

DENNIS CAO

denniscao.net | [LinkedIn](#) | [Github](#) | [M denniscao@gmail.com](mailto:denniscao@gmail.com) | [@](#) Los Angeles, CA 90004 | [213-713-9936](#)

Senior Full Stack, Product and Design Engineer with 5+ years of experience building complex, interactive, and optimized web applications. Industry experience within AI, education, e-commerce, and music technology. Specializing in Typescript, React, Python, and AI integration. Values performance optimized and clean code, scalable frontend architecture, and intuitive UI/UX design. Additionally, I have 5+ years of experience in music technology and production.

EXPERIENCE

- Senior Full Stack Software Engineer (Contract)** [MyMCAT.ai](#) Remote 01/2025 - Present
- Single handedly refactored entire codebase migrating global state from 12 React ContextAPIs into Zustand which resulted in 25x less re-renders and boosting frontend performance.
 - Created a DebugPanel invaluable for the development team tracking global state across all navigation pages.
 - Consolidated all interactive audio (SFX, looping) and music playback into a single WebAudio API instance with buffer caching, clean up, smooth volume transitions, and managed by Zustand.
 - Mentored two interns tasked in implementing a full-stack social gaming feature (friend system with group management and coin sharing) from user story to implementation. Oversaw Figma designs, UI/UX wireframes, architecture refactor in Prisma and final code review across frontend and backend systems.
- Lead Software Engineer** NDA (Events Website) Los Angeles/Remote 10/2024 - 1/2025
- **OpenAI Web Scraper** - Engineered a robust backend microservice (Python FastAPI, Zyte, Beautiful Soup, OpenAI, Docker, Lightsail), within a containerized environment for an AI-driven web scraping system, achieving 100% elimination of manual data entry and streamlining event data integration from over ten sources.
- Lead Software Engineer** [Amazon](#) Los Angeles/Remote 08/2024 - 10/2024
- Developed a sophisticated six-state interactive touchscreen application utilizing TypeScript, React, and Python from Figma designs; this project highlighted Amazon's 30 years of technical innovations while allowing users to explore global impacts through an intuitive world map interface.
 - Established an advanced monitoring and debugging framework featuring real-time event logging, state tracking, and a hidden debug console; enhanced troubleshooting efficiency while delivering usage analytics for stakeholders.
- Software Engineer** [The Concord Consortium](#) Massachusetts/Remote 07/2022 - 04/2024
- CLUE: real time open-source STEM learning platform and data science playground**
- Increased commenting system speed by 50%, enabling teachers to comment and tag student documents for AI analysis using asynchronous parallel promises and compound queries.
 - Implemented custom Typescript React hooks and designed a multi-state system for a 'Data Flow' tile to record 10,000+ data points from real-world sensor data (e.g., Arduino, Micro:bit) at varying baud rates.
 - Built a logging system for investigating speed bottlenecks on LCP, logging loading and performance measurements to a metrics dashboard, identifying issues and increasing LCP speeds by 30%.
 - Architected a new interactive "Number Line" tile with custom data point management (save, sync, delete) with an algorithm to automatically adjust bounds for new values, enhancing visualization flexibility.
 - Led redesign of backend Firestore schema to ensure persistent UI states and improving the user experience.
 - Developed the UI layout and sorting algorithms (by group, name, tag, bookmarks, tile type) to enable teachers to review student documents by group,
 - Collaborated with engineers to redesign the system model architecture, enabling multiple datasets to link to tiles and developed a bidirectional UI for synchronized "Graph" and "Table" tiles with scalable and flexible axes.
- DESE / FOSS: 2D and 3D natural science browser simulations**
- Independently coded five advanced frontend simulation/animations utilizing various animation methods (CSS transitions, class swapping, requestAnimationFrame, sprites, SVG manipulation, Three.js).
- Electronic Musician / Sound Designer** Chad Cannon Pasadena, CA 05/2021 - 11/2021
- **Penglai 蓬莱 (Animated Short Film) | Illumination Entertainment:** Processed and remixed Chad's Eastern traditional stems—including Tibetan monk chanting, erhu, guzheng, and pipa—to create psychedelic sonic atmospheres. Explored non-Western tuning systems, utilizing Scala tuning files, microtonal scales and non-equal temperament tunings, enhancing the film's sonic universe. *Penglai* was [Oscar Shortlisted](#) for Best Animated Short at the 2022 Academy Awards.
- Audio Software Engineer** Dave & Dave Recording Los Angeles, CA 01/2019 - 12/2019
- **Automated Audiobook Recording App:** created an iPad app in Swift, Python, and Max/MSP to create a user interface for narrators, automating 100% of the recording process by enabling control over a Max patch on a computer.
 - Innovated a 2-channel audio file format with markers for 'mess-up moments' to assist in the audio editing process.
 - Integrated real-time feedback and monitoring features, enabling narrators to catch recordings mistakes.

