THULASIRAM K

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SUMMARY

Computer Science undergraduate with strong fundamentals in data structures, algorithms, and distributed systems. Built and shipped scalable, production-grade software — including concurrent backends, multi-agent LLM systems, and real-time monitoring tools — across Python, C/C++, and Go. Open-source contributor (AWS s2n-tls) and competitive programmer.

EDUCATION

Chennai Institute of Technology — B.E. Computer Science Engineering (AI & ML) *2024 – 2028*
CGPA: 7.54 / 10 • **Relevant Coursework:** Data Structures & Algorithms, Operating Systems, DBMS, Computer Networks, OOP, Discrete Mathematics, Machine Learning.

TECHNICAL SKILLS

Languages: Python, C/C++, Go, Kotlin, JavaScript, SQL, Java (familiar), Rust (familiar)
Frameworks & Libraries: PyTorch, TinyGrad, TensorRT, OpenCV, React.js, FastAPI, Flask, Streamlit, scikit-learn
Backend & Distributed Systems: REST APIs, WebSockets, MQTT, Microservices, Concurrency, Multi-threading, Elasticsearch
Platforms & Tools: Linux, Docker, Git, CI/CD, AWS, Firebase, Hugging Face Spaces, PyPI
Core Competencies: Data Structures, Algorithms, System Design, Debugging, Performance Optimization, Software Design

EXPERIENCE

AI/ML Virtual Intern — AICTE & EduSkills *2024*
- Designed and trained 5+ supervised ML pipelines achieving up to **92% classification accuracy** across 3 real-world datasets; built modular, reusable Python components covering preprocessing, feature engineering, and model evaluation.

Cloud Computing Intern — Chennai Institute of Technology *2024*
- Engineered a real-time system monitoring dashboard tracking **6+ KPIs** (CPU, memory, disk, network) with live alerting and automated metric collection; reduced manual monitoring effort by ~60% and improved observability of cloud-deployed services.

PROJECTS

TRX-AI — Multi-Agent Code Intelligence System — *Python, Ollama, LLMs* *2026*
- Architected a **4-agent distributed pipeline** (Analyzer → Generator → Critic → Fixer) with hybrid intent routing (rule-based + LLM) for automated code review and patch generation.
- Designed orchestration layer with retry, fallback, and validation; built semantic evaluation framework measuring accuracy, fix quality, and completeness across multi-stage reasoning tasks.

SysDash — Real-Time System Monitor — *Go, Python, WebSockets, Docker* *2025*
- Built a **low-latency concurrent backend** in Go streaming live system metrics over REST + WebSockets; published companion Python CLI to PyPI and Dockerized for cross-platform deployment.
- Designed multi-threaded metric collectors with bounded channels for backpressure handling, ensuring stable streaming under load.

UnicornScope AI — Startup Intelligence Platform — *React, FastAPI, Elasticsearch, LLMs* *2026*
- Engineered full-stack platform analyzing **1,000+ unicorn records**; combined Elasticsearch ES|QL with LLM agents to generate automated sector reports via React frontend and FastAPI backend, with optimized indexing and query strategies for sub-second retrieval on large datasets.

OpenEnv RL Environments — Meta × HuggingFace × PyTorch Hackathon — *Python, FastAPI, Docker, SQLite* *2026*
- Built and deployed two RL evaluation environments (financial email triage, SQL query repair) on Hugging Face Spaces with deterministic graders, FastAPI servers, and Docker containerization.

Machine-Guard-AI — Industrial IoT Monitoring System — *Kotlin, Python, Flask, MQTT, ESP32, Firebase* *2026*
- Architected end-to-end IoT system spanning ESP32 firmware, MQTT broker, Flask backend, and Android (Kotlin/Jetpack Compose) app for real-time industrial machine and environmental monitoring; achieved **94% classification accuracy** on unsupervised anomaly detection.
- Built ML pipeline with digital-twin behavioral modeling sustaining **1000+ msgs/sec ingestion** at **<50ms end-to-end latency**; implemented role-based access control with multi-zone authorization.

ACHIEVEMENTS & OPEN SOURCE

- **Open-Source Contributor — AWS s2n-tls** (TLS implementation in C); selected for SWoC 6.0 and Elite Coders WoC 2026.
- **Winner —** TI Forge Hackathon (₹50,000) • **Winner —** AI for Sustainability Hackathon 2026 (International) • **4th Place —** IISc Bangalore Coding Competition • **Finalist (Top 10) —** TGF 2.0 Google TechSprint.