Chad McKell

audio researcher

1818 Orange Rd
Culpeper, VA 22701

+1 661 289 4215
mckell.chad@gmail.com
github.com/chadmckell
chadmckell.com

Languages

C++
Java
MATLAB
LaTeX
Python
Bash
HTML/CSS
Wolfram
Maple
SuperCollider
Pd

Software Skills

JUCE
Xcode
Eclipse
PyCharm
Sourcetree
JIRA
Bitbucket
Ableton Live
Cubase
Praat
Illustrator

Other Skills

English (native)
Spanish (fluent)
Mandarin (basic)
guitar
piano

About

I am a research scientist and software developer with experience in acoustics, digital signal processing, physical modeling, speech synthesis, audio effects, haptics, optics, experimental physics, and automation testing. I am especially interested in developing sound synthesis and virtual analog modeling software for music. I am originally from Los Angeles, California.

Recent Experience

R&D Scientist, Applied Research in Acoustics *(July 2018–present)*
Culpeper, Virginia. Develop signal processing software for naval sonar systems. Process sound simulations and recordings using methods such as matched filtering and adaptive beamforming. Research sound propagation, sparse and compressive sensing, and reverberation.

Freelance DSP Developer, Moog Music *(May 2018)*
Asheville, North Carolina. Developed real-time audio effects in C++ for digital and analog synthesizers. Participated in design discussions for new musical instruments.

Freelance DSP Developer, Lofelt *(Apr–Sept 2017)*
Berlin, Germany. Designed real-time signal processing algorithms for the Razer Nari Ultimate, the world's first intelligent haptics-enabled gaming headset. Developed computational simulations of physical vibrations and interactions for embedded devices.

QA Engineer (SDET), J.P. Morgan/Neovest *(2014–2016)*
Orem, Utah. Developed Java-based automation software for J.P. Morgan's investment trading platform, Neovest. Designed unit tests to validate new features and locate software bugs.

Engineering Intern, Bennett Aerospace, Cary, NC *(Sept–Dec 2012)*
Assisted in drafting a NASA SBIR solicitation. Provided statistical analysis for a company staffing report. Helped market a crowd sourcing project for a biosensor device.

Adjunct Instructor, UNC School of the Arts *(Sept–Dec 2012)*
Winston-Salem, North Carolina. Designed and taught a general college physics course at a public arts conservatory. Prepared instructional materials, including a course syllabus, quizzes, and exams.

Education

M.Sc., University of Edinburgh, Acoustics and Music Technology *(2016–2017)*
Edinburgh, Scotland. *Graduated with merit.* Coursework: acoustics, digital signal processing, physical modeling, speech processing, complex analysis, continuum mechanics. Research: speech synthesis, haptics. Advisor: Stefan Bilbao.

M.Sc., Wake Forest University, Physics *(2009–2015)*
Winston-Salem, North Carolina. Coursework: computational physics, classical mechanics, quantum mechanics, optics, E&M, solid-state physics. Research: optical trapping. Advisor: Keith Bonin.

B.Sc., Brigham Young University, Biophysics *(2002–2009)*
Provo, Utah. Coursework: physics, mathematics, biology, chemistry, foreign languages. Research topics: atomic force microscopy, membrane biophysics. Advisor: David Busath.

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