

Jared M Johnson

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Education

- 2012 PH.D. in Computer Science - *University of Central Florida*
- 2007 M.S. in Computer Science - *University of Central Florida*
- 2005 B.S. in Computer Science, Cum Laude - *University of Utah*
- 2002 B.S. in Mathematics - *University of Utah*

Awards

- 2005-2007 Florida Trustee's Fellowship
- 2003, 2004 Computer Science Department Scholarship
- 1998 National Merit Scholarship

Relevant Experience

- 2010, 2011 INTERN - *Disney Research, Walt Disney Animation Studios*
Implemented a practical material capture system and BRDF extrapolation system. Also analyzed the fitting precision of parametric BRDFs to captured data.
Implemented photon beam volumetric lighting in PRMan. Developed tools for artists to utilize photon beams. Added photon beams to a shot for the feature-length film *Tangled*.
- 2005-2012 RESEARCH ASSISTANT - *SREAL, University of Central Florida*
Designed a rendering engine to visualize the forest fire simulator FARSITE; renders realistic and physically accurate fire and smoke conditions in huge forest areas in real-time; can be controlled with a variety of input devices; and renders seamlessly across many projectors as one ultra-high-resolution view.
- 2007, 2008 INTERN - *Advanced Technology Lab, Adobe Systems*
Discovered novel methods for rendering ray-traced shadows, accelerating current global illumination algorithms, and improving scene geometry acceleration structures. Helped integrate this work into a large 3D rendering engine for commercial products.
- 2004-2005 RESEARCH ASSISTANT - *Graphics Research Group, University of Utah*
Co-invented a novel algorithm for representing polarized light in a path tracer. Assisted in research on physically-based BRDF models, as well as a physically based path tracer rendering system supporting discrete wavelength of light ray-tracing and polarization.

Relevant Courses

- 2005-2007 *University of Central Florida*, ORLANDO, FLORIDA
Advanced Computer Vision (Instructor: Marshall Tappen)
Computer Vision (Instructor: Marshall Tappen)
Fundamentals of Applied Optics (Instructor: James E. Harvey)
Advanced Computer Graphics (Instructor: Sumanta N. Pattanaik)
- 2004-2005 *University of Utah*, SALT LAKE CITY, UTAH
Ray Tracing (Instructor: Steven G. Parker)
Scientific Visualization (Instructor: Ross T. Whitaker)
Realistic Image Synthesis (Instructor: Peter Shirley)

Publications and Talks

- 2011 A Programmable System for Artistic Volumetric Lighting
Derek Nowrouzezahrai, Jared Johnson, Andrew Selle, Dylan Lacewell, Michael Kaschalk, Wojciech Jarosz.
ACM Transactions on Graphics, July 2011.
- 2011 Gaussian Quadrature for Photon Beams in Tangled
Jared Johnson, Dylan Lacewell, Andrew Selle, Wojciech Jarosz. *Presented talk at SIGGRAPH 2011.*
- 2006 Image Synthesis Using Adjoint Photons
R. Keith Morley, Solomon Boulos, Jared Johnson, Dave Edwards, Peter Shirley, Michael Ashikhmin and Simon Premoze. *Proceedings of Graphics Interface*, 2006.
- 2006 The Halfway Vector Disk for BRDF Modeling
Dave Edwards, Solomon Boulos, Jared Johnson, Peter Shirley, Michael Ashikhmin, Michael Stark, Chris Wyman. *ACM Transactions on Graphics*, January 2006.

Patents

- 2008 Representing Polarized Light in Computer Models
Peter Shirley, Solomon Boulos, Jared Johnson, Austin Robison. *Publication No. US 20110043516 A1*, February 2011.

Film Credits

- 2010 Tangled