

Sathyanarayanan Rengasamy Suresh

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 LinkedIn  Github Portfolio

Skills

Languages and Frameworks Python, SQL(MySQL, Postgres, NoSQL(Mongo), JavaScript, TypeScript, ReactJS, Java
Others (Tableau, PostgreSQL, MongoDB, Git, GitHub, Docker, Jenkins, Agile, AWS Cloud, Linux Systems, FastAPI, Kubernetes, Apache, Redis)

Machine Learning (PyTorch, TensorFlow, LangChain, RAG Manipulation, Vector Embeddings, RAG, LLM finetuning)

Professional Experience

Software Development Engineer, Ai Planet (Formerly DPhi) May 2024 - Sept 2024 | Blacksburg, VA

- Architected **RAG pipeline** for finetuned LLM, optimized using techniques such as Parameter efficient finetuning (PEFT), Low Rank Adaptation (LORA), Vector store optimization, bringing down computation time from 35s to 15s.
- Developed **API Proxy using Nginx** for LLM inferencing, capable of handling 6,000+ requests per model.
- Orchestrated LLM deployment on AWS EKS with a complete CI/CD pipeline using Kubernetes, Docker, and Jenkins to streamline automated container management and continuous integration, followed Agile methods for SDLC

Programmer Analyst, Genpact - bEarly Technovations May 2022 - Aug 2023 | India

- Engineered a simple **integrated search pipeline**, using a combination of ORM and AWS Opensearch for easy use to clients, delivering a comprehensive search result on DB, thus saving **time by upto 50%**.
- Spearheaded **data cleaning and EDA** on client survey data, implementing a tracking system that reduced processing time by 30% ; executed Python **unit tests** to ensure smooth deployment to production.
- Leveraged **AWS cloud** technologies to work on client data, processing it efficiently while also scaling it for future uses.

Undergraduate Research Assistant, SASTRA University Jan 2022 - May 2022 | India

- Engineered and led a team of 5 students in developing a robust and novel waste management system running on linux based Raspberry Pi server, containing Computer Vision model and ROS topics.
- Optimized server operations to synchronize stepper motor control with timed CV inference, achieving 95% detection accuracy; presented at an IEEE conference.

Projects

- **Portfolio Assistant Chat Bot** - Serverless AI-powered chatbot fine-tuned to profile, enhancing recruiter engagement and understanding
 - Deployed on **AWS Lambda**, reducing infrastructure costs **by 99%** by eliminating the need for an EC2 instance.
 - Utilized Meta **LLaMA 3 on Groq**, achieving a **90% reduction** in computation intensity, with requests efficiently routed via a static Netlify frontend for optimal performance.
- **Maps Application** – Full-stack ride-share application leveraging React-Leaflet, a custom A* routing engine, and Django with Role based access control (RBAC) for drivers, riders, and admins.
 - Published the custom A* routing engine as a PyPI package (pip install aStarEngine-package), offering multi-stop route optimization, thereby reducing reliance on external packages, saving memory by 15%.
 - **Dockerized** the entire stack, enabling streamlined local testing and **50% cost cutdown** on **AWS EC2** hosting.
 - Configured AWS RDS for a robust, scalable and centralized Postgres database layer, **decreasing latency by 25%**.
- **Stock Portfolio Management System** - CRUD based cloud application to record buying, analyzing and selling stocks
 - Implemented OAuth2 using JWT for Google authentication, and HTTPS, improving security and cross site forgery
 - Architected a distributed task scheduling system using **Celery and Redis**, reducing **server load by 40%** and enabling real-time price tracking with user notifications via SMTP, thus improving user engagement
 - **Dockerized** and orchestrated containers using **Kubernetes** to include seamless integration to host on AWS EC2

Education

○ **Virginia Tech** 08/2023 – 05/2025 | Blacksburg, VA
MS in Computer Engineering

Courses Summary - Computer Vision, Adv Machine Learning, Applications of ML, DBMS, Big Data Engineering, Large Scale Software Design
Graduate Teaching Assistant - Advanced Computer Vision, Deep Learning, Computer Vision

○ **SASTRA University** 08/2019 - 05/2023 | India
BTech in Electronics and Communications Engineering