

Xiaoxuan (Andrina) Zhang

Languages: English, Mandarin Chinese (Native), French (Intermediate)
Eligible to work for any U.S. employer | Willing to relocate and travel
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<https://andrinazxx.github.io/>

I am an energetic computing artist, engineer, and musician. I create engineering projects with my own artistic expression and aesthetic analysis. I create interactive software system / installation. As a musician and producer, I make music with 3D spatial audio features, mainly Higher-Order-Ambisonics ambient electronic music. I look forward to transforming avant-garde technological ideas into the real world by contributing my interdisciplinary background to my future team.

EDUCATION

University of California – San Diego

September 2020 - June 2024

B.S. Cognitive Science specialized in Machine Learning & Neural Computation

Overall GPA: 3.87

B.A. Interdisciplinary Computing and the Arts - Computer Music & Music Technology

Major GPA: 4.0

Minor in Computer Science & Engineering

WORK EXPERIENCE

Embedded Software Engineer in Home Audio – Bose Corporation, Framingham, MA

July 2024 – Present

- Working on an audio machine learning project with DSP, data analysis and deep learning knowledge.
- Building the network between soundbars and speakers with Python, adb and Linux; practicing RTOS in C++.
- Applied data analytical and dsp skills after collecting measurement data in different acoustic room choices.

Software UI / Max/MSP Programmer – MIT Media Lab, Cambridge, MA + remote

November 2024 – Present

- Created Max/MSP User Interface with Flask API to build web audio software with Python. (part-time)

Research Engineer Intern – Qualcomm Institute, San Diego, CA

July 2023 – June 2024

Sonic Arts Research & Development – Audio Spatialization Lab

- Created Web scraping tools in Python with bs4 for HRTF filter data and applied analysis in MATLAB.
- Solved / Debugged the Audio DSP problem in Max/MSP for the original fixed-point beamforming.
- Led a team of 4 on **Real-time Adaptive Beamforming Installation**: translated the PMM beamforming algorithm from MATLAB to C++ (11ms latency) and prototyped real-time convolution for 14 speakers' array in Pure Data with our Pd external built in C++.
- Implemented and modular tested a depth camera sensor module with Kinect V2 to control the beamforming with real-time user location tracking for gallery installation setup.

Market Researcher and Product Designer – Machani Robotics, San Diego, CA

January 2024 – April 2024

- Designed campus-wide survey and conducted interviews on students on humanoid robot as clinic assistant.
- Conducted market, competitor and regulatory research on humanoid robot (RIA) entering clinical settings in universities to serve as mental healthcare provider or assistant.

Market Researcher and Data Analyst – LIMBER Prosthetics, San Diego, CA

July 2023 – October 2023

- Led a team of 4. Analyzed, designed, innovative strategy to LIMBER about entering international markets.
- Applied exploratory data analysis and visualization with Geopandas in Python and research analysis skills.

SELECTED PROJECTS

View the full set of 18 projects: <https://andrinazxx.github.io/portfolio.html>

Music Genre Classification implementing kNN, SVM, CNN and RNN [\[Link\]](#)

- Led a team of 5. Organized the meetings and frequently met the professor and the teaching assistants.
- Applied Exploratory Data Analysis and Data Visualization, after collected dataset and wrangled the data.
- Implemented **supervised** and **unsupervised** learning techniques and **deep learning** algorithms – Convolutional Neural Network and Recurrent Neural Network in Python (PyTorch, scikit learn, seaborn...).
- Designed the models and tested the algorithm and fine-tuned the weights and hyperparameters on GPU.

Topological Data Analysis to Phoneme Neural Signals (Brain-Computer Interface Hackathon top prize) [\[Link\]](#)

- Won one of the top prizes in BCI Hackathon instructed by professor Vikash Gilja and several PhD students.
- Wrangled the data and contributed to the Topological Data Analysis (TDA) with Python (PySpike, giotto-tda, seaborn...) from an interdisciplinary perspective in neuroscience, digital signal processing and topology.

SKILL SET

Technical

Python, C++, Java, PureData, Max/MSP, MATLAB, C, JUCE, Xcode, LaTeX, Version Control / Git, XML, Digital Signal Processing, EEG Lab, RaspberryPi, OpenCV, CAD, Soldering, Laser Cut

Creative

Ableton Live, Audacity, Reaper, Pro Tools, Final Cut, Adobe Photoshop / InDesign, Canva