Hengchin Yeh

SN 335 Sitterson Hall, UNC-Chapel Hill
Chapel Hill, NC 27599-3175

hyeh@cs.unc.edu
http://cs.unc.edu/~hyeh/

Education	Ph.D. in Computer Science	Oct 2013
	University of North Carolina at Chapel Hill	(Tentative)
	M.S. in Computer Science and Information Engineering	June 2004
	National Taiwan University, Taipei, Taiwan	
	B.S. in Physics	June 2002
	National Taiwan University, Taipei, Taiwan	

Project Experience

Hybrid Technique for Sound Propagation, Research Spring 2012-Present
- Combined wave-based numeric and ray-based geometric acoustic techniques to solve large-scale sound propagation problems. Balance efficiency and accuracy.

Example-Guided Physically-Based Modal Sound Synthesis,
Research Spring 2010-Fall 2011
- From a recording of a real-world object, estimate the material parameters using signal processing and mathematical optimization techniques.
- Project web page: http://gamma.cs.unc.edu/AUDIO_MATERIAL/

CUDA implementation of Fast Fourier Transform, Course Project Fall 2011
- Implemented the Fast Fourier Transform in CUDA and analyzed the performance and error.

Contact Sounds between Textured Models, Research Spring 2009-Fall 2009
- Simulated contact sounds at various resolutions using a three-level surface representation: geometry, normal mapping, and statistical roughness.
- Project web page: http://gamma.cs.unc.edu/SlidingSound/

Sounding Liquids, Research Fall 2008-Fall 2009
- Presented a novel algorithm for generating physically-based liquid sounds from real-time and off-line fluid simulation by tracking and analyzing bubble meshes.
- Project web page: http://gamma.cs.unc.edu/SoundingLiquids/

Composite Agents, Research Spring 2008
- Developed a framework aiming at embodying social and psychological factors for avatar interactions in virtual environments.
- Project web page: http://gamma.cs.unc.edu/CompAgent/

Work Experience

Context-Aware High Dynamic Range Imaging, R&D Intern, Summer 2012
Disney Research, Pittsburgh, PA
- Researched a novel high dynamic range technique that applies different enhancement methods to subjects detected in images (people, sky, landmarks, etc.).

	Customized Figurine Project, R&D Intern,	Summer 2011
	Disney Research, Pittsburgh, PA	

- Developed a semi-automatic pipeline to seamlessly composite meshes of a human face and a cartoon figurine using geometry processing techniques.
- 20X faster than the manual process.
- Patent application in progress.

	Google Voice Group, Software Engineering Intern,	Summer 2009
	Google Inc., New York, NY	

- Researched speech recognition algorithms. Implemented a baseline algorithm with which future developments can be compared.
- Worked primarily in C++ with unit testing, under the map-reduce framework.

Computer Skills

Programming: C++ (expert), MATLAB (expert), Python (prior experience), CUDA (prior experience)
Other: Git/SVN/Perforce, Boost, UnitTest++

Selected Publications

Example-Guided Physically Based Modal Sound Synthesis, Zhimin Ren, Hengchin Yeh, and Ming C. Lin, *ACM TOG; to be presented at SIGGRAPH 2013*.

Auditory Perception of Geometry-Invariant Material Properties, Zhimin Ren, Hengchin Yeh, Roberta Klatzky, and Ming C. Lin, *IEEE VR 2013;* **Best Paper Honorable Mention**

AudioCloning: Extracting Material Fingerprints from Example Audio Recording, Hengchin Yeh, Zhimin Ren, and Ming C. Lin, *SIGGRAPH 2012 Studio Talk*

Sounding Liquids: Automatic Sound Synthesis from Fluid Simulation, William Moss, Hengchin Yeh, Jeong-Mo Hong, Ming C. Lin and Dinesh Manocha, *ACM TOG; presented at SIGGRAPH 2010*.

Synthesizing Contact Sounds between Textured Models, Zhimin Ren, Hengchin Yeh, and Ming C. Lin, *IEEE VR 2010*.

Composite Agents, Hengchin Yeh, Sean Curtis, Sachin Patil, Jur van den Berg, Dinesh Manocha, and Ming Lin, *SCA 2008*.

Reporting Center Problem for Interval Graphs and Trees, Hengchin Yeh, *M.S. thesis*, advisor: Der-Tsai Lee, National Taiwan University, 2004.

Honors

	Disney Inventor Award, Disney Research, Pittsburgh	2012

	Dean's Award, National Taiwan University, Taiwan	2002

Graduated second among 60 students in the Department of Physics.

	Presidential Award, National Taiwan University, Taiwan	1997-2002

Five times (top 5% of the class)