Tharun Krishna

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Education

Indian Institute of Technology Madras — Chennai, India
BS in Data Science and Applications — *07/2023 – 04/2027*

National Institute of Technology Karnataka — Surathkal, India
B.Tech in Mining Engineering — *07/2023 – 04/2027*

Experience

ML Research Intern — 05/2026 – 07/2026
National Institute of Technology Karnataka — *Surathkal, India*
- Built an end-to-end **ML pipeline in Python** to predict blast-induced **Peak Particle Velocity (PPV)** from blast design parameters (charge weight, distance, delay), supporting safer blast-design decisions for mine sites
- Ran **exploratory data analysis** and feature engineering on field blast-monitoring data, and used **learning curves** to diagnose bias/variance trade-offs and select a model resilient to overfitting on a limited dataset

Machine Learning Engineer Intern — 05/2024 – 07/2024
Vaidsys Technologies — *Remote, India*
- Developed a **real-time anomaly detection pipeline** for streaming API and IoT sensor data, **cutting the false-positive alert rate by 35%** through feature engineering and adaptive threshold calibration
- Deployed **ML inference services on AWS EC2** with **Docker**, achieving **sub-100ms prediction latency** with **S3-backed model artifact versioning**

AI Research Intern — 01/2025 – 03/2025
Scalar Labs — *Surathkal, India*
- Designed a **real-time time series forecasting system** that converts streaming numerical data into **natural language embeddings** and predicts future values using **pretrained, frozen LLMs** (**PyTorch**, **Transformers**)
- Implemented **embedding alignment** techniques to bridge numerical and language-based representations, enabling efficient **next-K-step forecasting** without fine-tuning the base LLM

Projects

FaultLine | *Go, gRPC, Redis, Kafka, Prometheus, OpenTelemetry, Docker* | github.com/Tharun-bot/faultline
- Built a **production-grade fault injection framework** in **Go**, wrapping **gRPC**, HTTP, and **Kafka** handlers with middleware so faults can be activated, updated, or rolled back **live – without redeploying services**
- Architected a **Redis Pub/Sub control plane** for sub-second rule propagation with periodic reconciliation, plus a **closed-loop auto-rollback** triggered directly off live **Prometheus** error-rate spikes (not internal counters); instrumented with **OpenTelemetry**, **Grafana**, and **Jaeger** tracing

GoQ – Distributed Job Queue | *Go, Redis, PostgreSQL, Prometheus, Docker* | github.com/Tharun-bot/goq
- Engineered a **distributed, Redis-backed background job queue** in **Go** with **crash-safe processing** via atomic `BRPOPLPUSH` leases, a lease-reaper for abandoned jobs, **idempotent job submission**, and exponential-backoff retries with a dead-letter queue
- Added **non-blocking, batched PostgreSQL audit logging** that never blocks worker throughput; **benchmarked with Vegeta** at **2,000 req/sec** sustaining **100% success** with **sub-2ms p99 latency** (10x load increase, zero failures), and verified crash recovery with a 1,000-job smoke test

Technical Skills

Languages: Go, Python, SQL, JavaScript, C/C++
Backend & Infra: gRPC, REST APIs, Redis, PostgreSQL, Apache Kafka, Docker, Docker Compose
Observability: Prometheus, Grafana, Jaeger, OpenTelemetry
Concepts: Distributed Systems, Concurrency, Fault Tolerance & Chaos Engineering, System Design
Tools: Git, Linux, CI/CD

Certifications and Extracurricular

Solved **400+ problems** on LeetCode
Oracle Cloud Infrastructure 2025 Certified Generative AI Professional | Certificate
Oracle Cloud Infrastructure 2025 Certified AI Foundations Associate | Certificate