

Champ Darabundit

champ.darabundit@mail.mcgill.ca | <https://ccrma.stanford.edu/~champ/> | 347.268.2984

EDUCATION

Doctorate | McGill University | Expected Graduation: 2026

Ph.D Music Technology

Master's | Stanford University | 2020-2022

M.A. Music, Science, and Technology

Bachelor's | University of Southern California | 2015-2020

B.S. Electrical Engineering - Signal Processing | B.A. Art and Design - 3D Design

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

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

Nyquist band transform [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

- Led weekly lectures on DSP behind music production tools with material taught through PureData

Research Assistant | MUS302C, Stanford University | Jan. - Mar. 2023

- Designed course material and assignments for new course on JUCE framework

Teaching Assistant | MUS422/424/302C, Stanford University | Sep. 2022 - Jun. 2023

- Guided lab sessions and supported students in all Master's level DSP electives