Xiaoxuan*(Andrina)* **Zhang**

Languages: English, Mandarin Chinese (Native), French (Intermediate)
Eligible to work for any U.S. employer | Willing to relocate and travel
https://andrinazxx.github.io/ Newton, MA | (858) 319-9393 | xiz031@ucsd.edu | LinkedIn

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 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.

Convolutional Neural Networks and SVR implementation for earthquake prediction [Link]
- Led a team of 4. Held meetings; raised the research hypothesis; collected dataset and wrangled the data.
- Utilized classical and deep learning methods to design the models in Support Vector Regression and Convolutional Neural Network with Python (TensorFlow, geopandas, matplotlib…).

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