Xiaoxuan*(Andrina)* **Zhang**

https://andrinazxx.github.io/

Eligible to work for any U.S. employer | Willing to relocate and travel
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I'm an energetic team player that can take responsibilities and learn skills fast. I love working in teams and have served as a team lead / PM multiple times for software development, machine learning, and artistic projects at UC San Diego. As an engineer, I look for challenges and hope to bring pleasant user experience to products I design also as a cognitive scientist. As a musician and producer, I make music with 3D spatial audio features to provide a more advanced acoustic experience. I look forward to working and learning in a team that transforms avant-garde technological ideas into the real world and contributing my interdisciplinary background.

EDUCATION

University of California – San Diego *September 2020 – Expected June 2024*
Major in Bachelor of Science, Machine Learning & Neural Computation (Cognitive Science) Overall GPA: 3.87
Major in Bachelor of Arts, Interdisciplinary Computing and the Arts (Computer Music & Music Technology) Major GPA: 4.0
Minor in Computer Science & Engineering

WORK EXPERIENCE

Software Development Engineer / Project Manager – Qualcomm Institute, San Diego, CA *July 2023 – Present*
Sonic Arts Research & Development – Audio Spatialization Lab

- Created Web scraping tools in Python with bs4 for HRTF filter data collection and applied analysis in MATLAB.
- Solved / Debugged the Audio DSP / convolution problem in Max/MSP for the original fixed-point beamforming.
- Led a team of 4 on **Real-time Adaptive Beamforming** project: 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++.
- Tested beamforming performance in a 14-speakers array and applied modular testing in different phases of the program.
- Implementing a depth camera sensor module with Kinect V2 to control the beamforming with real-time user location tracking.

Data Analyst and Market Researcher – LIMBER Prosthetics, San Diego, CA *July 2023 – October 2023*

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

Instructional Assistant for "Introduction to Python" – UC San Diego *August 2021 – March 2022*

- Led weekly review sessions and office hours. Hosted two Coding Labs and help students to debug in Python.
- Worked on and graded Coding Labs Assignments and Exams throughout the quarter.

LEADERSHIP EXPERIENCE

14 projects on my website: https://andrinazxx.github.io/

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 skills, 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, numpy, pandas…).
- 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 designed 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.

Deep Learnig Audio Generative AI application + spatialized Music Production [Senior Project Work-In-Progress]

- Built a vanilla GAN with PyTorch and deploying the product to website and iOS Music App with Swift, Swift UI, API.
- Using the MIDI samples on creative music production and will make them spatialized with binaural and Ambisonics version.

SKILL SET

Technical Skills Python, Java, MATLAB, Pure Data, Max/MSP, C++, C, Swift, Xcode, LaTeX, Git / Version Control, XML, Digital Signal Processing (audio, neural), EEG Lab, RaspberryPi, OpenCV, CAD, Excel, PowerPoint, Word
Production Ableton Live (Production, Mixing & Mastering), Audacity, Reaper, Pro Tools, Final Cut, Adobe Suite, Canva

ORGANIZATIONS

EMG prediction and applied machine learning prosthetics – Triton NeuroTech at UCSD ECE *March 2023 – Present*

- Analyzing EMG data of fingers to realize movement prediction, which can feed back to the prosthetic hand (created by our hardware group) to automate its finger movement.

IoT Spotify Remote – Project in Box at UCSD ECE *October 2022 – December 2022*

- Applied a Wi-Fi microchip to navigate through Spotify API, which makes our team able to have an IoT controller for our playlist.