

# ANNIE CHU

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## RESEARCH INTERESTS

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Accessible & Inclusive Musical Interfaces, Audio & Machine Learning, Multimodal Systems

## EDUCATION

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**Northwestern University** Evanston, IL  
Ph.D. in Computer Science & Communication 2023-current  
Advisor: Bryan Pardo, Interactive Audio Lab

**Olin College of Engineering** Boston, MA  
B.S. in Electrical & Computer Engineering, GPA: 3.98 2022

## RESEARCH EXPERIENCE

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**Research Assistant, Sensor Engineer** Summer 2022  
MUSIC AND AUDIO RESEARCH LABORATORY (MARL), NEW YORK UNIVERSITY  
CENTER FOR URBAN SCIENCE + PROGRESS (CUSP), NEW YORK UNIVERSITY  
New York, NY

- Deployed and analyzed IoT sensor suite on the Sounds of New York City (SONYC) project to collect noise pollution data around the city, created QA/QC Python scripts to automate node deployment
- Developed Python script to analyze collected SPL, ML, and raw audio data, extract key metrics, and create visualizations for participant-facing reports

**Student Researcher** Fall 2021 & Spring 2022  
PROF. ANDREW DAVIS, WELLESLEY COLLEGE Wellesley, MA

- Created an audio FX plug-in in JUCE for the Schroeder Reverb
- Researched and programmed methods for artificial reverb generation, explored theory and application of convolution and algorithmic methods, created a Python program and interface

**Research Assistant** Fall 2018 & Spring 2019  
LAB FOR ADAPTATION, INCLUSION, AND ROBOTICS, OLIN COLLEGE OF ENGINEERING Needham, MA

- Developed an assistive tech RF proximity sensor wearable and sensing system abling visually impaired swimmers to detect pool walls, focused on sensors calibration and integration

## PROFESSIONAL EXPERIENCE

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**The Engine** Cambridge, MA  
*Program Co-op* 2023

- Provided key contributions in design, data analysis, and build out of internal software systems at The Engine, a public benefit corporation aimed to accelerate Tough Tech startups through access to the capital, infrastructure, resources, and community that companies need to scale.

**Embr Labs, Inc** Somerville, MA  
*R&D Engineer Intern* 2020-2021

- Lead prototype development for a new R&D sensation-optimized waveform, executed both QA and user experience testing of 3+ firmware iterations in LabVIEW
- Lead engineering development of device haptics & UI on IoT wearable, worked cross-functionally across the Firmware & Product teams, mapping tactile and visual cues, pipelining Figma mock-ups on a prototype firmware, conducted user acceptance & accessibility testing

## Weissman Foundry

Manager, Design Technician

Needham, MA

2019-2021

- Oversaw group of 10 student workers, acted as a liaison between the community and advising board at community makerspace, worked with local organizations to design and run public workshops & events, led Electronics space

## Six Seconds

R&D Data Intern

San Diego, CA

Summer 2019

- Analyzed and visualized data from global case studies examining the effects of emotional intelligence practices for a non-profit specializing in emotional intelligence education

## TEACHING & MENTORING EXPERIENCE

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### Mentor, Foundry Fellowship

Fall 2019 & Spring 2020

Weissman Foundry

- Mentored and managed 3-5 person fellowship teams on their semester-long interdisciplinary projects centered around engineering, humanities, and entrepreneurship

### Course Assistant, Introduction to Sensors, Instrumentation, and Measurement

Fall 2019

Olin College of Engineering

- Collaborated and coordinated with the teaching team on course assignments and planning, held office hours providing opportunities to learn about basic electronic prototyping, filters, analog components, etc.

### Facilitator, Remaking Education

Nov 2018

Olin College of Engineering

- Facilitated hands-on, collaboration activity at Olin x Emerson conference centered around the future of education, part of 12-student team that designed the activity via a two-month-long educational experience at Olin, scaffolded by several faculty and staff members (remakinged.olin.edu)

## SKILLS

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**General Software:** Python (ML: *Pandas*, *PyTorch (basic)*), MATLAB, C++ (Arduino), HTML/CSS, LabVIEW

**Music/Audio Software:** Logic Pro X, Audacity, Adobe Creative Suite, SuperCollider, JUCE

**Machine Shop:** Basics (Drill Press, Band/Scroll Saws, Sanders), Laser Cutter, CNC Shopbot, 3D Printing

## SELECT PROJECTS

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### Schroeder Reverb Plug-In

JUCE | 2022

Programmed a Schroeder Reverb DAW plug-in

### Music Visualizer

PYTHON | 2019

GUI app, takes in a song, outputs a similar song and compares track features using Spotify API

### BeamBars

ELECTROMECHANICAL | 2019

Created piano-like electromechanical instrument with a self-designed analog synth system, 5-person team

### GERSWHIN

PYTHON | 2019

GUI app, interactive lyric-to-random tune generator using NLP and music theory principles

### Artificial Reverb Generator

PYTHON | 2021

GUI app, applies custom algorithmic and convolution reverb to any audio sample

## SCHOLARSHIPS AND AWARDS

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- WiMIR Grant, ISMIR 2022 Conference 2022
- Olin Half-Tuition Scholarship 2018-2022
- National Merit Scholarship 2018-2022