- **Papers Committee**, ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games (i3D) — 2012–2014
- **Sketches Committee**, SIGGRAPH Asia — 2008, 2009

Reviewer

- NSF review panel member — 2018, 2021, 2022
- ACM SIGGRAPH — 2004–2020, 2022–2023
- ACM SIGGRAPH Asia — 2008–2010, 2012–2014, 2017–2021
- ACM Transactions on Graphics (TOG) — 2009–2018

- Eurographics (EG) — 2008–2016, 2018
- Eurographics Symposium on Rendering (EGSR) — 2005, 2009–2012, 2015–2019
- Computer Graphics Forum — 2009–2011, 2013–2017
- The Visual Computer — 2007, 2010
- Interactive Ray Tracing — 2007

College/Departmental Committees

- Ph.D. Program Director — 2021–2023
- Graduate committee — 2021–2023
- Committee on Graduate Fellowships — 2021–2023
- Faculty recruiting — 2018, 2020, 2022
- Department diversity committee — 2020–2021
- Curriculum committee — 2019–2021
- Department Webmaster — 2015–2021
- Ph.D. admissions — 2015–2017, 2019–2021
- M.S. admissions — 2017, 2018
- M.S. D.A. admissions — 2019
- Building planning committee — 2019–2020

Other

- Symposium on Computer Animation — 2007
  Student Volunteer
- SIGGRAPH UIUC Student Chapter — Jul. 2001 – Jun. 2002
  President

Press & Media Coverage

- "The physics of movie-making: making computer animation more realistic." *SciTech Europa*. November 30, 2018. https://www.scitecheuropa.eu/computer-animation-movie-making/91132/
- "New software will let artists control how light interacts with objects." *ars|technica*. November 30, 2018. https://arstechnica.com/science/2018/11/new-software-will-let-artists-control-how-light-interacts-with-objects/
- "Every grain of sand: Method efficiently renders massive assemblies of granular materials." *PhysOrg*. December 8, 2016. https://phys.org/news/2016-12-grain-sand-method-efficiently-massive.html
- "You Can Stop Worrying, Disney Figured Out How to Make Perfect CG Sugar." *Gizmodo*. December 8, 2016. http://gizmodo.com/you-can-stop-worrying-disney-figured-out-how-to-make-p-1789824492
- "This simulation is so good it's hard to believe it's not real." *Popular Mechanics*. December 8, 2016. http://www.popularmechanics.com/technology/apps/a24213/disney-research-sugar-simulation/
- "Disney Research Devises a Method of 3D Printing Models That Balance or Breakdance." *3DPrint.com*. October 7, 2016. https://3dprint.com/151798/disney-research-balancing/
- "Scientists Develop Spray Cans That Know What to Paint." *Wall Street Journal Video*. May 2, 2016. http://www.wsj.com/video/scientists-develop-spray-cans-that-know-what-to-paint/3D6DC052-2F62-4FB0-9585-764123A298AB.html
- "Spray Cans That Know What to Paint." *The Wall Street Journal*. April 29, 2016. https://www.wsj.com/articles/spray-cans-that-know-what-to-paint-1461938405
- "Move over Banksy! Robotic spray can helps novices reproduce photos as giant 'paint by numbers' murals." *Daily Mail*. April 8, 2016. http://www.dailymail.co.uk/sciencetech/article-3529871/Move-Banksy-Robotic-spray-helps-novices-reproduce-photos-giant-paint-numbers-murals.html
- "Smart spray paint copies color photos onto walls." gizmag. April 8, 2016. http://newatlas.com/smart-spray-paint-computer-aided-mural-dartmouth/42715/
- "This 'smart' spray can will instantly turn you into a pro graffiti artist." *TechRadar*. April 8, 2016. http://www.techradar.com/news/world-of-tech/this-smart-spray-can-will-instantly-turn-you-into-a-pro-graffiti-artist-1318575
- "Scientists Invent Robotic 'Artist' That Spray Paints Giant Murals." *NeuroScienceNews*. April 7, 2016. http://neurosciencenews.com/painting-robotic-artist-3995/
- "Scientists invent robotic 'artist' that spray paints giant murals." *PhysOrg*. April 7, 2016. https://phys.org/news/2016-04-scientists-robotic-artist-giant-murals.html
- "Think You Know Rainbows? Look Again." *Scientific American*. February 26, 2016. http://www.scientificamerican.com/article/think-you-know-rainbows-look-again-slide-show1/
- "New device improves full-color image projection." *PhysOrg*. October 21, 2015. http://phys.org/news/2015-10-device-full-color-image.html
- "5 Crazy New Ideas Out Of Disney Research." *FastCompany*. August 7, 2015. http://www.fastcodesign.com/3049566/5-crazy-new-ideas-out-of-disney-research
- "New method efficiently renders granular materials at multiple scales." *PhysOrg*. August 5, 2015. http://phys.org/news/2015-08-method-efficiently-granular-materials-multiple.html
- "Disney's new rendering technique could usher in a new era of animation." *io9*. November 19, 2013.

http://io9.com/disneys-new-rendering-technique-could-usher-in-a-new-e-1467435361

"New algorithms improve animations featuring fog, smoke and underwater scenes." *PhysOrg*. November 18, 2013. http://phys.org/news/2013-11-algorithms-animations-featuring-fog-underwater.html

"The State of Rendering - Part 2." *fxguide*. July 17, 2013. http://www.fxguide.com/featured/the-state-of-rendering-part-2/

"3D-printed magic lens unscrambles hidden animations." *New Scientist*. November 23, 2012. http://www.newscientist.com/blogs/nstv/2012/11/3d-printed-magic-lens-unscrambles-secret-animations.html

"Local Scientists Unlock Mystery Of Elusive Twinned Rainbows." *KPBS.org*. August 13, 2012. http://www.kpbs.org/news/2012/aug/13/local-scientists-unlock-mystery-elusive-twin-rainb/

"Twinned Rainbows Formation Explained By New Research." *HuffingtonPost.com*. August 10, 2012. http://www.huffingtonpost.com/2012/08/10/twinned-rainbows-formation_n_1764331.html

"How those strange, exotic twinned rainbows form." *NBCNews.com*. August 8, 2012. http://www.nbcnews.com/id/48578190/

"How Strange Twinned Rainbows Form." Live Science. August 2012. http://www.livescience.com/22218-how-twinned-rainbows-form.html

"Disney might be about to get a little more magic: CGI technology breakthrough will take the Mickey and make him sparkle." *The Daily Mail*. August 8, 2012. http://www.dailymail.co.uk/sciencetech/article-2185029

"Researchers Unlock Secret of the Rare 'Twinned Rainbow'." *Science Daily*. August 6, 2012. http://www.sciencedaily.com/releases/2012/08/120806151415.htm

"Researchers unlock secret of the rare 'twinned rainbow'." *PhysOrg*. August 6, 2012. http://phys.org/news/2012-08-secret-rare-twinned-rainbow.html

"New technique improves rendering of smoke, dust and participating media." *PhysOrg*. August 6, 2012. http://phys.org/news/2012-08-technique-media.html

"Imagining how light behaves in 2D world gives researchers insights for faster 3D rendering." *PhysOrg*. August 6, 2012. http://phys.org/news/2012-08-d-world-insights-faster.html

"Engraved plastic panel casts image in light and shade." *New Scientist*. March 24, 2011. http://www.newscientist.com/article/dn20280-engraved-plastic-panel-casts-image-in-light-and-shade.html

"Unknown Mechanism For Rare Twinned Rainbows Discovered." *RedOrbit*. August 7, 2012. http://www.redorbit.com/news/science/1112671052/mechanism-twinned-rainbows-080712/

"Hairstyles for games and movies." *Emerging Technology Trends | ZDNet.com*. Aug. 16, 2008. http://www.zdnet.com/blog/emergingtech/hairstyles-for-games-and-movies/1012

"Hair Photobooth: Geometric and Photometric Acquisition of Real Hairstyles." The Composed Gentleman. Aug. 14, 2008.

"Hollywood hair will be captured at last: details in SIGGRAPH 2008 paper." EurekaAlert. Aug. 13, 2008.

"Hollywood Hair is Captured at Last." *PhysOrg*. Aug. 13, 2008. http://phys.org/news137859323.html

"Hollywood Hair is Captured at Last: Details in SIGGRAPH 2008 Paper." Jacobs School News. Aug. 13, 2008.

"A Better Fog And Smoke Machine From Computer Scientists." *Science Daily*. Apr. 20, 2008. http://www.sciencedaily.com/releases/2008/04/080415185011.htm

"A better fog and smoke machine from computer scientists." *Science Blog*. Apr. 16, 2008. http://scienceblog.com/15928/

"Light-in-Fog Computer Simulation Is Ultra Realistic and Cheap." io9. Apr. 17, 2008.

"Innovative Computer Graphics Machine that Reduce the Computational Cost of Making Realistic Smoky and Foggy 3-D Images Using Ray Tracing Algorithms." *4Engr.com*. Apr. 17, 2008.

"A better fog and smoke machine from researchers at UC San Diego." *Science Centric*. Apr. 17, 2008.

"Scientists Use Ray-tracing Technology For Advanced Fog and Smoke Graphics Effects." *CdrInfo.com*. Apr. 17, 2008.

"Computer Science Fog Machine Improves Computer Graphics." *PhysOrg*. Apr. 16, 2008.

"A new way to improve computer graphics." *Emerging Technology Trends | ZDNet.com*. Apr. 16, 2008. http://www.zdnet.com/blog/emergingtech/a-new-way-to-improve-computer-graphics/894

"Computer Science Fog Machine Improves Computer Graphics." *ACM TechNews*. Apr. 16, 2008.

"A new way to improve computer graphics." *Roland Piquepaille's Technology Trends*. Apr. 16, 2008.

"Scientists turn to ray-tracing for advanced graphics effects." *TG Daily*. Apr. 16, 2008. http://www.tgdaily.com/trendwatch-features/36971-scientists-turn-to-ray-tracing-for-advanced-graphics-effects

"Computer Science Fog Machine Improves Computer Graphics." *HPC Wire*. Apr. 15, 2008.

"Computer Science Fog Machine Improves Computer Graphics." *Jacobs School News*. Apr. 15, 2008.

"A better fog and smoke machine from computer scientists at UC San Diego." *EurekaAlert*. Apr. 15, 2008.

"An Easier Way to Simulate a Foggy View." *Photonics Spectra Magazine*. October, 2007. http://photonics.com/Article.aspx?AID=30986

"Determine the exact kind of milk spilled by computer graphics." *4Engr.com*. Aug. 17, 2007.

"Render Smoke and Fog Without Being a Computation Hog." *ACM TechNews*. Aug. 13, 2007.

"Seeing Your Smoke and Breathing It Too." *DDJ's Portal Blog*. Aug. 9, 2007.

"Render smoke and fog without being a computation hog." *PhysOrg*. Aug. 9, 2007. http://phys.org/news105887616.html

"Render Smoke and Fog without being a Computation Hog." *Jacobs School News*. Aug. 9, 2007.

Cover Image for 2005-2006 CSE Departmental Brochure.

- "SIGGRAPH In San Diego: Graphics, Video And Rock." *Jacobs School News*. Aug. 4, 2005.
- "Calit2 Lights Up SIGGRAPH 2005." *HPC Wire*. Aug. 4, 2005.
- "Light Clouds, Camera Arrays and Speedier Rendering at SIGGRAPH 2005." *UCSD News*. July 28, 2005. http://www.jacobsschool.ucsd.edu/news/news_releases/release.sfe?id=412
- "California Institute researchers unveil computer graphics innovations at SIGGRAPH." *EurekaAlert*. July 28, 2005
- "Researchers Unveil Computer Graphics Innovations at SIGGRAPH." *Red Orbit*. July 28, 2005.