

# SABARISH MUTHUMANI

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## Work Experience

### Virginia Tech IT

July 2024 - Present

*Server and Network Support Engineer*

*Blacksburg, Virginia*

- Administered Linux machines (**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*

*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**. This solution directly contributed to an impressive 40% reduction in the time spent on manual hiring processes. 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 over 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)

Nov 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%.

### Kludone Inc.

May - Sept 2020

*Software Engineer*

- 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.

## Education

### Virginia Polytechnic Institute and State University

Aug. 2023 – May 2025

*Master of Science in Computer Engineering, GPA: 3.8*

*Blacksburg, USA*

### Amrita School of Engineering

Aug. 2016 – May 2020

*Bachelor of Technology in Computer Science and Engineering*

*Coimbatore, India*

## Technical Skills

**Languages:** C, C++, Java, JavaScript, TypeScript, Python, Go, SQL/NoSQL, Bash

**Technologies/Frameworks:** Angular, Node.js, Docker, Kubernetes, RabbitMQ, OpenCV, AWS, Hyperledger Fabric, React.js, HTML, CSS, RESTful APIs, Spring Boot, GitHub, Linux/Unix, SonarQube