

Annie Chu

Website // GitHub

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TL;DR

I am a researcher at the intersection of audio, machine learning, and human-centered design. My work focuses on (1) developing innovative and inclusive audio models & interfaces for creative audio applications, with a parallel emphasis on (2) investigating how audio technologies shape and are shaped by cultural practices, user perceptions, and broader societal contexts.

Research interests: human-centered ML for audio, multimodal learning, intelligent audio production, human-AI co-creation, music information retrieval, accessible & inclusive audio interfaces, ethical & social implications of audio ML models

EDUCATION

Northwestern University, PhD

Technology & Social Behavior (Dual CS + Communications)

Advisor: Bryan Pardo

Evanston, IL

2023 - Present (expected 2028)

Olin College of Engineering, B.S.

Major: Electrical Engineering, Focus: Media Arts

Needham, MA

2018 - 2022

RESEARCH EXPERIENCE

Interactive Audio Lab – Northwestern University

Graduate Researcher, Advisor: Bryan Pardo

Evanston, IL

2023.09 - Now

- Researching audio and multimodal ML models for intelligent audio production applications

Music Cognition & Perception Lab – Northwestern University

Graduate Researcher, in collaboration with Dr. Dan Shanahan

Evanston, IL

2024.09 - now

- Researching listening in the age of streaming; how users' perception and mental models of recommendation algorithms shape music discovery and listening behaviors on streaming platforms (examining algorithmic awareness, consumption patterns, etc)

Lu Lab – Northwestern University

Graduate Researcher, in collaboration with Dr. Yingdan Lu

Evanston, IL

2024.03 - 2024.10

- Developed a methodological framework for adapting audio models to address diverse social science and organizational communications research (paper in progress)

Music and Audio Research Lab (MARL) – New York University

Research Assistant, SONYC

New York, NY

2022

- Deployed and analyzed IoT sensor suite for noise pollution data collection on Sounds of New York City (SONYC) project, automating node deployment and data analysis for ML-based metric extraction and visualization

DSP Research – Reverb Algorithms

Undergraduate Researcher, Advisor: Andrew Davis

Wellesley, MA

2021 - 2022

- Designed and implemented custom reverb algorithms in Python and JUCE

PAPERS UNDER REVIEW

- A. Chu, P. O'Reilly, J. Barnett, and B. Pardo. Text2fx: Harnessing clap embeddings for text-guided audio effects. In *Proceedings of 2025 IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP 2025)* (under review)
- W. Agnew, J. Barnett, A. Chu, R. Hong, M. Feffer, R. Netzorg, E. Awumey, and S. Das. Sound check: Auditing audio datasets. In *Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems (CHI 2025)* (under review)

WORKSHOPS

1. A. Chu, H. Garcia, P. O'Reilly, B. Pardo. "Text2EQ: Human-in-the-Loop Co-Creation Interface for EQ." *Accepted Late-Breaking Demo (LBD), ISMIR 2024*

WORK EXPERIENCE

The Engine <i>Program Manager</i>	2023
Embr Labs <i>R&D, Hardware UI Engineer</i>	2020-2021
Weissman Foundry <i>Fellowship Manager, Design Technician</i>	2019-2021

TEACHING

Conference Workshop Instructor <i>OCMC 2024</i> Faces to Soundwaves: Unpacking Organizational Communication through Computational Multimodal Analysis (with Dr. Yingdan Lu)	<i>Sep 2024</i>
Instructor <i>Northwestern University</i> Human-Computer Interfaces for Musicking (with Hugo Flores García)	<i>Spring 2024</i>
Teaching Assistant <i>Olin College of Engineering</i> Introduction to Sensors, Instrumentation, and Measurement	<i>2018 - 2019</i>

TALKS

Leveraging ML to Understand the Digital Soundscape of Social Movements on TikTok <i>NSF Sound Travels</i>	<i>Sep 2024</i>
Algo-Rhythms: How Music Recommendation Systems Keep You in Tune <i>Scientists for Migrant Learning & Education</i>	<i>May 2024</i>

HONORS AND AWARDS

National Merit Scholarship <i>National Merit Scholarship Corporation</i>	2018-2022
Olin Merit Tuition Scholarship <i>Olin College of Engineering</i>	2018-2022
Women in Music Information Retrieval (WiMIR) Conference Grant <i>ISMIR 2022</i>	2022

SKILLS

- **Programming Languages** - Python, MATLAB
- **Machine Learning** - PyTorch, Scipy, Numpy, Scikit-learn, TensorFlow
- **Audio Production** - Logic Pro X
- **Design Methods & Prototyping Tools** - Figma, Adobe XD, Wireframing, User Journey Mapping, Participatory Design, Speculative Design, Usability Testing
- **Qualitative Research Methods** - Grounded Thematic Analysis, Interview Coding, Survey Design