

Sridharan Kannan

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🔗 sridharan-kannan-06.github.io/Portfolio/ in sridharan-kannan-401b09338 📱 sridharan-kannan-06

Education

Amrita Vishwa Vidyapeetham, Coimbatore

July 2024 – Present

B. Tech. in Computer Science and Engineering

- CGPA: 8.63/10.0 (through semester 4)
- **Relevant Coursework:** Data Structures and Algorithms, Object Oriented Programming, Operating Systems, Computer Organization and Architecture, Discrete Mathematics, Linear Algebra, Probability and Random Processes.

Projects

CppKV

[GitHub](#) 

Individual project

- **Tech Stack:** C++ 20, Windows IOCP, RESP
- Built a Redis-compatible in-memory key-value store reaching approximately 59,700 requests/sec and 2.4x Memurai throughput across SET, GET, INCR, LPUSH, RPUSH, LPOP, RPOP and LRange benchmarks with 100 to 600 elements.
- Designed 16 independent shard owner threads with MPSC queues, avoiding mutexes on the data access hot path.
- Implemented crash recovery through an append-only write-ahead log, binary RDB snapshots and startup replay.
- Built primary-replica replication with a PSYNC handshake, full resync through RDB transfer and per-replica feeder threads streaming from an in-memory backlog.
- Implemented consistent hash ring clustering with virtual nodes and MOVED redirection for key routing across multiple nodes.

Sentinel

[Demo](#)  [GitHub](#) 

Individual Project for Google's All Things Agentic Hackathon

- **Tech Stack:** Python, FastAPI, Next.js, Google ADK, Gemini, Cloud Run, Firestore, Cloud Tasks
- Converted tokenised hospital events into timed obligations to flag overdue work. Detected all 12 deadlines in fixture tests.
- Combined per-obligation Cloud Tasks timers with a reconciliation sweep that recreates missing timers from Firestore state.
- Checked Gemini and Google ADK outputs against deterministic policies and evidence requirements. Configured rules rejected all 25 invalid samples in a 30-case fixture evaluation.
- Deployed seven FastAPI and Next.js services on Cloud Run using Pub/Sub, Firestore, KMS and Sensitive Data Protection.

ConstraintCanvas

[Demo](#)  [Live](#)  [GitHub](#) 

Team hackathon project for The WebMCP Challenge by OpenAI

- **Tech Stack:** TypeScript, React, Next.js, SVG, WebMCP
- Co-developed a venue floor planner with nine WebMCP tools for agents to inspect layouts, propose changes and request optimisation.
- Required approval before applying agent changes and turned rejected placements into user-confirmed rules that constrain future proposals.
- Implemented eight planning checks covering capacity, clearance and exit access, including flood-fill detection of blocked walking routes.

Technical Skills

Languages: C, C++20 (STL), TypeScript, JavaScript, Python, SQL, Shell scripting

Tools and frameworks: Git, Node.js, React, Next.js, FastAPI, Google ADK, Google Cloud, Firebase, MySQL

Concepts: Concurrent and systems programming, network programming, distributed systems, MCP, WebMCP

Competitive programming: LeetCode contest rating of 1827