

# Rohil Shah

Santa Barbara, CA | 669-284-4578 | [rohildshah@ucsb.edu](mailto:rohildshah@ucsb.edu) | [linkedin.com/in/rohildshah](https://linkedin.com/in/rohildshah) | [github.com/rohildshah](https://github.com/rohildshah)

## EDUCATION

### University of California, Santa Barbara (UCSB), College of Creative Studies (CCS)

Bachelor of Science (B.S.) in Computer Science

Santa Barbara, CA

Expected Jun. 2026

#### Distinctions:

*UCSB Student of the Year* — Selected by faculty for research contributions, student leadership, and academic excellence.

*UC Regents Scholar* — Prestigious merit-based scholarship awarded at admission for academic excellence and leadership potential.

*Dean's Honors* — Awarded quarterly for maintaining a high GPA (3.98) under a rigorous courseload.

#### Relevant Coursework:

*Graduate* — Neural Information Retrieval, Level Set Methods, Real-Time High Quality Rendering.

*Undergraduate* — Distributed Systems, Operating Systems, Deep Learning, Parallel Scientific Computing, Database Systems.

**Research Interests:** Neural Information Retrieval, AI/ML & Big Data Infrastructure, Distributed Systems, Cloud Computing.

## RESEARCH EXPERIENCE

### UCSB Neural Information Retrieval Lab

Research Assistant — Advised by Prof. Tao Yang and Ph.D. student Parker Carlson

Santa Barbara, CA

Oct. 2024 – Present

- Investigating hybrid sparse–dense retrieval architectures for large-scale text search using **Rust**, **C++**, and **Python**, with emphasis on ranking quality (mean reciprocal rank, recall) and system efficiency (mean response time, index size).
- Evaluated the effect of concatenating **SimLM** dense and **SPLADE** sparse embeddings on an **HNSW** neighbor graph, tuning the fusion, truncation, and indexing parameters to study retrieval-latency tradeoffs on the **MS MARCO** dataset.
- Discovered and contributed a **critical bug fix** to Meta's open-source library **FAISS** (**37k+ stars**), resolving a distance-metric computation error through meticulous codebase analysis and test-driven validation.
- Extending **Dynamic Superblock Pruning** to strategically evaluate dense documents in hybrid retrieval; achieved near-optimal ranking quality (100% of MRR and 99.5% of recall) while limiting latency overhead to  $1.5\times$  sparse-only retrieval baseline.
- Studying how DSP scales to the much larger **MS MARCO v2** corpus on the **Expanse** supercomputing cluster, performing ablations on index tree depth to understand scalability and efficiency.

## INDUSTRY EXPERIENCE

### NetApp, Inc.

Software Engineer Intern

San Jose, CA

Jun. 2025 – Sep. 2025

- Designed and deployed an agentic AI tool for root cause analysis using system log data, delivering a production-ready MVP by week two of internship; built from scratch in **Python** with **LangChain** and **Streamlit**.
- Supported **20+ weekly active users**, primarily software and support engineers, helping drive an estimated **10% productivity boost** in resolution of customer escalations post-adoption.
- Independently scheduled and led **15+ technical demos** across teams, including a **35-person** Cloud Services & IT session, to showcase and drive tool adoption across the organization.
- Awarded **1st Place Judges' Choice Award** at NetApp's global internal engineering hackathon out of **1000+ participants** and **300+ projects**, the only winning team from the immediate 100-person organization.

### Inogen, Inc.

Software Engineer Intern

Santa Barbara, CA

Jul. 2023 – Sep. 2023

- Integrated Apple Watch, Fitbit, and Garmin data into the production mobile app, collaborating with offshore teams to design and communicate via flowcharts and stand-up demos, eventually pushing to production.
- Rapidly onboarded to medical device firmware, authoring **100+ embedded C tests** to validate production-line devices by reading schematics, interfacing with electrical engineers, and learning to compile and flash firmware.
- Designed human oxygen-response simulator, researched respiratory biology, collaborated with medical experts, contributed analysis and simulation charts to an FDA report.

## TEACHING AND MENTORING

---

### UCSB Computer Science Department

Santa Barbara, CA

*Undergraduate Teaching Assistant for CS 138: Automata and Formal Languages*

*Oct. 2024 – Dec. 2024*

- Graded formal proofs, authored problem sets and solutions, held office hours for 90+ students, and contributed to lecture planning and pacing decisions by reporting student feedback during staff meetings.

### Campus Learning Assistance Services

Santa Barbara, CA

*Physics Drop-In Tutor*

*Sep. 2023 – Jun. 2024*

- Conducted 150 hours of drop-in tutoring for lower-division physics, diagnosed students' misconceptions, coached problem-solving techniques, practiced question-first teaching, and built rapport with recurring learners.

### E3 Learning Partners

Santa Barbara, CA

*Volunteer Math Tutor*

*Oct. 2022 – Feb. 2023*

- Provided individualized math tutoring to 10+ elementary and middle school students in underserved high-need classrooms and volunteer transportation logistics to local Goleta schools.

## LEADERSHIP AND SERVICE

---

### Association for Computing Machinery (ACM) Student Chapter

Santa Barbara, CA

*Founder; Co-President; Advisor*

*Oct. 2022 – Present*

- Founded UCSB's ACM student chapter, scaling to **550+ members**, **30+ officers**, and **20+ annual events**, unified fragmented CS clubs, removed entry fees to lower barriers, and pioneered a branch-based model to ensure long-term sustainability.
- Launched student consulting, research outreach, and competitive programming branches: connecting students with labs, hosting interview prep and ICPC tryouts, and forming UCSB's first consulting teams with partners like PwC.
- Led flagship events: 14-week React competition (**115+ students**, **\$2,000+ in prizes**), **250+ attendee** Google recruiting event, and "Evening with Academia," a catered networking night connecting **100+ undergrads** with CS faculty and researchers.
- Mentored officers and members; spearheaded accessibility initiatives through beginner-focused web dev workshops and interview prep series; awarded **Computer Science Student of the Year** by faculty for outstanding service and leadership.

### Indus South Asian Cultural Organization

Santa Barbara, CA

*Community Chair*

*Oct. 2023 – Jun. 2025*

- Directed cultural and service initiatives to support South Asian students and strengthen Indus' campus community.
- Spearheaded assembly and distribution of **200+ free South Asian meal kits** with UCSB Food Bank; organized beach cleanups with Surfrider Foundation; and ran charity fundraisers for Maitri, a nonprofit supporting survivors of domestic violence.

## SELECTED PROJECTS

---

### Operating System Kernel (KOS) | C, Linux, UNIX, POSIX

Jan. 2025 – Mar. 2025

- Co-built a UNIX-style kernel for a MIPS R3000 simulator with multiprocessing, shell pipes, file descriptors, syscall handling, and memory partitioning; built a modular regression test framework; achieved top lab scores and A+ (top 4%) in the course.

### Fault-Tolerant Chatbot with Multi-Paxos | Python, Gemini, TCP/UDP

Nov. 2024 – Dec. 2024

- Built a distributed Gemini chatbot using a replicated key-value store and Multi-Paxos consensus across three nodes to preserve conversational context through crashes, partitions, and hallucinations; earned full score and A+ (top 4%) in the course.

### CS 292F Survival Guide | C++, OpenGL, GLSL, Blender

Mar. 2024 – Jun. 2024

- Wrote a practical guide for succeeding in a graduate-level graphics course covering OpenGL setup, build tooling, tips to denoise ray-traced images, and debugging strategies; shared with the instructor to potentially guide future cohorts.

### Verde | 1st place winner at Google Developer Solution Challenge

Jan. 2023 – Mar. 2023

- Organized and led a team of four to develop a sustainability-focused social media app to encourage planet-friendly acts.

## TECHNICAL SKILLS

---

**Languages:** C++, Python, C, SQL, Rust | **AI/ML & IR:** FAISS, PyTorch, LangChain, NumPy | **Tools:** Git, Docker, Slurm, Linux