

CHRISTIAAN GRIBBLE

VITA

December 2020

Personal Information:

Born: 8 Jul 1978
Citizenship: United States of America
Current position: Principal research scientist
Current address: Applied Technology Operation
SURVICE Engineering Company
1051 Brinton Road, Suite 301
Pittsburgh, PA 15221
Phone numbers: 412.342.8219 (office)
410.272.6763 (fax)
E-mail address: christiaan.gribble@survice.com

Education:

| | | |
|----------------------------|---|----------|
| University of Utah | PhD/Computer Science | Dec 2006 |
| Dissertation title: | <i>Interactive Methods for Effective Particle Visualization</i> | |
| Supervisory committee: | Steven Parker, PhD (chair) Charles Hansen, PhD Victoria Interrante, PhD Christopher Johnson, PhD Peter Shirley, PhD | |
| Carnegie Mellon University | MS/Information Networking | May 2002 |
| Thesis title: | <i>Parallel Rendering for the Terascale Computing System</i> | |
| Supervisory committee: | Jessica Hodgins, PhD (chair) Joel Welling, PhD | |
| Grove City College | BS/Mathematics BA/Political Science | May 2000 |
| Academic honors: | <i>Magna Cum Laude</i> | |

Professional Employment:

| | | |
|---|---------------------------------------|-------------------|
| SURVICE Engineering Company | Director, high performance computing | Sep 2019-present |
| SURVICE Engineering Company | Principal research scientist | Jun 2013-present |
| SURVICE Engineering Company | Team lead, high performance computing | Sep 2014-Aug 2019 |
| SURVICE Engineering Company | Research scientist | May 2012-May 2013 |
| Grove City College | Associate professor | Sep 2011-Aug 2012 |
| Grove City College | Assistant professor | Jan 2007-Aug 2011 |
| Scientific Computing & Imaging Institute | Postdoctoral research fellow | Nov 2006-Dec 2006 |
| Scientific Computing & Imaging Institute | Research assistant | Aug 2002-Oct 2006 |
| University of Bristol Computer Graphics Group | Visiting research assistant | Aug 2005-Oct 2005 |
| Pittsburgh Supercomputing Center | Research assistant | May 2001-Jul 2002 |

Research Interests:

Current

Computer graphics & visualization: Image synthesis & visual simulation; light transport & predictive rendering; interactive rendering

Computer vision: Deep learning; 3D reconstruction; structure-from-motion; photogrammetry; scene measurement & analysis

High performance computing: Scalable parallel rendering algorithms; massively parallel & heterogeneous computing; parallel programming

Other: Non-optical rendering & physics-based simulation

Past

Computer graphics & visualization: Light transport simulation for predictive rendering; image synthesis & visual simulation applications; global illumination algorithms; interactive rendering

High performance computing: Scalable parallel rendering algorithms; cluster-based systems; shared & distributed memory systems; high-speed network transport protocols

Other: Computer graphics & visualization in the arts & humanities

Research Grants, Contracts, & Sponsorship:

Current External Support

(pending)

Past External Support

Organization: US Navy
Program: SBIR Program – Phase I
Total Costs: \$140K
Project Title: Virtual Reality for Ground Vehicle Survivability, Lethality, and Vulnerability
Duration: 9 months
Start Date: Jan 2020
Principal Investigator: **C. Gribble**

Organization: US Air Force
Program: SBIR Program – Phase II
Total Costs: \$750K
Project Title: Accelerated 3D Reconstruction and Visualization of Compressible Flow
Duration: 33 months
Start Date: Feb 2017
Principal Investigator: **C. Gribble**

Organization: US Air Force
Program: SBIR Program – Phase II
Total Costs: \$750K
Project Title: Real-Time In-Situ Intelligent Video Analytics for Mobile Platforms
Duration: 27 months
Start Date: Feb 2017
Principal Investigator: **C. Gribble**

Organization: Intel Corporation
Program: N/A
Total Costs: (undisclosed)
Project Title: SIMD Optimization for High Performance Radio Frequency Ray Tracing
Duration: 6 months
Start Date: Jun 2018
Principal Investigator: **C. Gribble**

Organization: Naval Air Warfare Center Weapons Division
Program: R&D Air Weapons System Support
Total Costs: \$41K
Project Title: SHAZAM EV Support
Duration: 6 months
Start Date: May 2018
Principal Investigator: **C. Gribble**

Organization: Intel Corporation
Program: N/A
Total Costs: (undisclosed)
Project Title: Reinforced Light Transport
Duration: 3 months
Start Date: Sep 2017
Principal Investigator: **C. Gribble**

Organization: US Army
Program: SBIR Program – Phase I
Total Costs: \$100K
Project Title: Innovative Rendering for Simulation
Duration: 6 months
Start Date: Apr 2017
Principal Investigator: **C. Gribble**

Organization: Intel Corporation
Program: N/A
Total Costs: (undisclosed)
Project Title: Development of Graph-Based Multi-Hit Module for OSPRay
Duration: 4 months
Start Date: Dec 2016
Principal Investigator: **C. Gribble**

Organization: National Aeronautics and Space Administration
Program: SBIR Program – Phase II
Total Costs: \$750K
Project Title: High Performance Computing-Accelerated Metrology for Large Optical Telescopes
Duration: 2 years
Start Date: May 2015
Principal Investigator: J. Ebersole

Organization: US Air Force
Program: SBIR Program – Phase I
Total Costs: \$150K
Project Title: Scalable Real-Time Background/Foreground Separation Using Dynamic Mode Decomposition
Duration: 9 months
Start Date: Sep 2015
Principal Investigator: **C. Gribble**

Organization: US Air Force
Program: SBIR Program – Phase I
Total Costs: \$150K
Project Title: Accelerated 3D Reconstruction and Visualization of Compressible Flow
Duration: 9 months
Start Date: Jul 2015
Principal Investigator: **C. Gribble**

Organization: US Army Research Laboratory
Program: GSA OASIS – Small Business Program
Total Costs: \$11.7M
Project Title: Visual Simulation Laboratory Methodology Development and Integration of Related Technologies with Survivability, Lethality, and Vulnerability Analysis to Assess US Military and Foreign Systems
Duration: 5 years
Start Date: Jul 2015
Contract Manager: M. Butkiewicz

Organization: Intel Corporation
Program: N/A
Total Costs: (undisclosed)
Project Title: Accelerated X-ray Computed Tomography Image Processing Framework
Duration: 11 months
Start Date: Feb 2015
Principal Investigator: **C. Gribble**

Organization: National Aeronautics and Space Administration
Program: SBIR Program – Phase I
Total Costs: \$150K
Project Title: Innovative Non-Contact Metrology Solutions for Large Optical Telescopes
Duration: 6 months
Start Date: Jun 2014
Principal Investigator: J. Ebersole

Organization: Intel Corporation
Program: N/A
Total Costs: (undisclosed)
Project Title: High Performance Radio Frequency Ray Tracing with Embree
Duration: 11 months
Start Date: May 2014
Principal Investigator: **C. Gribble**

Organization: US Marine Corps
Program: SBIR Program – Phase II
Total Costs: \$750K
Project Title: Post-IED Hull Inspection Tool
Duration: 2 years
Start Date: Feb 2014
Principal Investigator: R. Baltrusch

Organization: Naval Air Warfare Center Weapons Division
Program: DSIAC CAT 1190 JASP Program Studies
Total Costs: \$23.4M
Project Title: Rotary Wing UAS Survivability Study
Duration: 6 years
Start Date: Dec 2013
Contract Manager: R. Dexter

Organization: NVIDIA Corporation
Program: GPU Research Center Program
Total Costs: N/A
Project Title: GPU Ray Tracing for Physics-Based Simulation
Duration: 3 years, 8 months
Start Date: Apr 2013
Principal Investigator: **C. Gribble**

Organization: US Army Research Laboratory
Program: Army Test and Evaluation Command
Total Costs: \$627K
Project Title: Visual Simulation Laboratory Software Engineering Support
Duration: 2 years
Start Date: Mar 2012
Contract Manager: M. Butkiewicz

Organization: Grove City College
 Program: Swezey Scientific Instrumentation & Research Fund
 Total Costs: \$8.58K
 Project Title: Preparing rtVTK for Open Source Release
 Duration: 6 months
 Start Date: Mar 2012
 Principal Investigator: **C. Gribble**

Organization: II-VI Foundation
 Program: Block-Gift Program
 Total Costs: \$15K
 Project Title: Ray Tracing Visualization
 Duration: 8 months
 Start Date: Feb 2011
 Principal Investigator: **C. Gribble**

Organization: Grove City College
 Program: Swezey Scientific Instrumentation & Research Fund
 Total Costs: \$9.3K
 Project Title: Creating a Flexible User Interface for Ray Tracing Visualization
 Duration: 7 months
 Start Date: Feb 2011
 Principal Investigator: **C. Gribble**

Organization: Grove City College
 Program: Swezey Scientific Instrumentation & Research Fund
 Total Costs: \$9.6K
 Project Title: Interactive Ray Tracing with OpenCL
 Duration: 4 months
 Start Date: May 2010
 Principal Investigator: **C. Gribble**

Organization: Grove City College
 Program: Swezey Scientific Instrumentation & Research Fund
 Total Costs: \$9.3K
 Project Title: Stream Filtered Ray Tracing for the SPI Storm-1 Series Processors
 Duration: 9 months
 Start Date: Jan 2009
 Principal Investigator: **C. Gribble**

Organization: Grove City College
 Program: Swezey Scientific Instrumentation & Research Fund
 Total Costs: \$7.8K
 Project Title: Integer Ray Tracing
 Duration: 9 months
 Start Date: Jan 2009
 Principal Investigator: **C. Gribble**

Organization: NVIDIA Corporation
 Program: Professor Partnership Program
 Total Costs: N/A
 Project Title: Continued Support for Computer Science Education & Research at Grove City College
 Duration: 4 years, 7 months
 Start Date: Feb 2008
 Principal Investigator: **C. Gribble**

Organization: Grove City College
Program: Swezey Scientific Instrumentation & Research Fund
Total Costs: \$9.2K
Project Title: Interactive Ray Tracing for the GPU
Duration: 11 months
Start Date: Oct 2007
Principal Investigator: **C. Gribble**

Organization: Grove City College
Program: Swezey Scientific Instrumentation & Research Fund
Total Costs: \$50K
Project Title: Establishing the Laboratory for Interactive Visualization, Entertainment, & Mobility (LIVE-M)
Duration: 5 years, 3 months
Start Date: May 2007
Principal Investigator: **C. Gribble**

Organization: NVIDIA Corporation
Program: Professor Partnership Program
Total Costs: N/A
Project Title: Leveraging Programmable GPUs in Education & Research
Duration: 9 months
Start Date: May 2007
Principal Investigator: **C. Gribble**

Publications:

Peer-Reviewed Journal Articles

1. **C. Gribble**, I. Wald, & J. Amstutz. Implementing Node Culling Multi-Hit BVH Traversal in Embree. *Journal of Computer Graphics Techniques*, vol. 5, no. 4, 2016.
2. J. Amstutz, **C. Gribble**, J. Gunther, & I. Wald. An Evaluation of Multi-Hit Ray Traversal in a BVH using Existing First-Hit/Any-Hit Kernels. *Journal of Computer Graphics Techniques*, vol. 4, no. 4, 2015.
3. **C. Gribble**, A. Naveros, & E. Kerzner. Multi-Hit Ray Traversal. *Journal of Computer Graphics Techniques*, vol. 3, no. 1, 2014.
4. J. Heinly, S. Recker, K. Bensema, J. Porch, & **C. Gribble**. Integer Ray Tracing. *journal of graphics, gpu, & game tools*, vol. 14, no. 4, 2009.
5. **C. Gribble**. Introducing Multithreaded Programming: POSIX Threads and NVIDIA's CUDA. *ASEE Computers in Education Journal*, October-December 2009.
6. **C. Gribble**. Ray Tracing for Undergraduates. *ASEE Computers in Education Journal*, October-December 2008.
7. **C. Gribble**, C. Brownlee, & S. Parker. Practical Global Illumination for Interactive Particle Visualization. *Computers & Graphics*, February 2008.
8. **C. Gribble**, T. Ize, A. Kensler, I. Wald, & S. Parker. A Coherent Grid Traversal Approach to Visualizing Particle-Based Simulation Datasets. *IEEE Transactions on Visualization & Computer Graphics*, July/August 2007.
9. D. DeMarle, **C. Gribble**, S. Boulos, & S. Parker. Memory Sharing for Interactive Ray Tracing on Clusters. *Journal of Parallel Computing*, February 2005.
10. C. Hansen, S. Parker, & **C. Gribble**. So Much Data, So Little Time... *Parallel Computing: Software Technology, Algorithms, Architectures, & Applications*, September 2003.

Peer-Reviewed Conference & Symposium Papers

11. **C. Gribble**, V. Eijkhout, & P. Navratil. Implementing a Prototype System for 3D Reconstruction of Compressible Flow. In *Practice and Experience in Advanced Research Computing*, July 2020.
12. **C. Gribble**. Effective Parallelization Strategies for Scalable, High Performance Iterative Reconstruction. In *Eurographics Symposium on Parallel Graphics and Visualization*, May 2020.

13. J. Worobey, S. Recker, & **C. Gribble**. Using Robust Networks to Inform Lightweight Models in Semi-Supervised Learning for Object Detection. In *Applied Imagery Pattern Recognition Workshop*, October 2019.
14. S. Recker, **C. Gribble**, & M. Butkiewicz. Autonomous Precision Landing for the Joint Tactical Aerial Resupply Vehicle. In *Applied Imagery Pattern Recognition Workshop*, October 2018.
15. S. Recker, R. Baltrusch, **C. Gribble**, & M. Butkiewicz. HawkEye: Automatic Stitching of Hand-Held LIDAR Scans using Photogrammetry and Structure-from-Motion. In *Coordinate Metrology Systems Conference*, July 2016.
16. **C. Gribble**. Node Culling Multi-Hit BVH Traversal. In *Eurographics Symposium on Rendering (EI&I Track)*, June 2016.
17. **C. Gribble** & J. Amstutz. Effective Parallelization Strategies for Scalable, High Performance Radio Frequency Ray Tracing. In *IEEE High Performance Extreme Computing*, September 2015.
18. S. Recker, **C. Gribble**, M. Shashkov, M. Yepez, M. Hess-Flores, & K. Joy. Depth Data Assisted Structure-from-Motion Parameter Optimization and Feature Track Correction. In *Applied Imagery Pattern Recognition Workshop*, October 2014.
19. S. Recker, M. Shashkov, M. Hess-Flores, **C. Gribble**, R. Baltrusch, M. Butkiewicz, & K. Joy. Hybrid Photogrammetry Structure-from-Motion Systems for Scene Measurement and Analysis. In *Coordinate Metrology Systems Conference*, July 2014.
20. **C. Gribble**, J. Fisher, D. Eby, E. Quigley, & G. Ludwig. Ray Tracing Visualization Toolkit. In *ACM SIGGRAPH Symposium on Interactive 3D Graphics & Games*, March 2012.
21. **C. Gribble**. Introducing Multithreaded Programming: POSIX Threads and NVIDIA's CUDA. In *2009 ASEE Annual Conference & Exposition*, June 2009.
22. K. Ramani, **C. Gribble**, & A. Davis. StreamRay: A Stream Filtering Architecture for Coherent Ray Tracing. In *Fourteenth International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS '09)*, March 2009.
23. **C. Gribble** & K. Ramani. Coherent Ray Tracing via Stream Filtering. In *IEEE/Eurographics Symposium on Interactive Ray Tracing*, August 2008.
24. **C. Gribble**. Ray Tracing for Undergraduates. In *2008 ASEE Annual Conference & Exposition*, June 2008.
25. **C. Gribble** & S. Parker. Interactive Particle Visualization with Advanced Shading Models using Lazy Evaluation. In *Eurographics Symposium on Parallel Graphics & Visualization*, May 2007.
26. **C. Gribble**, A. Stephens, J. Guilkey, & S. Parker. Visualizing Particle-Based Simulation Data on the Desktop. In *British HCI 2006 Workshop on Combining Visualization & Interaction to Facilitate Scientific Exploration & Discovery*, September 2006.
27. **C. Gribble** & S. Parker. Enhancing Interactive Particle Visualization with Advanced Shading Models. In *ACM SIGGRAPH Third Symposium on Applied Perception in Graphics & Visualization*, July 2006.
28. J. Bigler, J. Guilkey, **C. Gribble**, C. Hansen, & S. Parker. A Case Study: Visualizing Material Point Method Data. In *Eurographics/IEEE-VGTC Symposium on Visualization*, May 2006.
29. D. DeMarle, **C. Gribble**, & S. Parker. Memory-Savvy Distributed Interactive Ray Tracing. In *Eurographics Symposium on Parallel Graphics & Visualization*, June 2004.
30. D. DeMarle, S. Parker, M. Hartner, **C. Gribble**, & C. Hansen. Distributed Interactive Ray Tracing for Large Volume Visualization. In *IEEE Symposium on Parallel Visualization & Graphics*, October 2003.
31. **C. Gribble**, J. Vasak, & J. Welling. A Visualization Subsystem for the PSC TCS. In *IEEE Workshop on Commodity-Based Visualization Clusters*, October 2002.

Peer-Reviewed & Edited Book Chapters

32. **C. Gribble**. Multi-Hit Ray Tracing in DXR. In *Ray Tracing Gems: High-Quality and Real-Time Rendering with DXR and Other APIs*, Haines & Akenine-Moller, editors, February 2019.

33. **C. Gribble** & J. Amstutz. Radio Frequency Ray Tracing. In *High Performance Parallelism Pearls, Volume 2*, Jeffers & Reinders, editors, July 2015.
34. **C. Gribble**. Interactive Particle Visualization. In *Trends in Interactive Visualization: State of the Art Survey*, Zudilova-Seinstra, Adriaansen, & van Liere, editors, November 2008.

Trade Journal Articles

35. S. Recker & **C. Gribble**. Real-Time, In-Situ Intelligent Video Analytics: Harnessing the Power of GPUs for Deep Learning Applications. *DSIAC Journal*, vol. 4, no. 1, 2017.
36. **C. Gribble** & J. Amstutz. StingRay: High-Performance RF Energy Propagation Modeling in Complex Environments. *DSIAC Journal*, vol. 2, no. 2, 2015.
37. J. Amstutz & **C. Gribble**. Leveraging GPUs for Ballistic Simulation. *DSIAC Journal*, vol. 2., no. 1, 2015.

Posters & Extended Abstracts

38. J. Worobey, S. Recker, & **C. Gribble**. Using Robust Networks to Inform Lightweight Models in Semi-Supervised Learning for Object Detection. In *GPU Technology Conference*, March 2020.
39. S. Recker & **C. Gribble**. Sentinel: Real-Time In-Situ Intelligent Video Analytics for Mobile Platforms. In *GPU Technology Conference*, May 2017.
40. J. Amstutz, J. Guenther, I. Wald, & **C. Gribble**. An Evaluation of Existing BVH Traversal Algorithms for Efficient Multi-Hit Ray Tracing. In *ACM SIGGRAPH/Eurographics High Performance Graphics*, July 2015.
41. **C. Gribble** & A. Naveros. GPU Ray Tracing with Rayforce. In *ACM SIGGRAPH 2013 Posters Program*, July 2013.
42. E. Kerzner, C. Wyman, L. Butler, & **C. Gribble**. Toward Accurate and Efficient Order-Independent Transparency. In *ACM SIGGRAPH 2013 Posters Program*, July 2013.
43. L. Butler, **C. Gribble**, & M. Butkiewicz. Visual Simulation Laboratory. In *GPU Technology Conference*, March 2013.
44. A. Naveros & **C. Gribble**. GPU Ray Tracing with Rayforce. In *GPU Technology Conference*, March 2013.
45. K. Shkurko, T. Ize, **C. Gribble**, E. Brunvand, & L. Butler. Simulating Radio Frequency Propagation via Ray Tracing. In *GPU Technology Conference*, March 2013.
46. J. Fisher, D. Eby, E. Quigley, G. Ludwig, & **C. Gribble**. Ray Tracing Visualization Toolkit. In *ACM SIGGRAPH/Eurographics High Performance Graphics*, August 2011.
47. K. Bensema, J. Porch, J. Heinly, S. Recker, & **C. Gribble**. Toward Stream Filtered Ray Tracing on a Digital Signal Processor. In *ACM SIGGRAPH/Eurographics High Performance Graphics*, June 2010.
48. J. Heinly, K. Bensema, & **C. Gribble**. Packet-Based Interactive Ray Tracing with CUDA. In *ACM SIGGRAPH/Eurographics High Performance Graphics*, August 2009.
49. I. Wald, **C. Gribble**, S. Boulos, & A. Kensler. SIMD Ray Stream Tracing. In *IEEE/Eurographics Symposium on Interactive Ray Tracing*, September 2007.
50. **C. Gribble**, T. Ize, A. Kensler, I. Wald, & S. Parker. A Coherent Grid Traversal Approach to Visualizing Particle-Based Simulation Datasets. In *IEEE Symposium on Interactive Ray Tracing*, September 2006.
51. **C. Gribble** & S. Parker. An Experimental Design for Determining the Effects of Illumination Models in Particle Visualization. In *ACM SIGGRAPH Second Symposium on Applied Perception in Graphics & Visualization*, August 2005.

Technical Reports

52. K. Ramani, **C. Gribble**, & A. Davis. Stream Filtering in StreamRay: An Architecture for Coherent Ray Tracing. *Department of Computer Science, Grove City College, GCC-CS-002-2008*, August 2008.

53. I. Wald, **C. Gribble**, S. Boulos, & A. Kensler. SIMD Ray Stream Tracing: SIMD Ray Traversal with Generalized Ray Packets and On-the-fly Re-Ordering. *Scientific Computing & Imaging Institute, University of Utah*, UUSCI-2007-012, August 2007.
54. **C. Gribble**, S. Parker, & C. Hansen. Interactive Volume Rendering of Large Datasets using the Silicon Graphics Onyx4 Visualization System. *School of Computing, University of Utah*, UUSOC-04-003, January 2004.
55. **C. Gribble**, X. Cavin, M. Hartner, & C. Hansen. Cluster-based Interactive Volume Rendering with Simian. *School of Computing, University of Utah*, UUSOC-03-017, September 2003.
56. **C. Gribble** & S. Parker. A Survey of the Itanium Architecture from a Programmer's Perspective. *Scientific Computing & Imaging Institute, University of Utah*, UUSCI-2003-003, August 2003.

Invited Talks & Presentations:

1. **C. Gribble**. Physical Simulation via Hardware-Optimized Ray Tracing Engines: SOLAR RT Update – November 2020. Lightning talk, *SOLAR Ray Tracing Consortium*, November 2020.
2. **C. Gribble**. Physical Simulation via Hardware-Optimized Ray Tracing Engines. Keynote presentation, *SOLAR Ray Tracing Consortium*, May 2019.
3. **C. Gribble**. Implementing Node Culling Multi-Hit BVH Traversal in Embree. *JCGT* paper presentation, *ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games*, May 2018.
4. **C. Gribble**. RckT: Scalable Physically Accurate Rendering in OSPRay. Technical session, *Intel HPC Developer Conference*, November 2017.
5. **C. Gribble**. Real-Time In-Situ Intelligent Video Analytics for Mobile Platforms. Technical session, *GPU Technology Conference*, May 2017.
6. **C. Gribble**. Realizing Multi-Hit Ray Tracing in Embree & OSPRay. Technical session, *Intel HPC Developer Conference*, November 2016.
7. **C. Gribble**. Real-Time In-Situ Intelligent Video Analytics for Mobile Platforms. Technical session, *GPU Technology Conference Washington D.C.*, October 2016.
8. **C. Gribble**. High Performance Radio Frequency Ray Tracing with Embree. Technical session, *Intel Parallel Universe Theater*, November 2014.
9. **C. Gribble** & J. Amstutz. High Performance Radio Frequency Ray Tracing with Embree. Technical session, *Intel HPC Developer Conference*, November 2014.
10. **C. Gribble**. Multi-Hit Ray Traversal. *JCGT* paper presentation, *ACM SIGGRAPH Symposium on Interactive 3D Graphics & Games*, March 2014.
11. **C. Gribble**. Integer Ray Tracing. Technical session, *Ray Tracing is the Future and Ever Will Be...*, *ACM SIGGRAPH 2013 Courses Program*, July 2013.
12. **C. Gribble** & L. Butler. Advances in High-Performance GPU Ray Tracing for Physics-Based Simulation. Technical session, *GPU Technology Conference*, March 2013.
13. **C. Gribble**. Ray State Visualization. Invited talk, US Army Research Laboratory, Aberdeen Proving Ground, March 2012.
14. **C. Gribble**. Stream Filtered Ray Tracing: An Overview & Recent Results. Invited talk, Department of Computer Science, Bucknell University, April 2011.
15. **C. Gribble**. GPU Computing with CUDA: A Hands-On Tutorial. Invited talk, Pittsburgh Perl Workshop, October 2008.
16. **C. Gribble**. Visualization as a Tool for Education & Research. Invited talk, *Faculty Scholarship Workshop*, Grove City College, February 2007.

Research Students:

Grove City College

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|----------------|---------------------------|----------|
| Andrew Claudy | BS/Computer Science | May 2014 |
| Gideon Ludwig | BS/Computer Science | May 2014 |
| Daniel Eby | BS/Electrical Engineering | May 2013 |
| Ed Quigley | BS/Computer Science | May 2013 |
| Frank Serra | BS/Computer Science | May 2013 |
| Jeremy Fisher | BS/Computer Science | May 2012 |
| Matt Mahan | BS/Mathematics | May 2012 |
| Tyler Anderson | BS/Computer Science | May 2011 |
| Jesse Porch | BS/Computer Science | May 2011 |
| Shawn Recker | BS/Computer Science | May 2011 |
| Kevin Bensema | BS/Computer Science | May 2010 |
| Craig Hamilton | BS/Computer Science | May 2010 |
| Jared Heinly | BS/Computer Science | May 2010 |

Teaching Interests:

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| Computer graphics & visualization: | Introductory & advanced computer graphics, scientific visualization |
| High performance computing: | Parallel computing: architectures, algorithms, & applications |
| Other: | Computer architecture, operating systems, data communications & networking |

Teaching Experience:

Grove City College

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| <i>Computer Architecture & Organization</i> | Spring semester | 2009-2012 |
| <i>Introduction to Computer Graphics</i> | Spring semester | 2008-2012 |
| <i>Advanced Programming & Data Structures</i> | Fall & spring semesters | 2007-2012 |
| <i>Operating Systems</i> | Spring semester | 2007-2012 |
| <i>Object Oriented & Advanced Programming</i> | Fall semester | 2008-2011 |
| <i>Computer Programming II</i> | Fall semester | 2007-2011 |
| <i>Computer Security</i> | Fall semester | 2011 |
| Special topics: <i>Computer Security</i> | Spring semester | 2011 |
| <i>Data Communications & Networking</i> | Fall semester | 2009-2010 |
| Special topics: <i>Ray Tracing Visualization</i> | Fall semester | 2010 |
| Special topics: <i>Interactive Ray Tracing with OptiX</i> | Spring semester | 2010 |
| <i>Computer Programming I</i> | Fall & spring semesters | 2007-2008 |
| Special topics: <i>Image Synthesis using Ray Tracing</i> | Spring semester | 2007-2008 |
| <i>Web Programming Technologies</i> | Spring semester | 2007 |

University of Utah

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| Co-instructor, <i>Advanced Computer Graphics II</i> | Spring semester | 2006 |
| Assistant instructor, <i>Advanced Computer Graphics II</i> | Spring semester | 2005 |

Carnegie Mellon University

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|---|-----------------|------|
| Teaching assistant, <i>Telecommunication Security</i> | Spring semester | 2002 |
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Honors & Awards:

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| University of Utah Graduate Research Fellowship Program | Research fellow | 2005-2006 |
| School of Computing Outstanding Teaching Assistant Award Program | Honorable mention | 2005 |
| Carnegie Mellon University Full Tuition Scholarship for Graduate Studies | | 2000-2002 |
| NASA Glenn Research Center Collaborative Summer Research Program | Accepted applicant | 2001 |
| Grove City College Presidential Scholars List | | 1999-2000 |
| Grove City College Synod of the Trinity Scholarship | | 1996-2000 |
| Grove City College Dean's List, with distinction | | 1996-1999 |
| National Collegiate Mathematics Award | | 1997 |
| Elks National Foundation 4-year Scholarship for Undergraduate Studies | | 1996 |

Academic & Professional Service:

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| Khronos ANARI Working Group | Member | 2020 |
| SOLAR Ray Tracing Consortium – SC20 Exhibitor Forum Committee | Member | 2020 |
| International Conference on Computer Vision Theory and Applications | Program committee | 2019-2020 |
| Khronos Analytic Rendering Exploratory Group | Member | 2019 |
| Grove City College Academic Integrity Student/Faculty Review Committee | Member | 2011-2012 |
| Grove City College Linux & Unix User’s Group | Faculty advisor | 2011-2012 |
| ACM SIGGRAPH Undergraduate Research Alliance | Member | 2010-2012 |
| Grove City College Chapter of Sigma Xi, the Scientific Research Society | Vice president | 2009-2012 |
| Grove City College Sigma Xi/Swezey Student Research Poster Competition | Co-organizer | 2009-2012 |
| Grove City College Campus Technology Committee | Member | 2009-2012 |
| Grove City College Biannual Student Research Showcase | Co-organizer | 2008-2012 |
| Grove City College Hopeman Student Research Seminar Series | Co-organizer | 2008-2012 |
| Grove City College Chapter of the Association for Computing Machinery | Faculty advisor | 2008-2012 |
| Center for Vision & Values Working Group on Ethics & Character Formation | Member | 2007-2012 |
| ACM SIGGRAPH/Eurographics High Performance Graphics | Publicity chair | 2012 |
| ACM SIGGRAPH/Eurographics High Performance Graphics | Program committee | 2009-2011 |
| ACM SIGGRAPH/Eurographics High Performance Graphics | Posters chair | 2011 |
| ACM SIGGRAPH/Eurographics High Performance Graphics | Program chair | 2010 |
| AVI Workshop on Interactive Data Exploration & Knowledge Discovery | Program committee | 2010 |
| IEEE/Eurographics Symposium on Interactive Ray Tracing | Program committee | 2007-2008 |
| IEEE/Eurographics Symposium on Interactive Ray Tracing | Steering committee | 2006-2008 |
| IEEE/Eurographics Symposium on Interactive Ray Tracing | Publicity chair | 2008 |
| IEEE Symposium on Interactive Ray Tracing | Posters chair | 2006 |
| IEEE Symposium on Interactive Ray Tracing | Co-organizer | 2006 |
| Graduate Student Advisory Committee, University of Utah | Chairman | 2004-2005 |
| School of Computing Research Day, University of Utah | Director | 2005 |
| Graduate Student Advisory Committee, University of Utah | Student representative | 2003-2004 |
| Incoming Graduate Student Working Group, University of Utah | Student representative | 2004 |
| IEEE Visualization conference series | Student volunteer | 2002-2003 |
| ACM/IEEE Supercomputing conference series | Student volunteer | 2003 |
| Information Networking Symposium, Carnegie Mellon University | Director | 2002 |
| B.Y.T.E. Computer Science Honor Society, Grove City College | President | 1999 |
| Interfraternity Council, Grove City College | President | 1999 |
| Pan Sophic Fraternity, Grove City College | Rush chairman | 1998 |
| Pan Sophic Fraternity, Grove City College | Treasurer | 1998 |

Professional Memberships:

| | |
|---|-------------------------|
| Association for Computing Machinery | 2002-2003, 2011-present |
| ACM Special Interest Group on Graphics and Interactive Techniques | 2007-present |
| Sigma Xi, the Scientific Research Society | 2007-present |
| Institute for Electrical & Electronics Engineers | 2003-present |
| Council on Undergraduate Research | 2009-2012 |
| American Society for Engineering Education | 2007-2012 |
| Beta Tau Upsilon Epsilon, Grove City College Computer Science Honor Society | 1998-2000 |
| Kappa Mu Epsilon, National Mathematics Honor Society | 1998 |

Reviews & Panels:

Journals

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| journal of graphics, gpu, & game tools | Reviewer | 2012 |
| Computer Graphics Forum | Reviewer | 2012-2014 |
| Computer Methods and Programs in Biomedicine | Reviewer | 2012 |

Conferences & Symposia

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|---|----------|-------------------------------------|
| ACM SIGGRAPH/Eurographics High Performance Graphics | Reviewer | 2009-2011, 2013-2014, 2016, 2018 |
| American Society for Engineering Education, North Central Section | Reviewer | 2007-2008, 2010-2012 |
| IEEE Visualization conference series | Reviewer | 2005, 2007-2010 |
| Graphics Interface | Reviewer | 2010 |
| Eurographics conference series | Reviewer | 2005-2006, 2008-2009 |
| SIGGRAPH Asia | Reviewer | 2009 |
| IEEE/Eurographics Symposium on Interactive Ray Tracing | Reviewer | 2006-2008 |
| Eurographics Symposium on Rendering | Reviewer | 2004 |
| IASTED Computer Graphics & Imaging | Reviewer | 2004 |

Panels

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| National Science Foundation, CRI-07 Knowledge Discovery | Panelist | 2007 |
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Other

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| CUR Posters on the Hill, Mathematics/Computer Science Division | Reviewer | 2011 |
| Allegheny College Forty Day Visual Feast Project | Reviewer | 2010 |