Carl Schissler

200 Barnes st. Apt. E1 Carrboro, NC 27510 **Phone: (828) 545-4523**
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Work Experience

Research Assistant, GAMMA Group **August 2013 - Present**
UNC Department of Computer Science
Developed and implemented algorithms for interactive sound propagation and rendering in 3D virtual environments; Published technical papers; Worked on using temporal and spatial coherence to improve real-time sound propagation; Acoustic material optimization for augmented reality; Sound propagation on mobile devices.

Research Intern **May 2016 – August 2016**
Oculus VR / Facebook
Sound for virtual reality; Submitted paper to IEEE VR 2017 conference (under review).

Research Intern **May 2015 – August 2015**
Oculus VR / Facebook
Developed a novel approach for computing spatial sound for area and volume sound sources for virtual reality applications; Published paper in IEEE VR 2016 conference.

Live Sound Engineer **March 2010 - August 2013**
Cat's Cradle
Provided both front-of-house and stage monitor mixes for 800-capacity music venue; Oversaw technical preparations and changeovers for the stage, as well as maintenance on the venue facilities.

Teaching Assistant - Comp 575: Computer Graphics **August 2009 - December 2009**
UNC Department of Computer Science
Developed and graded assignments and exams; Provided individual instruction for students;

Audio Crew Manager, Stage Manager **August 2007 - May 2010**
Carolina Union Production Services / UNC Memorial Hall
Oversaw the audio, lights, and stage direction aspects of events on campus and in UNC Memorial Hall; Trained new employees in audio engineering; Performed maintenance on audio facilities.

Publications

Acoustic Classification and Optimization for Multi-Modal Rendering of Real-World Scenes
Carl Schissler, Christian Loftin, Dinesh Manocha
IEEE Transactions on Visualization and Computer Graphics, 2017
http://gamma.cs.unc.edu/AClassification

Efficient Construction of the Spatial Room Impulse Response
Carl Schissler, Peter Stirling, Ravish Mehra
Proceedings of IEEE VR 2017

Interactive Sound Propagation and Rendering for Large Multi-Source Scenes
Carl Schissler, Dinesh Manocha
ACM Transactions on Graphics, 2016
http://gamma.cs.unc.edu/MULTISOURCE

Interactive Multi-Source Sound Propagation and Auralization for Dynamic Scenes
Carl Schissler, Dinesh Manocha
Proceedings of The International Symposium on Musical and Room Acoustics (ISMRA), 2016

Interactive Sound Propagation with Bidirectional Path Tracing
Chunxiao Cao, Zhong Ren, Carl Schissler, Dinesh Manocha, Kun Zhou
Proceedings of ACM SIGGRAPH Asia, 2016

http://gaps-zju.org/bst

Efficient HRTF-based Spatial Audio for Area and Volume Sound Sources
Carl Schissler, Aaron Nicholls, Ravish Mehra
IEEE Transactions on Visualization and Computer Graphics, 2016

SynCoPation: Interactive Synthesis-Coupled Sound Propagation
Atul Rungta, Carl Schissler, Ravish Mehra, Chris Malloy, Ming Lin, Dinesh Manocha
IEEE Transactions on Visualization and Computer Graphics, 2016
honorable mention, best paper IEEE VR 2017

Adaptive Impulse Response Modeling for Interactive Sound Propagation
Carl Schissler, Dinesh Manocha
Proceedings of i3D 2016
http://gamma.cs.unc.edu/ADAPTIVEIR

High-Order Diffraction and Diffuse Reflections for Interactive Sound Propagation in Large Environments
Carl Schissler, Ravish Mehra, Dinesh Manocha
Proceedings of ACM SIGGRAPH 2014
http://gamma.cs.unc.edu/HIGHDIFF

Guided Multiview Ray Tracing for Fast Auralization
Micah T. Taylor, Anish Chandak, Qi Mo, Christian Lauterbach, Carl Schissler, Dinesh Manocha
IEEE Transactions on Visualization and Computer Graphics, 2012
http://gamma.cs.unc.edu/Sound/Guided

GSound: Interactive Sound Propagation for Games
Carl Schissler, Dinesh Manocha
AES 41st Conference: Audio for Games, Feb. 2011
http://gamma.cs.unc.edu/GSOUND

Education

Computer Science PhD Program (4th Year) **August 2013 – Present**
The University of North Carolina at Chapel Hill (expected graduation, May 2017)
Selected Coursework: Physically-based Modeling, Robot Motion Planning, Image Analysis, Computer Vision, Parallel Computing, Computer Architecture.

BS, Computer Science; Minor, Physics **August 2006 - May 2010**
The University of North Carolina at Chapel Hill
Selected Coursework: Compilers, Operating Systems, Computational Geometry, Sound Rendering.

Skills & Experience

- Digital Signal Processing: filters, convolution, audio effects, spatial sound.
- Sound: audio mixing, mastering, sound design.
- Physics: rigid-body simulation, collision detection.
- Graphics: ray tracing, OpenGL, GLSL, software rendering
- Programming: C++, C, Objective-C, Java, Javascript, PHP, SSE, Altivec, ARM NEON