Jeffrey Yang

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EDUCATION

University of California San Diego - San Diego, CA — Sep 2025 - Present
Master of Science in Computer Science — GPA: 4.00

University of California San Diego - San Diego, CA — Sep 2021 - June 2025
Bachelor of Science in Cognitive Science w/ Specialization in Machine Learning, Minor in Computer Science — GPA: 3.77

Relevant Coursework: Software Engineering, Database Systems, Operating Systems, Deep Learning, Recommender Systems

TECHNICAL SKILLS

- **Programming languages:** Python, Java, C, C++, HTML, CSS, TypeScript, JavaScript, SQL
- **Frameworks & Libraries:** FastAPI, Flask, PyTorch, NumPy, Vite, Pandas, scikit-learn
- **Tools & Environments:** Git, GitHub, VS Code, Cursor, Jupyter Notebook
- **Generative AI & Machine Learning:** Deep Learning, Large Language Models, Diffusion Models, MLOps

EXPERIENCE

Research Assistant - de Sa Lab @ UC San Diego — Jan 2025 - Apr 2025
- Designed and ran experiments for classification of EEG readings of SSVEP brain responses to visual stimuli via machine learning.
- Developed Python scripts to preprocess large image datasets and organize stimuli into experimental conditions for synchronized display during EEG data collection.

Software Engineer Intern - Mathzoos — Nov 2024 - Mar 2025
- Implemented backend services for a recruitment platform web application using FastAPI, SQLAlchemy, PostgreSQL, and Redis.
- Designed database models/schemas and repository/service layers to create 10 API endpoints for profile information management.
- Wrote custom error responses and comprehensive unit tests for all features to ensure consistent behavior and exception handling.

PROJECTS

Vibe Glasses - Contextual Music Recommendation
- Built a prototype smart-glasses system that uses a camera to detect a user's surroundings and automatically play matching music.
- Designed a Flask backend integrating a vision-language model and the Spotify Web API to classify scenes and control real time playback.
- Implemented full hardware–software integration using an ESP32-CAM, Wi-Fi communication, and OAuth-based Spotify authentication.

Multiprogrammed Operating System Kernel
- Extended an OS kernel to support concurrent user-process execution with isolated virtual address spaces and per-process page tables.
- Designed a physical memory allocator managing 1K+ pages with non-contiguous allocation and full reclamation on process exit.
- Built a process lifecycle and system call layer supporting process creation, synchronization, termination, and file I/O.

MIDI-Transformer - Generative Music AI
- Built a Transformer-based deep learning model with PyTorch to compose symbolic music conditioned on input sequences.
- Created end-to-end preprocessing pipelines in Python to clean and tokenize a dataset of 170,000 MIDI songs.

MedGAN - Chest X-Ray GAN
- Implemented a Conditional Generative Adversarial Network to synthesize chest X-ray images based on healthy vs pneumonia labels.
- Created end-to-end preprocessing pipelines in Python to clean and tokenize a dataset of 170,000 MIDI songs.

Concard - Business Card Maker
- Collaborated in an Agile environment with a team of 12 to build a web application for designing/sharing custom business cards.
- Developed a drag-and-drop card editor interface using HTML canvases and responsive CSS for dynamic layout styling.
- Maintained code quality with GitHub Actions CI/CD pipeline, unit testing, end-to-end testing, and JSDoc documentation generation.