

Rohil Shah

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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× 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.

San Jose, CA

Software Engineer Intern

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.

Santa Barbara, CA

Software Engineer Intern

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

Undergraduate Teaching Assistant for CS 138: Automata and Formal Languages

Santa Barbara, CA

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

Physics Drop-In Tutor

Santa Barbara, CA

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

Volunteer Math Tutor

Santa Barbara, CA

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

Founder; Co-President; Advisor

Santa Barbara, CA

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

Community Chair

Santa Barbara, CA

Sep. 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