Michael Wu

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EDUCATION

California State Polytechnic University, Pomona **Expected May 2027**

- Major: B.S. Computer Science
- Current GPA: 3.8 / 4.0, Dean's Honors List
- Coursework: Computer Architecture, Computer Organization and Assembly Programming, Unix and C programming, Data Structures and Algorithms, Discrete Structures, Calculus I, II, III, Linear Algebra, Differential Equations, Probability and Statistics

EXPERIENCE

Northrop Grumman Collaboration Project | Software Engineer **June 2024 - Present**

- Collaborated with 100+ engineers across Cal Poly Pomona and Cal Poly SLO campuses to research autonomous vehicle systems, ensuring successful end-to-end testing of 3 integrated subsystems.
- Engineered a telemetry simulation using C# and PostgreSQL, achieving 2.21ms latency and 10K+ packets/min across 3 data streams.
- Built scalable backend systems with Tokio and PostgreSQL, enabling sub-5 ms response times under 500+ concurrent requests.
- Designed a state management system using Rust for a multi window Tauri PWA, reducing desynchronization across screens by 90%.

NASA Jet Propulsion Laboratory | Software Engineer (Open Source Contributor) **February 2025 - Present**

- Contributing to OML Vision, a VSCode extension modernizing system modeling via web UI, enhancing usability for 100+ engineers.
- Diagnosed a macOS-specific dependency and collaborated with JPL engineers to containerize the environment with Docker, reducing setup time by 60% and ensuring consistent cross-platform development..
- Implemented inline editing for table-based UI views with data type validation, reducing modeling errors by 40% and improving editing speed for complex ontological modeling language (OML) datasets.
- Implemented notebook execution in OML Vision, enabling systems engineers to run external analysis tools (e.g. Python, R, MATLAB) from the GUI, reducing context-switching and boosting modeling efficiency by 30% in early user testing.

Computer Science Society ACM Chapter | Project Initiative Chair **November 2023 - Present**

- Spearheaded a project initiative program empowering 100+ students to engage in hands-on computer science projects.
- Oversaw 15+ development teams coordinating timelines in Notion and standardizing version control practices using Git and GitHub.
- Hosted weekly project syncs, improving cross-team collaboration and increasing project completion by 40% over the academic year.
- Launched a mentorship track pairing 30+ students with experienced developers, achieving 70% retention across project cycles.

PROJECTS

Lifeguard Vision | Next.js, FastAPI, MediaPipe, OpenCV, WebSockets, Git

- Built an AI web app for drowning detection, using real-time video and movement tracking, achieving 90% accuracy in test scenarios.
- Developed CV models to assess swimmer risk, using MediaPipe and OpenCV, boosting accuracy by 25% across diverse movements.
- Engineered a low-latency alert system using WebSockets, enabling real-time streaming and sub-100ms notifications at 99.9% uptime.

Icebreak | React Native, Node.js, Express.js, PostgreSQL, Prisma ORM, Amazon Web Services S3, Expo, Git

- Built a full-stack social media mobile app in a 20-person team, integrating 10+ core features over two development cycles.
- Designed guild pages in React Native, using Axios to display events, announcements, and members, improving user flow in demos.
- Developed RESTful API routes in Express.js, enabling full CRUD operations for guild events and attendance tracking, supporting simulated workflows for 5+ organization use cases.

Robot Scouting App | React, Node.js, Express.js, MongoDB, Git

- Deployed a full-stack web app in a team of 3, synthesizing FIRST Robotics data to streamline scouting for 10+ regional matches.
- Integrated dynamic heatmaps, visualizing robot movement patterns and performance zones, enhancing match strategy and analysis.
- Implemented offline caching, doubling user engagement in low-connectivity venues and capturing 300+ additional data samples.

BassTab | React, Node.js, FastAPI, Demucs, CREPE, Git

- Built a full-stack web app to generate bass guitar tablature from .mp3 files, using AI to transcribe multi-minute tracks automatically.
- Developed a FastAPI backend for file uploads and pitch detection, handling files up to 20MB with consistent output formatting.
- Optimized audio pipeline with Demucs and CREPE, reducing transcription time by 40% and improving accuracy in noisy recordings.

SKILLS

Programming: Java, Python, JavaScript, Typescript, HTML/CSS, C#, C/C++, Rust, SQL, Bash

Technologies: React, React Native, Angular.js, Next.js, Tauri, Material-UI, Tailwind CSS Node.js, Express.js, PrismaORM, FastAPI, PostgreSQL, mySQL, MongoDB, Redis, Amazon Web Services S3, Postman, Docker, JUnit, socket.io, Expo, Vercel, Railway, Render, Git/Github/Gitlab