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 is driven by a desire to create innovative and inclusive audio models and interfaces that foster creativity and advance our understanding of the cultural and social implications of audio technology.

Research interests: machine listening, multimodal models & systems, intelligent audio production, music information retrieval, accessible & inclusive audio interfaces, ML for social good

EDUCATION

Northwestern University, PhD — Evanston, IL
Technology & Social Behavior (Dual CS + Communications) — *2023 - Present (expected 2028)*
Advisor: Bryan Pardo

Olin College of Engineering, B.S. — Needham, MA
Major: Electrical Engineering, Focus: Media Arts — *2018 - 2022*

RESEARCH EXPERIENCE

Interactive Audio Lab – Northwestern University — Evanston, IL
Graduate Researcher, Advisor: Bryan Pardo — *2023.09 - Now*
- Researching audio and multimodal ML models for intelligent audio production applications

Lu Lab – Northwestern University — Evanston, IL
Graduate Researcher, Advisor: Yingdan Lu — *2024.03 - Now*
- Applying and developing a methodological framework for adapting audio models to address diverse social science and organizational communications research questions

Music and Audio Research Lab (MARL) – New York University — New York, NY
Research Assistant, SONYC — *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 — Wellesley, MA
Undergraduate Researcher, Advisor: Andrew Davis — *2021 - 2022*
- Designed and implemented custom reverb algorithms in Python and JUCE

PAPERS UNDER REVIEW

1. **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) (under review)*
2. 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 (under review)*

WORK EXPERIENCE

The Engine
Programming Intern *2023*

Embr Labs
R&D Engineering Intern *2020-2021*

Weissman Foundry
Design Technician *2019-2021*

SKILLS

- **Programming Languages** - Python, MATLAB
- **Machine Learning** - PyTorch, Scipy, Numpy, Scikit-learn, TensorFlow
- **Audio Production** - Logic Pro X
- **Qualitative Analysis** - thematic analysis, speculative design

TEACHING

Conference Workshop Instructor
OCMC 2024 *Sep 2024*
Faces to Soundwaves: Unpacking Organizational Communication through Computational Multimodal Analysis (with Dr. Yingdan Lu)

Instructor
Northwestern University *Spring 2024*
Human-Computer Interfaces for Musicking (with Hugo Flores García)

Teaching Assistant
Olin College of Engineering *2018 - 2019*
Introduction to Sensors, Instrumentation, and Measurement

TALKS

Leveraging ML to Understand the Digital Soundscape of Social Movements on TikTok
NSF Sound Travels *Sep 2024*

Algo-Rhythms: How Music Recommendation Systems Keep You in Tune
Scientists for Migrant Learning & Education *May 2024*