

JEREMY J.X. HSIAO

EDUCATION

STANFORD UNIVERSITY | BA | CUM GPA: 3.7

Sept 2021 - Jun 2025

- Bachelor of Arts in Communication
- Double Minors: Computer Science, Music

SKILLS

Audio Signal Processing: Spectral Analysis, Onset Detection, Real-Time Audio Processing, Psychoacoustics, MIR

Machine Learning: Neural Network Training, Model Evaluation, ML Pipelines

Programming: Python, MATLAB, C, C++, Java, JavaScript, R, MAX/MSP, Chuck, Neural Networks, ML Pipelines

Libraries: Librosa, NumPy, Pandas, SciPy, JAX, Scikit, PyTorch, Matplotlib, Seaborn

Sound Research: Annotation, Experimental Design, Data Analysis, Statistical Methods, Algorithm Development

EXPERIENCE

STUDENT RESEARCH | Remote + Stanford, CA

Aug 2024 - Apr 2025

Center for Computer Research in Music and Acoustics (CCRMA) under Adjunct Prof. Malcolm Slaney

- Co-authored implementation and optimization of Loudness Perception Model for Time Varying Sounds, translating from MATLAB to Python with NumPy, JAX, and SciPy. Added comprehensive testing suite, validation frameworks, demonstration scripts, and optimized processes. Reduced runtime by 5x.
- Auditory Attention Decoder: Recreated classification model for attention patterns toward musical instruments on existing EEG data: ~65% accuracy

Communication Capstone Project under Prof. Nilam Ram

Mar 2025 – Jun 2025

- Full-Stack Application: Developed a web-app visualization platform for exploring EEG studies on music perception and cognition with timeline visualization, advanced filtering, and dataset export capabilities. Built with React.js and D3.js. Curated datasets from 197 experimental conditions across 44 studies.
- Authored an accompanying full-length research paper, organizing a foundation for future work.

WORK EXPERIENCE

STUDENT RESEARCH + FIRST AUTHOR | Technische Universität Berlin

Jun 2025 – Sept 2025

- Somunicate Project: Lead research as first author on deep learning onset detection classification methods for functional sounds, pending publication. Built scalable ML pipeline and validation workflows using annotated audio datasets for interaction sound segmentation with PyTorch and ONNX. Outperformed existing algorithm and Librosa baseline. Technical report in progress for IEEE publication.

STANFORD MUSIC LIBRARY STUDENT WORKER | Stanford, CA

Jan 2022 – Jun 2025

- Managed library database operations and processed diverse media collections with attention to detail.

YUNUS & YOUTH FELLOWSHIP WRITER | Remote

Jun 2024 – Dec 2024

- Conducted 13 interviews to write engaging, in-depth narrative articles and profiles about social entrepreneur fellows and the story of their social enterprise for the Y&Y Fellowship.

WARNER BROS. PICTURES MUSIC INTERN | Burbank, CA

Jun 22, 23- Aug 22, 23

- Automated scraping of 500+ music industry contacts, significantly reducing manual processing time. Managed large-scale film data including music cue metadata, timing, cost, and licensing information.

WARNER BROS. TV PUBLICITY INTERN | Burbank, CA

Jun 2021 - Aug 2021

- Management for WB entities' social media accounts. Increased TikTok followers on @warnerbrostv by 22%. Overall management of 100+ accounts, with a focus on 6. Produced 10-20 posts per week.

PROJECTS

COURSE PROJECTS | Stanford, CA

Sept 2022 - Present

- **Data Sonification:** NASA wildfire and wind data from the 2025 LA wildfires into musical performances.
- **Audiovisual Installations/Performances:** Projection Mapping, Logic Pro X, reactive MAX Patches, audio generation, live performances at Stanford CCRMA. I documented these projects, and others, in my portfolio, developed with HTML and CSS: jerhsiao.github.io
- **Quantum Computer Music Generation:** Analyzes short input, generates one minute of quantumly random harmonic ambient music with Qiskit, audio programming, algorithms, and visualization.
- **Huffman Encoding:** Huffman Encoding Tree, Map, Decoding, Handled I/O Streams
- **Memory Heap Allocator:** Implicit Free List Allocator and Explicit Free List Allocator
- **MovieBot:** Built Model to Recommend Movies and Alternative MovieBot Using OpenAI's API

PERSONAL PROJECTS

Jan 2024 - Present

- **MAX/MSP Audio Reactive/Generative Particle Systems:** Self-taught MAX/MSP to create audiovisual works and performances as well as producing/performing accompanying music on Logic Pro X.
- **N-Back Position Test Application:** A comprehensive, configurable web application for administering the N-Back position cognitive task to measure working memory performance. <https://n-back-nine.vercel.app/>
- **Word Hunt Solver:** A fast and intuitive solver for a 4x4 Word Hunt game. With DFS, it quickly finds and highlights English words within the grid and displays with an intuitive UI.
- **Email Bot:** Automated mass, personalized email marketing for a small e-commerce business using Google Cloud Console's Gmail API, reaching 22,000 potential clients

ACTIVITIES

STANFORD SIGMA CHI ALPHA OMEGA CHAPTER | Stanford, CA

Sept 2022 – Jun 2025

- **Historian:** Responsible for collection and protection of the Chapter history through social media, scrapbooks, organized documentation and events.

STANFORD CONCERT NETWORK | Stanford, CA

Sept 2021 - Mar 2022

- Successfully negotiated contracts with venues and an artist's management team to organize SCN's New Member Showcase concerts with a \$2500 budget

LIVE SOUND TECHNICIAN | Vineyard of Hope Church | Walnut, CA

Jul 2021 - Jan 2022

- Live mixing of drums, keyboard, guitars, bass, and vocals
- Set up and operation of audio equipment (mics, 32 input Yamaha live mixer, etc.)

HOBY STUDENT AMBASSADOR | Hugh O'Brian Youth Leadership

Jul 2019

- Selected as Ambassador at World Leadership Congress in Chicago and California Leadership Seminar
 - Participated in leadership development workshops and collaborative service projects with student leaders nationwide

HONORS AND AWARDS

2020 Elks Scholar - Most Valuable Student Scholarship

2020 Coca-Cola Scholars Semifinalist

2019 826 National's Poets in Revolt. Poet for anthology created with Amanda Gorman and Kate Deciccio.

2019 14th Eugene O'Neill Theater Center Young Playwrights Festival Semifinalist

2018 National Student Poets Program Semifinalist (1 of 35 out of 23,000)

2017 33rd California Young Playwrights Contest Semifinalist