Luke Zhuang

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EDUCATION

California Polytechnic State University, San Luis Obispo *Mar 2025*
Bachelor of Science in Computer Science

TECHNICAL SKILLS

Languages: TypeScript, JavaScript, Python, Java, C, C++
Frontend: React.js, React Native, Next.js, Expo, Expo Router, Tailwind, HTML, CSS
Backend & APIs: Node.js, Express.js, Prisma ORM, REST APIs, WebSockets, Axios
Databases & Cloud: PostgreSQL, Supabase, MongoDB, Docker, AWS, Azure, Git, GitHub Actions, Render

PROFESSIONAL EXPERIENCE

Zoox **San Francisco, CA**
VH6 Readiness & Response | Fleet Management, Hardware Verification, Software Deployment, Troubleshooting *Aug 2026 - Present*

- Maintained a **100% mission-ready fleet rate** across **30+ autonomous vehicles** by executing daily readiness procedures, including software bring-up, hardware validation, and sensor calibration.
- Reduced vehicle downtime by deploying and verifying new software configurations across **150+ vehicle systems weekly** while collaborating directly with technicians and engineers.
- Optimized operational efficiency across **3+ testing locations** by managing fleet logistics, including vehicle movement, charging schedules, parking, and daily deployment routines.
- Improved platform safety and reliability by documenting **100+ software defects** and operational issues to provide actionable telemetry directly to engineering teams.
- Trained and mentored new associates on mission readiness procedures, operational workflows, and safety protocols.

Renov8AI **Millbrae, CA**
Software Engineer | React Native, TypeScript, Node.js, Next.js, PostgreSQL, WebSockets *Feb 2026 - Aug 2026*

- Architected and built a native iOS application using React Native, Expo, and Expo Router, bringing existing web workflows to iOS and deploying the app to **20+ beta testers** through TestFlight.
- Implemented WebSockets and a bi-directional event-driven architecture to synchronize database mutations and notifications in real time between web and mobile clients, achieving **sub-200ms data synchronization**.
- Engineered an AI-powered assistant using user context and conversation history to perform **30+ in-app actions**, enabling users to dynamically modify project data, generate reports, and navigate application workflows.
- Migrated image generation from OpenAI DALL·E to Google Gemini, executing a **120+ unique prompt test suite** to validate visual quality, optimize output consistency, and implement strict input guardrails.
- Designed responsive mobile screens that eliminated critical layout bugs, ensuring on-screen keyboards never blocked text inputs and chat elements automatically adjusted to **prevent content clipping 100% of the time**.

Zoox **San Francisco, CA**
Autonomous Vehicle Software Operator | Bash, Jira, Linux, Log Analysis, Telemetry *Jun 2025 - Feb 2026*

- **Ranked #1 out of 120+ operators** on the San Francisco regional leaderboard for maximizing time in autonomy, achieving peak software utilization and fleet efficiency during my operational tenure.
- Executed comprehensive edge-case missions and stress-tested autonomous software stacks across **10,000+ miles** of complex urban environments, validating system safety and software behavior under dynamic routing scenarios.
- Accelerated software release cycles by capturing and analyzing real-world operational data, utilizing terminal utilities to extract system logs that directly informed updates every **2-week sprint cycle**.
- Monitored real-time vehicle telemetry and diagnosed critical software anomalies, documenting comprehensive diagnostic findings and stack traces for dispatch and core engineering teams within a **0-day escalation window**.

PROJECTS

Showroom Booking App | *React, Next.js, TypeScript, Tailwind CSS, Prisma, PostgreSQL, Clerk, Render*

- Developed a full-stack appointment platform featuring optimistic UI updates and server-side state validation, completely mitigating race conditions to achieve a **0% double-booking rate**.
- Architected an administrative control dashboard leveraging role-based middleware, optimizing server-side rendering pathways to securely manage data streams and deliver **sub-250ms page loads**.
- Introduced session-based user authentication utilizing JWT-backed route guards, isolating client-side view states and blocking unauthorized API requests through protected routes.

- Optimized relational database performance by structuring index-driven queries via Prisma ORM on PostgreSQL, reducing query latency by **40%** under concurrent workloads.

Inventory Management Platform | React, TypeScript, Node.js, Express, MongoDB, Amazon S3, Azure, GitHub Actions
- Constructed a type-safe inventory management interface using React and TypeScript, integrating with Node.js and Express APIs to process state updates while maintaining UI response times under **250ms**.
- Built media asset pipelines using Amazon S3 for secure object storage, caching multi-format inventory image uploads alongside MongoDB for reliable file retrieval.
- Created a robust unit and integration testing suite for core backend data models and authentication services, resulting in **45 passing test cases** and over **92% statement code coverage**.
- Deployed automated CI/CD pipelines via GitHub Actions to Azure, integrating JWT and bcrypt authentication to secure sensitive backend API endpoints.