

Shahene Chaouachi

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Education

University of California, Berkeley

Expected Dec 2027

B.A. Applied Mathematics | Minor in Computer Science

Relevant Coursework: Data Structures & Algorithms, Computer Architecture, Computer Networking, Intro to Artificial Intelligence, Foundations of Data Science, Abstract Linear Algebra, Numerical Analysis, Probability & Statistics

Certifications: Retrieval Augmented Generation (DeepLearning.AI), Technical Interview Prep (CodePath)

Skills

Languages: Python, C++, TypeScript, SQL, C, Java

Databases: PostgreSQL, Redis, pgvector

Frameworks & Libraries: FastAPI, Next.js, React, Sentence Transformers, GoogleTest

Developer Tools: Docker, Git, GitHub Actions, Linux, Valgrind, Vercel

Cloud: AWS (EC2, S3)

Technical Projects

Atlas | Hybrid Web Search Engine

Tech: Python | FastAPI | PostgreSQL | pgvector | Redis | Sentence Transformers | BM25 | Docker

- Built a hybrid search engine supporting keyword and **semantic retrieval** across **15,000+ indexed documents**.
- Designed asynchronous indexing pipelines for ingestion, embedding generation, and incremental indexing.
- Improved search relevance through **BM25** and **dense vector retrieval** with hybrid scoring.
- Optimized search performance through **Redis caching**, batched embedding generation, and **Dockerized deployment**.

API Observatory | Platform

Tech: TypeScript | Node.js | Fastify | Next.js | PostgreSQL | Redis | OpenAPI | Docker

- Engineered an automated **ingestion engine** to periodically fetch and snapshot OpenAPI specifications across 100+ public APIs, maintaining full version history.
- Implemented **AST-based** schema diffing algorithms to automatically detect breaking changes, parameter updates, and structural shifts between API iterations.
- Architected scalable background task queues (using Redis) to concurrently poll endpoints, retry failed requests, and persist normalized metadata to PostgreSQL.
- Developed a **Next.js/React** interactive dashboard to visualize timeline diffs, highlight breaking API changes, and alert developers to **schema regressions**.

Experience

Sylvan Learning

Sep 2022 - Mar 2023

Tutor

- Mentored high school students in groups of 3 in advanced mathematics, breaking down complex algebraic and quantitative concepts into digestible steps to improve **problem-solving** accuracy and subject comprehension.

Leadership & Activities

Hackathons@Berkeley

Sep 2025 - Present

Director - Sponsorships

- Secured \$140,000 in sponsorships from leading technology companies, including Anthropic, Redis, and Microsoft, for Cal Hacks, the world's largest collegiate hackathon.
- Built and maintained strategic sponsor **relationships**, increasing sponsor retention across consecutive events.