

ISHAAN SARASWAT

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EDUCATION

University of California, Los Angeles (UCLA)

Bachelors of Science in Computer Science and Engineering

Relevant Coursework: Data Structures & Algorithms, Operating Systems, Computer Organization, Advanced Algorithms, Database Management Systems, Software Construction

Los Angeles, CA

Expected June 2028

EXPERIENCE

Shopify

Bellevue, WA

Machine Learning Engineer Intern

September 2026 - December 2026

- Developing Binks, Shopify's very own code debugging tool
- Developing and evaluating **machine learning systems** for automated code understanding, bug diagnosis, and developer-facing debugging assistance

IBM (Silicon Valley Labs)

San Jose, CA

Software Engineer Intern

June 2026 - September 2026

- Designed automated **verification systems to evaluate the precision and reasoning capabilities of collaborator agents** across 100+ unique enterprise workflow scenarios.
- Tested and hardened the Tool Manager's routing capabilities, **ensuring the accurate selection and execution of external APIs** with sub-200ms validation latency.
- Created scalable test environments to monitor edge cases and **ensure the integrity of autonomous workflows**, supporting a system designed for 10,000+ daily agent invocations.

Shah Lab - UCLA

Los Angeles, CA

Undergraduate ML Research Assistant

September 2025 - March 2026

- Engineered ML pipelines** and deep learning models on **~500,000 frames** of microscopy data to streamline embryo segmentation
- Advanced segmentation performance **beyond the 95% accuracy baseline** through model optimization, driving breakthroughs in computer vision for developmental biology and neuronal circuit analysis

App-Scoop

San Francisco, CA

Software Engineering Intern

June 2025 - September 2025

- Co-developed an AI-powered automation platform, fine-tuning **transformer and scikit-learn models** for post generation and sentiment analysis to **boost user presence scores by up to 40%**
- Optimized React components and Node.js endpoints for scheduling dashboard, **improving workflow productivity by 20%**
- Developed a **Dockerized microservice** for on-demand model inference with load-balancing, and established **CI/CD pipelines** with GitHub Actions to streamline linting, testing, and deployments

PROJECTS

Autonomous Billing Proxy | Python, FastAPI, Next.js, Supabase, Gemini AI | [GitHub](#)

April 2026 - Present

- Engineered a **FastAPI** reverse proxy for agent traffic authentication via **SHA-256** hashed bearer tokens, applying rate limits and request fingerprinting while maintaining **< 50ms overhead**.
- Built a "Proof-of-Execution" verification engine using **Gemini LLM** structured function calling to asynchronously evaluate **10,000+ API responses** for hallucinations and data coherence.
- Built a **Next.js/TypeScript** developer dashboard integrated with **Stripe Checkout**, backed by atomic **PL/pgSQL** functions in **Supabase** to guarantee consistency across **100,000+ micro-transactions**.

Distributed Vector Database | C++20, gRPC, Protocol Buffers, AVX-512 | [GitHub](#)

March 2026 - Present

- Architected a distributed, in-memory vector database in **C++20** for **768-dimensional embeddings**, reducing search complexity to **O(log N)** via a **Hierarchical Navigable Small World (HNSW)** graph index.
- Engineered hardware-accelerated distance kernels utilizing **AVX-512 SIMD intrinsics** and **64-byte memory alignment**, achieving **< 2ms latency** for approximate nearest-neighbor (ANN) searches.
- Implemented a fan-out/fan-in architecture with **gRPC** and **Protobuf**, enabling a coordinator node to hash-route batch inserts across **3+ worker shards** and merge global top-k results at **10,000+ QPS**.

[LiftCircle](#) | RAG, SwiftUI, Python, Firebase, Next.js, TypeScript

July 2025 - January 2026

- Engineered an AI coaching system utilizing a **Python** backend and **RAG architecture**, implementing **semantic chunking** and **gold dataset evaluation** to deliver highly reliable, personalized workout analysis and adaptive recommendations.
- Built the full-stack iOS app and business logic using **SwiftUI**, **Firebase**, and **Next.js**, integrating secure authentication, RIR workout logging, and automated subscription conversions via **StoreKit**.

SKILLS

Languages: C++, Python, Go, Java, Rust, TypeScript, JavaScript, Swift, SQL, OCaml, Prolog

Frameworks: React, Next.js, SwiftUI, FastAPI, Node.js, PyTorch, TensorFlow

Tools & Systems: AWS, Firebase, Supabase, gRPC, Protobuf, eBPF/XDP, GraphQL, Claude Code, Cursor, Codex