Sahith Siddarth Earlapally

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Professional Summary

A results-driven Computer Science student specializing in building scalable distributed systems and intelligent applications. Combines a strong foundation in low-level network programming with hands-on experience in cloud-native technologies and Generative AI. Proven ability to lead teams and deliver high-impact solutions in competitive, fast-paced environments.

Education

Bachelor of Technology, Computer Science & Engineering | Amrita Vishwa Vidyapeetham | Expected 2027

Technical Skills

- **Languages:** Python, C++, Go, JavaScript (Node.js), Java, SQL
- **Cloud & DevOps:** AWS (S3, Lambda, EC2), Docker, Terraform, Git, GitHub Actions, Azure
- **Databases & Caching:** PostgreSQL, MongoDB, Redis, Vector Databases (Pinecone, Milvus)
- **Frameworks & Libraries:** React, Next.js, Express.js, Flask, LangChain, Socket.IO
- **Systems & Architecture:** Distributed Systems, System Design, TCP/IP, Concurrency, Microservices, REST APIs
- **AI/ML:** Generative AI, Retrieval-Augmented Generation (RAG), Natural Language Processing, LLMs

Projects

Concurrent TCP Server from Scratch

- Engineered a high-performance, multi-threaded TCP server in C++ from the ground up, benchmarked to handle over 1,000 concurrent client connections with minimal latency.
- Implemented a non-blocking I/O model using epoll on Linux to efficiently manage client sockets, reducing CPU overhead by 60% compared to a traditional thread-per-connection model.
- Designed and built a custom application-layer protocol for a key-value store, handling request parsing, state management, and response serialization.

Distributed Task Queue System

- Architected a scalable, fault-tolerant distributed task queue using Python, Redis, and a custom worker-producer model, processing over 10,000 tasks per hour in stress tests.
- Developed producer services that enqueue tasks and implemented a pool of consumer workers that competitively consume and execute jobs idempotently.
- Ensured high availability and data integrity by implementing task acknowledgments and a dead-letter queue for failed jobs.

Optimized RAG Chatbot with Vector Search

- Developed a highly accurate RAG system for querying technical documentation, building a custom data pipeline in Python to parse, chunk, and generate embeddings.
- Engineered the retrieval system using Pinecone, improving search relevance by 35% and reducing query latency by 50% over a basic FAISS implementation.
- Built a responsive frontend with a Flask backend that streams token responses from the LLM, significantly enhancing the user experience.

Professional Experience

Web Developer, ACM Club @ Amrita Vishwa Vidyapeetham | Mar 2024 - Present

- Architected and deployed event management applications using React and Firebase, increasing user engagement by 30% and supporting hundreds of concurrent users during live events.
- Led a performance optimization initiative that improved key web vitals by 25% through asset minification, lazy loading, and optimized API query patterns.
- Mentored 5 junior developers in full-stack development, establishing best practices for code reviews and version control that improved team productivity by 15%.

Honors & Awards

- **Google Gen AI Program Selectee (2025):** Selected for the competitive Google Gen AI Exchange Program, gaining hands-on experience with advanced generative AI models and technologies.
- **Consistent Hackathon Winner:** Achieved podium finishes in multiple national-level hackathons, competing against hundreds of teams and demonstrating leadership in high-pressure environments.
    - **3rd Place Winner,** Krithoathon 3.0 (Mar 2025)
    - **Runner-Up,** EvoLUMIN National Tech Hackathon (Sep 2024)
- **First Place, Triple Point Technical Event (Oct 2024):** Secured top position at

Anokha Techfest for demonstrating exceptional problem-solving and algorithmic skills.