Champ Darabundit

champ.darabundit@mail.mcgill.ca | www.champ.audio

EDUCATION

Doctorate | Ph.D Music Technology | McGill University | Expected Graduation: 2026
Master's | M.A. Music, Science, and Technology | Stanford University | 2020-2022
Bachelor's | B.S. Electrical Engineering & B.A. Art and Design | University of Southern California | 2015-2020

WORK EXPERIENCE

SPG Acoustics Intern | Apple Inc. | Jun. - Sep. 2021
- Worked in the Acoustics special projects group (SPG)
- Researched new technology combining acoustic measurement and machine learning

DSP Engineering Consultant | Eventide Inc. | Sep. 2019 - Oct. 2020
- Developed virtual analog model of A/D and D/A of vintage rack unit to integrate into existing products
- Produced DSP library code using C++ templates to streamline DSP developer API

Luxury Audio Engineering Intern | Harman International | May - Aug. 2019
- Maintained and calibrated anechoic testing chambers
- Responsible for QC of speaker system components using Klippel and Audio Precision hardware

Audio Engineering Intern | Eventide Inc. | May 2018 - May 2019
- Architected audio effect program to model vintage effect pedal now in products
- Ported legacy Assembly DSP tone deaf decoder software to C++ for use in updated products

RESEARCH PROJECTS

Woodwind synthesis, playability and parameter modeling [link] | ongoing
- Investigating how the interaction between a musician and woodwind instruments affects the instrument acoustics using physics-based sound synthesis

Neural network vacuum tube models for wave digital filters [link] | 2022
- Modeled vacuum tube distortion using wave-domain neural networks in modular WDF framework
- Combined technique produced efficient models that ran at ~25x audio rate on laptop CPU

Improved discretization of analog filters [link] | 2021-2022
- Advanced filter discretization theory through derivation of unique transform
- Confirmed new transform minimizes frequency warping by confining realization up to Nyquist limit

Efficient waveguide synthesis of a pipe organ [link] | 2021
- Implemented efficient real-time model of pipe organ using Faust language and JUCE framework
- Utilized acoustic modeling to generate pipes based on individual geometry

TEACHING

Co-Instructor | MUMT302 New Media Production, McGill University | Jan. - Apr. 2023, 2024, 2025
- Led weekly lectures on DSP behind music production tools with material taught through PureData

Research Assistant | MUS302C, Stanford University | Jan. - Mar. 2022
- Designed course material and assignments for new course on JUCE framework

Teaching Assistant | MUS422/424/302C, Stanford University | Sep. 2021 - Jun. 2022
- Guided lab sessions and supported students in all Master's level DSP electives