Sabarish Muthumani Narayanasamy

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Work Experience

Virginia Tech IT **July 2024 - Present**
Graduate Assistant *Blacksburg, Virginia*

- Administered and optimized Linux systems (**Ubuntu, CentOS**), configured **Cisco switches** and firewalls, using **Bash and Python** scripts. Integrated **Zabbix (tested Grafana and Prometheus too)** using **PostgreSQL**, a complete monitoring solution within a single platform, reducing the need for manual log checks and improving response time by 70%.
- Provisioned hardware resources using **Ansible and Terraform**, implemented **2FA** authentication to prevent unauthorized access and improve compliance by 50%, and enabled a real-time streaming platform through **Apache Kafka** on **AWS** for students.

Mouri Tech **May - July 2024**
AI Analyst Intern *Irving, Texas*

- Developed an interactive chatbot that utilized **Azure AI, LLM OpenAI APIs** and prompting techniques for the **Retrieval-Augmented Generation (RAG)** application using **GraphQL** concepts. This solution directly contributed to an impressive 40% reduction in the time spent on manual hiring processes, significantly enhancing overall team productivity. Key features include **Azure Vector Search**, **Azure Document Intelligence** and Question Generation for Interview Screening.

Cisco Systems, Inc. **April 2022 - August 2023**
Software Engineer

- Deployed scalable SaaS platforms by developing end-to-end asynchronous **REST APIs** for user creation using Java **Spring Boot**, adhering to **Agile principles** and ensuring seamless integration with cross-team products for interoperability.
- Resolved critical issues involving XSS vulnerabilities, **Apache Kafka** lags, **Camunda** workflow optimizations, and **Angular** updates, ensuring seamless application performance while monitoring resource utilization using **Grafana** and **Prometheus**, reducing delays by 40% and ensuring real-time data consistency for **CCBU Tenant Management Team.**
- Enhanced **scalability** and **reliability** by upgrading the customer migration workflow for 500+ customers using **Node.js** scripts, reducing manual intervention from **4 engineers to just 1** and cutting deployment time by 75%.

National Payments Corporation of India (NPCI) **May 2020 - March 2022**
Senior Associate Developer

- Facilitated onboarding of 150 banks onto the blockchain-based real-time **Internet Banking** platform Vajra using Bash scripts, reducing setup errors by 90%.
- Implemented Verification Transaction Logic (3 ACK) in Node.js for **Vajra IMPS**, increasing the success rate to 95%; integrated **Central Bank Digital Currency (CBDC)** with **UPI**; and designed CBDC transfer logic using **TypeScript and Express**.
- Accelerated canary releases and 6 mainline deployments by optimizing performance and caching with **RabbitMQ** and **Redis**, executing **CI/CD** pipelines via GitLab CI and **Jenkins**, and reducing rollback incidents by 75%.
- Optimized token generation by 200% through batch processing in **Hyperledger Fabric**'s, a blockchain framework, in-built file system using **Golang and React**, scaling issuance by 150% per month.
- Deployed and managed a **Kubernetes** cluster, configuring **Docker** and **Kubernetes** for advanced **UPI/IMPS fraud detection** systems on **Linux**, adhering to DevOps principles and increasing system availability to 99%.

Kloudone Inc. **Jan - May 2020**
Software Engineering Intern

- Constructed **Dockerfiles** according to the dependencies to build images for various teams for an **intra-cloud migration** for 2 different organizations on platform-based technologies like **GCP**, **Docker**, and **Kubernetes**.

Projects

Interactive Chatbot and RAG - Document Analysis with Invoice Analysis | *Python, github* **July 2024**

- The primary objective of this project was to develop an interactive chatbot using **Azure AI's Document Intelligence** in real-time using Deepgram, Groq to analyze information from invoice images.

Live Streaming Application For Cricket | *Kafka, Airflow, Python, AWS EC2* **March 2024**

- Built a live streaming app, **Winner's Circle Live**, using Kafka for real-time streaming, AWS RDS and S3 for storage, Apache Airflow for orchestration, while performing Exploratory Data Analysis (EDA) using **Pandas** and **Matplotlib**.

Custom Work Stealing Algorithm | *Java, Multiprocessor, Threads,* **March 2024**

- This project implements and benchmarks two algorithms, the Custom Work Stealing Algorithm and ForkJoinPool. The implementation was all done in the Java programming language and it uses Gradle.

Real-Time Scheduling on Arduino Mega Using FreeRTOS and CentOS | *Arduino, RTOS, CentOS, C/C++* **March 2024**

- Integrated and tested RMS, DMS, and EDF scheduling algorithms with deadline miss detection on FreeRTOS for Arduino Mega, achieving 99% accuracy in execution time.

Wildfire Detection using OpenCV | *OpenCV, Image processing* **December 2023**

- This project uses ResNet50 (a residual network) and CNN to classify an image into fire, neutral, and smoke using computer vision.

Classification of Retinal scans using Computer Vision | *python, github, pytorch* **October 2023**

- Utilized retinal scan datasets from Kaggle to develop a robust computer vision model.

Education

Virginia Polytechnic Institute and State University **Aug. 2023 – May 2025**
Master of Science in Computer Engineering, GPA: 3.8 *United States of America*

Technical Skills

Languages: C/C++, Java, JavaScript/TypeScript, Python, Golang, SQL/NoSQL, Bash
Database Tools: PostgreSQL, MySQL, MongoDB, Redis
Technologies/Frameworks: Angular, Node.js, Docker, Kubernetes, RabbitMQ, OpenCV, AWS, Hyperledger Fabric, React.js, HTML, CSS, RESTful APIs, Spring Boot, GitHub, Linux/Unix, SonarQube
Cloud Technologies : Azure, AWS, GCP