Chad McKell

acoustics researcher

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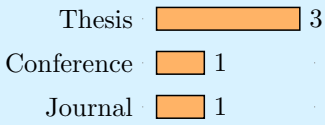
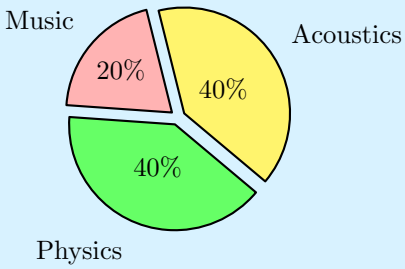
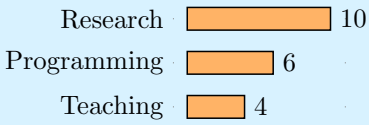
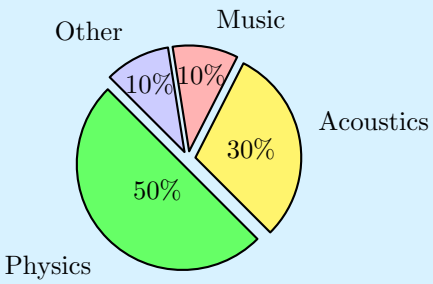
Publications





Years of Experience





About

I am a Ph.D. student at UC San Diego. In my research, I develop computational and mathematical methods for acoustic simulation, with a focus on physics-based methods. Topics of interest include binaural audio, room acoustics, and differential geometry. My research has applications in music, animation, virtual reality, and other fields.

Education

University of California San Diego, Ph.D. in Computer Music (9/19–)
GPA: 4.0. Dissertation: *Geometric Methods for Open-Boundary Wave Simulations.*
Advisors: Albert Chern and Miller Puckette.

University of Edinburgh, M.S. in Acoustics and Music Technology (9/16–10/17)
Wake Forest University, M.S. in Physics (8/09–12/15)
Brigham Young University, B.S. in Biophysics (6/02–8/09)

Recent Work Experience

University of California San Diego, Teaching Assistant/Researcher (9/19–)
La Jolla, California. Assist in teaching undergraduate courses on computer music and other topics. Develop online lecture materials covering aspects of music technology, musicology, acoustics, and audio signal processing. Provided technical assistance to students in the Music Department recording studios.

Meta, Reality Labs Research, Research Intern/Student Researcher (8/21–3/22)
La Jolla, California. Conducted computational acoustics research for virtual and augmented reality devices. Research topics included spatial audio, numerical simulation, parallel programming, and discrete complex analysis. Supervisor: Sebastian Prepeliță. Team Lead: Ravish Mehra.

Applied Research in Acoustics, R&D Scientist (7/18–7/19)
Culpeper, Virginia. Developed physics-based signal processing algorithms for naval sonar systems. Research topics included underwater acoustics, matched filtering, sparse estimation, and beamforming. Team Lead: Jonathan Botts.

Moog Music, Freelance DSP Developer (5/18–5/18)
Asheville, North Carolina. Developed real-time audio effects in C++ for digital sound synthesizers. Participated in discussions relating to new musical instruments. Team Lead: Cyril Lance.

Lofelt, Freelance DSP Developer (4/17–9/17)
Berlin, Germany. Designed real-time signal processing algorithms for the Razer Nari Ultimate headphones, the world's first intelligent haptics-enabled gaming headsets. Developed computational simulations of physical vibrations and interactions for embedded devices. Team Leads: Gwydion ap Dafydd and Daniel Bttner.

Selected Publications

C. McKell and K. Bonin, "Optical corral using a standing-wave Bessel beam," *Journal of the Optical Society of America B*, Vol. 35, No. 8, 1910–1920, 2018.

C. McKell, *Finite-Difference Simulations of Speech with Wall Vibration Losses*, Special Project Dissertation, University of Edinburgh, Acoustics and Audio Group, 2017.

C. McKell, "Sonification of optically-ordered Brownian motion," Proceedings of the International Computer Music Conference, Utrecht, Netherlands, September 2016.