Manoj Ayyanavara

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Education

•Bachelor of Engineering, Computer Science and Engineering **2018 - 2022**
Ramaiah Institute Of Technology (MSRIT), Bangalore, Karnataka CGPA: 9.1/10

Experience

•Cloudera Inc **Bangalore, Karnataka**

Software Engineer II (SDE-2) **February 2024 - Present**

- Leading the development of Externalized and Shared Compute Clusters, standardizing Kubernetes clusters across AI/ML, Data Engineering, and Warehousing services. Optimized infrastructure and improved resource utilization across 5+ data services and shared platforms (Airflow, Data Catalog, Iceberg REST Catalog).
- Spearheaded migration of 30+ legacy REST APIs to gRPC for Liftie, redesigning proto contracts and service boundaries to establish a unified API layer, which reduced latency and improved reliability across services.
- Led the development initiatives for the Queue Manager (QM) service within the private cloud environment.

Software Engineer I (SDE-1) **January 2022 - February 2024**

- Spearheaded the frontend development efforts for a robust Data Services Platform, facilitating the seamless deployment and management of Kubernetes Clusters.
- Demonstrated versatility by contributing to API development for the Data Services Platform (DSP), playing a key role in designing and optimizing critical functionalities for efficient data processing and management.

•Samsung India **Bangalore, Karnataka**

Research Intern (PRISM) **September 2020 - March 2021**

- Developed a Device driver which can interact with OS (Linux/Android), control CPU clocks for various clusters and control system resources for resource intensive applications.
- Algorithm to determine suitable CPU clock values based on thermal budget at any given instance.

Projects

•LogTreeDB - LSM-based Storage Engine

An LSM-tree based storage engine implementing WAL, SSTables, compaction, and read optimizations.

- Designed and implemented a full LSM write path with Write-Ahead Log (WAL) for crash recovery and MemTable flushed to immutable SSTables for high sequential write throughput.
- Built on-disk SSTables with sparse indexing and per-file Bloom Filters to optimize point lookups and reduce read amplification.
- Implemented background compaction to merge segments, handle tombstones, and manage write amplification under sustained workloads.
- Engineered recovery mechanisms to rebuild state from WAL and analyzed storage trade-offs including read/write amplification and disk utilization.
- *Tech Stack - Java, File I/O, Concurrency, Bloom Filters, LSM-tree Architecture.*

•Thinkshelf - Social Reading Platform

An accessible platform to discover books, write reviews, manage bookshelves and connect with readers who share your taste.

- Designed and shipped RESTful APIs for books, shelves, genres, reviews, and follows; added pagination and filtering, with resource naming, versioned endpoints, and clear request/response contracts for easy client integration.
- Secured endpoints with JWT auth and Spring Security; structured roles and protected user resources.
- Modeled data using JPA on PostgreSQL; defined clear entity relationships, normalized schemas, added indexes for frequent queries, and optimized read/write paths to improve reliability, maintainability, and scale-readiness.
- Created a one-stop platform that brings everything readers need into a single place: shelves, reviews, discovery, and community; a platform that consolidates key reading workflows and community features into a seamless experience.
- *Tech Stack - Java, Spring Boot, PostgreSQL, JPA.*

•LightShard - Sharded In-Memory Key-Value Store

A Redis-inspired in-memory key-value store designed for concurrency and scalable request routing.

- Designed a shard-based architecture to reduce lock contention and improve throughput under concurrent workloads.
- Implemented hash-based key routing and TTL semantics with lazy expiration, exposed via a gRPC API.
- *Tech Stack - Go, gRPC, Concurrency, Hash-based Sharding, TTL Design.*

Technical Skills

Experienced: Java, C/C++, Go
Backend and APIs: gRPC, REST, Spring Boot
Distributed and Storage Concepts: LSM Trees, Sharding, Bloom Filters, Concurrency
Infrastructure: Kubernetes, Docker, Git
Cloud/Databases: Amazon Web Services (AWS), PostgreSQL, MongoDB, MySQL
Frontend (Prior Experience): React, TypeScript