

# Micah Taylor

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## Research interests:

Interactive sound propagation : Realtime ray tracing : Visibility & rendering

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## Education:

- University of North Carolina, Chapel Hill  
MS - Computer Science, expected 2012  
PhD - Computer Science, expected 2012
  - Rose-Hulman Institute of Technology  
BS - Computer Science, 2004  
Technical Translator in German, 2004
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## Work experience:

- University of North Carolina, Gamma group 2007 - Present  
*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
- Experian - Baker Hill, 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
- Senior Year Project for Sagian, RHIT 2004  
*Project Manager*
  - Planned team direction and goals
  - Assigned and managed sub-teams
  - Worked with team leaders to complete artifacts
- Integral Technology, Indianapolis, IN Summer 2002, Summer 2003  
*Intern*
  - Built cross platform Unix/Windows program to test hardware
  - Worked on extension of LinuxBIOS project
  - Designed and implemented interactive HTML sales demos

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## Teaching experience:

- 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

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## 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

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## 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.

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## Publications:

### Journals and conferences

- 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 (To appear)
- Lakulish Antani, Anish Chandak, Micah Taylor, Dinesh Manocha, [Direct-to-Indirect Acoustic Radiance Transfer](#), IEEE Transactions on Visualization and Computer Graphics, 2012
- Anish Chandak, Lakulish Antani, Micah Taylor, Dinesh Manocha, [Fast and Accurate Geometric Sound Propagation using Visibility Computations](#), International Symposium on Room Acoustics 2010
- Micah Taylor, Anish Chandak, Lakulish Antani, Dinesh Manocha, [RESound: Interactive Sound Rendering for Dynamic Virtual Environments](#), 17th International ACM Conference on Multimedia, 2009
- Anish Chandak, Lakulish Antani, Micah Taylor, Dinesh Manocha, [FastV: From-point Visibility Culling on Complex Models](#), 20th Eurographics Symposium on Rendering, 2009
- 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
- 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

### Other

- Lakulish Antani, Anish Chandak, Micah Taylor, Dinesh Manocha [Fast Geometric Sound Propagation with Finite Edge Diffraction](#), Tech report, 2010
- 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