

# Umar Ahmed Thameem Ahmed

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## EDUCATION

### University of Colorado Boulder

Master of Science in Computer Science – **CGPA: 4.0/4.0**

Boulder, CO, United States

May 2027

**Related Coursework:** Distributed Systems, Systems for ML, Datacenter Scale Computing, Big Data Architecture, Computer Vision

### College of Engineering Guindy, Anna University

Bachelor of Engineering in Computer Science and Engineering – **CGPA: 8.75/10**

Chennai, TN, India

Apr 2022

**Related Coursework:** Data Structures & Algorithms, Database Management Systems, Operating Systems, Cloud Computing, Computer Networks, Machine Learning, Big Data Analytics, Data Mining, Software Engineering

## SKILLS

**Programming:** Python, Ruby, Java, Go, JavaScript, TypeScript, SQL, NoSQL, Bash

**Frameworks & Libraries:** React, Angular, Flask, FastAPI, FFmpeg, PyTorch, LangChain, LangGraph, vLLM

**Databases & Caching:** MySQL, MongoDB, PostgreSQL, Oracle DB, Qdrant, Redis, Memcached

**Cloud, DevOps & OS:** Docker, Kubernetes, AWS, GCP, Git, GitHub, CI/CD, ElasticSearch, Nginx

**GenAI & Observability:** OpenAI API, Gemini API, Anthropic Claude, Langfuse, Prometheus, Grafana

## EXPERIENCE

### Nueromind Technologies

Software Development Engineer | Python, FastAPI, React, MongoDB, Docker, AWS, ELK

Bangalore, KA, India

Jan 2024 – Jul 2025

- Led a cross-functional team of 7 and owned the core **backend** and **AWS cloud infrastructure** for the **flagship, revenue-driving** AI-powered video conferencing platform. Built a video ingestion pipeline (**WebRTC, RTSP, Socket.IO, and HLS**) and a **Celery-based distributed model inference** pipeline delivering **30 FPS** at production load.
- Engineered a **model inference pipeline** for canary-deploying **multi-modal** models (CLIP, ASR, UGround, Wan 2.1) using Modal and Nomad. Integrated **Prometheus** monitoring, reducing inference latency by **40%** for **~2K** monthly users.
- Deployed an autonomous browser-based screen-sharing validator using **GPT-4V** and **Anthropic's Computer Use**, achieving **99.99% stream uptime** with automatic detection of black frames/FPS drops and auto recovery.
- Built **NL2SQL** microservices using an instruction-tuned **LLM** to generate **PostgreSQL** queries with embedded business logic, cutting query build time by **30%**. Integrated **Langfuse** for traces/accuracy metrics and **guardrails**.
- Devised an **end-to-end** data annotation pipeline for **YOLOv8** model training, automating the flow of image and video data for human annotation through **Supervisely** and improving overall training accuracy by **20%**.

### Infibeam Avenues

Software Development Engineer | Ruby on Rails, AngularJS, MySQL, Docker, Kubernetes

Bangalore, KA, India

Jul 2022 – Jan 2024

- Engineered a scalable **seller notification system** on **Firebase**, enabling bulk notifications via Excel imports for JioMart (**1M+** active sellers), reducing manual messaging efforts by **40 hours per month** across support teams.
- Developed a suite of **RESTful APIs** for a **seller ticketing system**, coordinating and integrating with a third-party service, to allow sellers to report and manage issues more efficiently, improving issue resolution time by **25%**.
- Built a stock-approval work-allocation module with a **round-robin** strategy to evenly distribute seller requests across admins, cutting median approval time by **18%** and reducing per-admin queue variance by **60%**.

## PROJECTS

### HyRA - Hybrid Routing Agent

- Building a cost-aware **LLM routing framework** using **vLLM, LangGraph** and **Flask** on **GCP**, enabling dynamic selection among open-source models and projecting **30 - 40%** reductions in latency and cost over a static baseline.
- Integrated an **LLM-as-a-Judge** feedback loop with a **PostgreSQL**-based Model Registry, improving route-selection accuracy from **71%** to **89%** while keeping overhead **< 1 second** per query.
- Containerized and deployed **vLLM** servers with **Langfuse** profiling, guiding routing weight calibration.

### Distributed Log Processing System

- Engineered an end-to-end **real-time distributed log analytics pipeline** utilizing **Apache Kafka, Apache Flink, ClickHouse DB, and Redis**, enabling **10x** higher log throughput (~**1M events/min**) with **99.9%** message durability.
- Developed a **full stack observability dashboard** (**Next.js + FastAPI + Redis + ClickHouse**) to deliver **-100 ms** query responses by **80%** via top-K caching and optimized analytical queries.

## ACHIEVEMENTS & CO-CURRICULAR ACTIVITIES

- Top 10 (7th Place)** Finish among 50 teams at the **AWS GameDay** Hackathon, leveraging **Amazon Nova Pro/Lite, Titan Text Embeddings V2, Lambda, and Step Functions** within a pre-deployed GenAI pipeline. Optimized retrieval and orchestration logic using **Transcribe** and **OpenSearch**, with guardrails implemented for prompt safety.
- Served as the **Web Developer** for the **Computer Science and Engineering Association** and **CEG Tech Forum**, spearheading the development of high-traffic websites for **technical symposiums**, serving **50K+** users globally and automating registration and event workflows.