

Micah Taylor

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Research interests:

Interactive sound propagation : Realtime ray tracing : Visibility & rendering

Education:

- PhD - Computer Science, May 2014
"Interactive Sound Propagation for Massive Multi-user and Dynamic Virtual Environments"
University of North Carolina, Chapel Hill
 - MS - Computer Science, 2012
University of North Carolina, Chapel Hill
 - BS - Computer Science, 2004
Technical Translator in German, 2004
Rose-Hulman Institute of Technology
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Work experience:

- Rose-Hulman Institute of Technology, 2012 - Present
Assistant Professor
 - Taught introductory and elective courses
 - Served as academic adviser to CS/SE students
 - Worked with colleagues and served on committees to improve Computer Science and Software Engineering course offerings
- Impulsonic (now Valve), 2016
Senior Researcher
 - Developed proprietary acoustic algorithms.
 - Developed software with team in-office and remotely
- University of North Carolina, Gamma group 2007 - 2012
Research Assistant
 - Created interactive [GPU based sound propagation system](#) for early specular reflection and diffraction
 - Designed interactive [acoustic simulation](#) with diffuse, specular, and diffraction components
 - Developed [diffraction tracing](#) using real-time ray frustum tracer
- Dolby - San Francisco, CA Summer 2010
Research intern
 - Designed fast GPU and CPU based audio rendering system
 - Collaborated with senior researchers on large scale acoustic rendering systems
- Baker Hill (now Experian), Carmel, IN 2004 - 2007
Software Engineer
 - Served as lead designer on critical path projects for major [products](#)
 - Developed tools to automate refactoring of over 50,000 lines of code
 - Designed and implemented automatic build and deploy process across multiple platforms and devices

Teaching experience:

- Rose-Hulman Institute of Technology, 2012 - present
Assistant Professor
 - Courses taught:
 - Introduction to Computer Systems - 9
 - Computer Architecture - 14
 - Computer Graphics - 4
 - Advanced Computer Graphics - 3
 - Independent study - 6
 - Thesis - 2 advised
- University of North Carolina, Introduction to Computer Graphics, Fall 2011
Instructor
 - Full responsibility for course, including structure and lectures
 - Designed homeworks, quizzes, and programming assignments
 - Held office hours and graded assignments
- University of North Carolina, Advanced Image Synthesis, Fall 2008
Teaching Assistant
 - Implemented Wavefront OBJ loader for ray tracing scenes
 - Graded assignments and tested assignment softwares
- University of North Carolina, Computer Architecture, Fall 2007
Teaching Assistant
 - Conducted reviews of classroom materials
 - Held office hours and graded assignments
- Hancock County Public Library, Greenfield IN Summer 2003
Volunteer
 - Prepared and taught basic Java programming class
 - Handled lab setup and student questions
- Hancock County Public Library, Greenfield IN 1999 - 2000
Volunteer
 - Taught basic Internet skills class
 - Worked with students on example internet use
 - Tutored basic computer use

Skills:

- Programming
C, C++, Javascript, PHP, VB6, C#, MATLAB, Java, SQL, Scheme
- APIs & Tools
CUDA, OpenGL, OpenMP, SDL, Blender, Final Cut, Audacity, Apache, Git, Bash

Projects:

- Implemented platform independent [realtime ray tracer](#). Supports multiple hierarchy structures, split-selectors, shaders, and post-processing.
- Designed and implemented [fast motion](#) blur effects using sample reprojection. Generates similar results to stochastic motion blur at a fraction of the cost.
- Maintain and host my [personal webpage](#). Custom code and design with database backend and light frontend.

Publications:

Journals and conferences

1. Micah Taylor, Anish Chandak, Qi Mo, Christian Lauterbach, Carl Schissler, and Dinesh Manocha. [Guided Multiview Ray Tracing for Fast Auralization](#), IEEE Transactions on Visualization and Computer Graphics 2012 (26%)
[10.1109/TVCG.2012.27](#)
2. Lakulish Antani, Anish Chandak, Micah Taylor, Dinesh Manocha. [Direct-to-Indirect Acoustic Radiance Transfer](#), IEEE Transactions on Visualization and Computer Graphics 2012 (26%)
[10.1109/TVCG.2011.76](#)
3. Lakulish Antani, Anish Chandak, Micah Taylor, Dinesh Manocha. [Efficient finite-edge diffraction using conservative from-region visibility](#), Applied Acoustics 2011 (43%)
[10.1016/j.apacoust.2011.09.004](#)
4. Anish Chandak, Lakulish Antani, Micah Taylor, Dinesh Manocha. [Fast and Accurate Geometric Sound Propagation using Visibility Computations](#), International Symposium on Room Acoustics 2010
5. Micah Taylor, Anish Chandak, Lakulish Antani, Dinesh Manocha. [RESound: Interactive Sound Rendering for Dynamic Virtual Environments](#), 17th International ACM Conference on Multimedia 2009 (16%)
[10.1145/1631272.1631311](#)
6. Anish Chandak, Lakulish Antani, Micah Taylor, Dinesh Manocha. [FastV: From-point Visibility Culling on Complex Models](#), 20th Eurographics Symposium on Rendering 2009 (29%)
[10.1111/j.1467-8659.2009.01501.x](#)
7. Micah Taylor, Anish Chandak, Zhimin Ren, Christian Lauterbach, Dinesh Manocha. [Fast Edge-Diffraction for Sound Propagation in Complex Virtual Environments](#), EAA Symposium on Auralization 2009
8. Anish Chandak, Christian Lauterbach, Micah Taylor, Zhimin Ren, Dinesh Manocha. [AD-Frustum: Adaptive Frustum Tracing for Interactive Sound Propagation](#), IEEE Transactions on Visualization and Computer Graphics 2008 (26%)
[10.1109/TVCG.2008.111](#)

Patents

1. Anish Chandak, Lakulish Antani, Micah Taylor, Dinesh Manocha. Methods and systems for direct-to-indirect acoustic radiance transfer, [US 8995675](#)
2. Nicolas Tsingos, Micah Taylor. Method and system for split client-server reverberation processing, [US 8958567](#)
3. Anish Chandak, Lakulish Antani, Micah Taylor, Dinesh Manocha. Methods, systems, and computer readable media for fast geometric sound propagation using visibility computations, [US 8847695](#)

Other

- Micah Taylor, Anish Chandak, Lakulish Antani, Dinesh Manocha, [Interactive geometric sound propagation](#), EE Times, 2010
- Micah Taylor, Anish Chandak, Lakulish Antani, Dinesh Manocha, [Interactive Geometric Sound Propagation and Rendering](#), Intel Academic Spotlight, 2010
- Micah Taylor, Anish Chandak, Zhimin Ren, Christian Lauterbach, Dinesh Manocha. [Fast edge diffraction for sound propagation in complex virtual environments](#), [Acoustical Society of America's North Carolina Chapter](#) (Best presentation award), 2009