Sri Karthikeya Annavarjula

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Education

Indraprastha Institute of Information Technology (IIIT-D) — New Delhi, India
B.Tech in Computer Science and Engineering (CGPA: 7.9) — *2024 – Present (Expected 2028)*

Resonance Junior College — Hyderabad, India
Class XII (TSBIE) — Percentage: 93% — *2024*

Sri Chaitanya Techno School — Hyderabad, India
Class X (SSC) — CGPA: 9.8 — *2022*

Technical Skills

Languages: C/C++, Python, Java
Data Systems: MongoDB , Elasticsearch, Manticore Search, MySQL, Redis
Tools: Docker, Git, AWS, Azure, Kibana, Tableau, Pandas, NumPy , LangGraph , Playwright, Puppeteer, Selenium
Expertise: Big Data Architectures, Web Scraping, Systems Optimization, DSA , Operating System

Work Experience

Big Data Intern — May 2025 – Oct 2025
Brandsek — *Remote*

- Architected **30 Billion+ record** credential intelligence system, achieving **sub-second latency** using custom horizontally sharded MongoDB clusters.
- Created a high-throughput ingestion pipeline processing **300K+ docs/sec**, reducing ingestion time by **90%** under heavy production workloads.
- Developed a **C-based greedy regex engine** as a **Python native extension** to eliminate bottlenecks in standard library regex functions **improving efficiency by 70%**.
- Built resilient data collection pipelines using **Playwright** with proxy rotation and anti-bot bypass for protected sources.

Projects

Custom Database Engine | ***C++17*** — Oct 2025

- Engineered a **disk-backed storage engine** in C++ with a **4KB page-based architecture**, enabling **persistent data storage** and efficient record retrieval.
- Implemented a **B+ tree index (order 50)** with automatic **node splitting and rebalancing** to support scalable on-disk indexing.
- Reduced search complexity from **O(n)** to **O(log n)**, requiring only **3–4 disk I/Os** for datasets exceeding **100K+ records**.

Linux Sampling Profiler | ***C*** — Dec 2025

- Engineered a **Linux instruction-level sampling profiler** in C using **perf_event_open**, enabling **low-overhead CPU profiling** without binary instrumentation.
- Designed a **lock-free, mmap-backed ring buffer** for zero-copy kernel–user space data transfer, supporting **high-frequency sample ingestion**.

Academic ERP System | ***Java, MySQL*** — Oct 2025

- Developed a **desktop-based ERP system** with **role-based access control** for Admin, Student, and Faculty users.
- Designed a modern UI using **Java Swing** with **FlatLaf theming** and **MigLayout** for flexible, responsive layouts.
- Integrated a **MySQL database via JDBC** to provide persistent storage for academic records.
- Built **modular components** for enrollment, attendance, and grading following strong **object-oriented design principles**.

Achievements

IMO Olympiad: State-level **Gold Medalist** , (2022) for excellence in Mathematics.