Khush Lalchandani

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Education

Stanford University **June 2029**
B.S. in Computer Science *Stanford, CA*
Honors: Presidential Gold Volunteer Service Award, National Merit Scholar, Eagle Scout, Global Seal of Biliteracy
Relevant Coursework: Programming Abstractions & Data Structures, Computer Organization and Systems, Linear Algebra, Multivariable Calculus, Mathematical Foundations of Computing

Experience

Cirrus Logic **Jun 2025 – Aug 2025**
Software Engineer Intern - Platform Development Team *Austin, TX*
- Designed and implemented a **Go**-based telemetry GUI for the Atom IC Handler displaying live sensor data, engineering controls, and error logs, with custom gamepad and laser alignment features that cut manual setup time drastically.
- Delivered production-ready recipe creation and run controls with input validation, version history, and error safeguards.
- Set up secure user authentication and device updates using the handler **REST API** and **SSH**, automatically pulling builds from **Bitbucket** and deploying updates through a **Raspberry Pi controller** with **PowerShell scripts**.
- Worked with **validation test engineers** to add error detection and fixes significantly reducing debug time.

Mobility Systems Laboratory (UT Austin) **Jun 2024 – Aug 2024**
Research Assistant — Autonomous Vehicles *Austin, TX*
- Built an end-to-end lane-following system on a Quanser QCar combining camera calibration, bird's-eye-view, inverse perspective mapping, multi-camera perception, and a tuned **pure-pursuit** controller in **MATLAB/Simulink**.
- Created a classical **computer vision** lane-segmentation pipeline (calibration, region-of-interest, perspective transform, Canny and Hough transforms) with smoothing, lane-loss detection, and safe re-acquisition for closed-loop driving.
- **First author** on research paper and selected to present work at the **National Science Foundation Headquarters**.

ZSuite Technologies **Jun 2023 – Aug 2023**
Software Engineer Intern *Austin, TX*
- Built a Python **retrieval-augmented QA system** (LangChain + Azure OpenAI + Weaviate) to automate responses to bank due-diligence and vendor questionnaires, with UI integration and document upload support.
- Integrated reproducible evaluation with latency/error logging to track performance across query types and workloads.
- Delivered secure, versioned endpoints for banking clients, reducing response turnaround times and improving auditability.

Jaisr Consulting **Jan 2023 – Present**
Co-Founder & CEO *Austin, TX*
- Co-founded a consulting practice providing **technical solutions** and support for **small businesses.**
- Delivered web development and AI automation services including design and integration earning **$20K** in revenue.

Projects

Image Editor | *Next.js 14, TypeScript, Tailwind, Cloudinary, Clerk, MongoDB, Stripe* **March 2024 - February 2025**
- Built and deployed a production-ready web image editor in **Next.js 14 (TypeScript)** with **Cloudinary** transformations for fast object recolor, background/object removal, social-crop presets, image enhancing, and one-click watermarking.
- Implemented user **authentication** with **Clerk**, stored user profiles and login state in **MongoDB**.
- Integrated **Stripe** for credits and payments using secure webhooks to update balances and protect against tampering.

Route Safety Assistant | *Python, scikit-learn, DBSCAN, Random Forest, TTS, Flask* **Jan 2025 - April 2025**
- Engineered a scalable pipeline computing a **Route Safety Score** from 20 years of crash data, clustering hotspots with **DBSCAN** and ranking the three safest routes via a **Random Forest** model.
- Provides **text-to-speech** guidance and an **AI assistant** to modify routes and explain safety tradeoffs.

Complex Number Library | *C++, Catch2, CMake* **September 2023 - November 2023**
- Created a complex number library in C++ with arithmetic, conjugate, magnitude/phase, and coordinate conversion.
- Validated behavior with comprehensive **Catch2** tests using tolerant equality for floating point edge cases.

Technical Skills

Languages: Python, Go, C/C++, Java, JavaScript, TypeScript, SQL

AI/ML: PyTorch, TensorFlow, scikit-learn, Keras, OpenCV, labeling, statistics, linear algebra

Frameworks: LangChain, Flask, Next.js 14, React, Tailwind CSS

Tools: Git, Docker, AWS, REST APIs, Raspberry Pi, Bitbucket, experiment logging/metrics, SSH, PowerShell, MATLAB/Simulink, MongoDB, Weaviate, Cloudinary, Clerk, Stripe