

# Sathyanarayanan Rengasamy Suresh

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## 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

May 2024 – Oct. 2024

*Ai Planet (Formerly DPhi)*

Blacksburg, VA

- Architected **RAG pipeline** for finetuned-LLM, optimized using techniques such as Parameter-Efficient Fine-Tuning (PEFT), Low-Rank Adaptation (LORA), Vector Store Optimization, bringing down computation time from 35s to 15s
- Designed and deployed an **Nginx-based API Proxy** for LLM inferencing, handling 6,000+ requests per model with enhanced load balancing and caching.
- 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 methodologies for SDLC

### Programmer Analyst

May 2022 – Aug. 2023

*Genpact - bEarly Technovations*

Chennai, 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 up to 50%**
- Spearheaded **data cleaning and EDA** on client survey data, implementing a tracking system that reduced processing time by 30% ; developed Python **unit tests** to ensure smooth deployment to production
- Optimized AWS cloud for high-efficiency data processing and scalable client solutions, enhancing performance and scalability

### Undergraduate Research Assistant

Jan. 2022 – May 2022

*SASTRA University*

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
- Streamlined server operations to synchronize stepper motor control with timed CV inference, achieving 95% detection accuracy; research findings presented at an IEEE conference

## PROJECTS

### Portfolio Assistant Chat Bot | *Python, Langchain, AWS , FastAPI*

- 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
- Leveraged 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 | *Leaflet-React, PyPI, Python, Django, Nginx, Docker, AWS , Postgres*

- 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 | *Django, JWT , AWS , Docker, Kubernetes, Git, React, Apache, Nginx, Redis, Celery*

- Implemented OAuth2 using JWT for Google authentication, and HTTPS, improving security and Cross-site foregery
- Designed 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

Blacksburg, VA

*MS in Computer Engineering*

Aug. 2023 – May 2025

- Courses Summary - 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

Thanjavur, India

*Bachelor of Technology in Electronics & Communication*

July 2019 – May 2023