

Sabarish Muthumani

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Professional Summary

- Hands-on computer engineer with over 5 years of experience working in high-scale environments, including systems processing over **10 million+** requests per day, across organizations like Cisco, NPCI, and Virginia Tech.
- System-side programming experience involving computer networking, unix/linux cache systems, virtualization, shell scripting and familiarity with storage/hardware protocols used in Data Center/Networking operations.
- Strong Object-Oriented Programming (OOP) knowledge with 4 years of practical experience in Python, Java, C++, and JavaScript.
- I bring solid academic foundations in Operating Systems, Computer Networks, Virtual Memory, Computer Architecture, Multiprocessor Scheduling, Software Development Lifecycles, Data Structures and Algorithms.

Education

Virginia Polytechnic Institute and State University

Aug. 2023 – May 2025

Master of Science in Computer Engineering, GPA: 3.8/4

Amrita Vishwa Vidyapeetham

Aug. 2016 – May 2020

Bachelor of Science in Computer Engineering, 7.7/10

Work Experience

Network Engineer

May 2025 - Present

Virginia Tech

United States, Remote

- Developed network monitoring solutions for 20 nodes using Grafana, Prometheus and Zabbix, and managed logs using Grafana Loki and Opentelemetry, and reduced mean time to detect (MTTD) issues by 40%.
- Worked at Data Center setting up network hardware like NICs, PCIe, GPUs, SSDs, physical firewalls (pfSense, Fortinet, Netgear), data storage clusters(Synology, Vast, NetApp) on 15+ Dell, Asus, SuperMicro servers.
- I built and managed multi-protocol VLAN networks(TCP/IP) for multiple subnets using physical Cisco switches and controlled the system with well defined firewall(UFW and firewalld) rules, by reducing network traffic by 35%.
- Responsible for all the network/software/hardware issues in all the compute resources and handled issues by TCP dump analysis, ping, traceroute and solely maintained network configs using netplan(Ubuntu) and NetworkManager.
- Wrote scripts in Python, C++ and Bash for various logging, storage, security postures, network debugger and achieved automation in receiving alerts to email and Microsoft Teams, reducing incident response time by 90%.
- Created virtualization cluster for Deep Learning research and installed Nvidia H100, A100, L4 and T4 GPUs on RHEL and, which performed really well for CUDA, cuDNN, Pytorch, Tensorflow, CuPy frameworks.
- Working on LLM/agent based automation for deployment, security, logging and reporting using Langchain, CrewAI and LangGraph.

Graduate Assistant

Aug 2024 - May 2025

Virginia Tech

Blacksburg, VA

- Self learnt various networking protocols TCP/IP, FTP, SMTP, DHCP, SMTP, SSH, BGP, OSPF, LDAP, SFTP, DNS and applied all these concepts in setting up various networking architecture at the University Data Center.
- Hosted faculty portfolio websites using HTTP/HTTPS on Apache with SSL/TLS certs, Postgres and setup SMTP, SSH, LDAP authentication using 2Factor Authentication following secure practices.
- Handled all the research applications hosted on Docker by creating dockerfiles, docker-compose, mysql, node-exporter configurations in yaml files and hosted a centralized monitoring and controlling stack.
- Optimized RAID arrays (RAID 0/1/5/6/10), ZFS, OS file systems (ext4, XFS, ZFS) for various data storage layouts based on the user needs.
- Managed SSL/TLS certificates, cryptographic keys, CSR generation, certificate signing, renewal and deployment using OpenSSL for secure HTTPS communication.

AI Analyst

May - July 2024

Mouri Tech

Irving, Texas

- Developed AI RAG-based document intelligence platform using OpenAI APIs, Azure AI, LangChain, and deployed on Azure AKS with MongoDB, Redis for National Grid, UK and Black & Decker, USA.
- Built data indexes/schema for structured/unstructured data sources into Azure Blob Storage, AWS S3, and relational databases.
- Created a chat interface using React.js, Next.js and Python Flask backend and managed all these services using Azure API Management gateways for an efficient cost effective cloud product.

Data Engineer

Aug 2023 - May 2024

Virginia Tech

Blacksburg, Virginia

- Designed a Kafka pipeline to process thousands of mixed text/image dissertation PDFs.

- Built CI/CD pipeline in GitHub Actions for Docker image builds and Rancher Kubernetes deployments, using Terraform scripts.
- Built a PDF segmentation system (manual + automated) to separate text, figures, and tables.
- Applied NLP (tokenization, lemmatization) with NLTK for metadata and topic extraction.
- Implemented semantic search with vector embeddings (OpenAI) in Elasticsearch.
- Developed a web-based search forum for author/topic/keyword queries, for better search.
- Created a AWS hosted live streaming API for students using AWS S3, AWS EC2, AWS Bedrock, AWS Lambda, Amazon API Gateway, Docker and Apache Airflow for a publisher subscriber model.

Software Engineer (1 year, 5 months)
Cisco Systems, Inc.

April 2022 - August 2023
Bangalore, India

- Deployed scalable SaaS platforms by developing async REST APIs using Java Spring Boot, on Kubernetes for WebexCC 2.0.
- Resolved XSS vulnerabilities, Kafka lags, Camunda workflows, Angular updates for RTMS WebexCC 2.0 following OWASP vulnerability principles and improving the performance by 30%.
- Built a scalable migration from R10, R9, WebexCC 1.0 legacy to WebexCC 2.0 in Node.js for 1000+ customers, reducing cutover time by 75% and minimizing down- time.
- Developed RESTful APIs using multithreading(ThreadPool) using locks for variable usage for syncing new users by integrating and collaborating with teams from Broadcom, AudioCodes, CallTower, and Upstream Works.

Associate Blockchain (1 year, 11 months)
National Payments Corporation of India

May 2020 - March 2022
Hyderabad, India

- Automated onboarding of 150+ banks to a Hyperledger FinTech platform using Bash, reducing setup errors by 80%.
- Implemented 3 ACK event driven Verification Logic in Node.js, using RabbitMQ and Redis following OSS security principles as all the frameworks were strictly open-source and increasing the success rate to 90%.
- Improved production deployments using CI/CD pipelines via GitLab CI and Jenkins, reducing rollback time by 75%.
- Boosted token mint/burn through batch processing in Hyperledger Fabric using Golang, by 150%.
- Worked with VMware in setting up test, staging, production environments as a part of platform engineering initiative.
- Setup ElastAlert and Kibana dashboards for monitoring using ELK stack, increasing 70% faster recovery.
- Set up OS and Kubernetes clusters for prod, staging, test, and dev environments to streamline SDLC and testing.
- Collaborated with Google Pay, PhonePe and Amazon Pay for CBDC retail integration in Node.js exposing gRPC/REST APIs for wallet KYC, token mint/burn, and transfer.

Projects

- Custom Work Stealing Algorithm | Repo | *Java, Multiprocessor, Threads, ForkJoin Pool, Java*
 - Wildfire detection using OpenCV | Repo | *OpenCV, Image processing, CNN, computer Vision*
- March 2024**
December 2023

Technical Skills

Languages: C, C++, Java, JavaScript, TypeScript, Python, Go, Bash, SQL/NoSQL
Frameworks/Tools: Node.js, Spring Boot, Angular, React.js, REST APIs, Docker, Kubernetes, GitHub
Cloud/DevOps: AWS, Azure AI, GitLab CI, Jenkins, SonarQube, Zabbix, ELK Stack, Prometheus, Ansible
Database/Infra: PostgreSQL, MySQL, MongoDB, Redis, RabbitMQ, Linux/Unix, KVM, Hyperledger Fabric