

Shreyans Chowdry

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Education

Vellore Institute of Technology

B.Tech in Computer Science and Engineering (Data Science); **CGPA: 8.83/10**

Vellore, India

2024 – 2028

DAV Boys Senior Secondary School

CBSE Class XII: 92% | CBSE Class X: 88%

Chennai, India

Graduated 2024

Experience

Campus Partner

Aug 2025 – Nov 2025

Perplexity

VIT Vellore

- Led on-campus adoption of Perplexity through student sign-up and referral drives, product demos and peer outreach across the VIT community.

Projects

ChronoDB | Version-Controlled Database Engine · Python, FastAPI, Next.js, TypeScript

[GitHub](#)

- Built a **Git-style relational database engine from scratch** with immutable commits, copy-on-write branching, time-travel queries and **conflict-aware three-way merge** over a commit DAG.
- Wrote the storage layer (**LRU buffer pool**, **B+ Tree** indexes, **WAL with ARIES-style redo recovery**, mark-and-sweep GC), backed by **126 unit tests** and benchmarked against **SQLite**.

RaftKV | Fault-Tolerant Key-Value Store · Go, gRPC, Protocol Buffers

[GitHub](#)

- Implemented the **Raft consensus protocol from scratch in Go** (leader election, log replication, persistence, snapshot compaction) behind a gRPC key-value API with **linearizable** reads and writes.
- Built a **chaos harness** that injects network partitions, node crashes and message loss; verified **500** randomized fault-injection runs with the **Porcupine linearizability checker** and sustained **8,000 ops/s** at **p99 commit latency under 15 ms** on a 5-node cluster.

PGARA | Profile-Guided Optimising Compiler (team of 5) · Python, JavaScript

[GitHub](#)

- Built, in a team of 5, a full compiler for a C subset: DFA lexer, **LL(1) recursive-descent parser**, semantic analysis, **pruned SSA**, an SCCP/GVN/DCE optimiser and a cycle-counting RISC simulator; I owned the lexer, parser, AST and IR generation.
- Its **profile-guided register allocator** (per-value MDPs solved by policy iteration, sealed-bid auctions on the chordal interference graph) cut cycles by **20.4%** and spill memory traffic by **80%** vs linear scan across 50 benchmark runs; written up as an **IEEE-format paper**.

TinyInfer | LLM Inference Engine · Python, PyTorch, FastAPI

[GitHub](#)

- Built a transformer inference server with a **KV cache**, **paged attention** and **continuous batching**, streaming tokens from **TinyLlama-1.1B** on a single T4 GPU.
- Added **int8 weight quantisation** cutting GPU memory by **47%**; reached **3.2x** the throughput of a Hugging Face generate() baseline at 16 concurrent requests, with **p99 time-to-first-token of 210 ms**.

StreamGuard | Real-Time Fraud Detection · Kafka, Redis, LightGBM, ONNX, MLflow

[GitHub](#)

- Streamed transactions through **Kafka** into a **Redis feature store** and scored them with a **LightGBM** model on **ONNX Runtime** at **2,000 events/s** with **14 ms p99 latency**.
- Versioned models in **MLflow** with shadow deployments and **PSI-based drift alerts**; reached **0.84 PR-AUC** on the Kaggle credit-card fraud dataset (0.17% positive class).

QueueForge | Distributed Background Job System · Python, Redis, PostgreSQL, Docker

[GitHub](#)

- Designed a distributed job queue on **Redis sorted sets**, **hashes** and **Pub/Sub** with priority scheduling, delayed execution and PostgreSQL as the durable source of truth.
- Added heartbeats, a **reaper that re-queues jobs from crashed workers**, backoff retries and a dead-letter queue; in a 500-job load test with **30% injected failures**, **99.2%** completed at **410 jobs/s** ingest.

Technical Skills

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

Distributed Systems: Raft Consensus, gRPC, Protocol Buffers, Fault Injection, Linearizability Testing

Systems & Compilers: Storage Engines, Write-Ahead Logging, B+ Trees, SSA Form, Register Allocation

ML / ML Systems: PyTorch, scikit-learn, LightGBM, ONNX Runtime, MLflow, KV Caching, RAG, LangGraph

Data & Backend: Kafka, Redis, PostgreSQL, pgvector, FastAPI, REST, WebSockets

Tools: Git, Docker, GitHub Actions, Linux, Vercel, React, Next.js

Relevant Coursework

Data Structures & Algorithms, Operating Systems, DBMS, Compiler Design, Computer Networks, Computer Architecture, Discrete Mathematics, Linear Algebra, Probability & Statistics