JEEVESH KRISHNA ARIGALA

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EDUCATION

University of Massachusetts - Amherst **August 2024 - May 2026**
Master's, Computer Science *GPA: 3.9*

- Computer Networks and Security, Secure and Distributed Systems, Cryptography, Distributed Operating Systems, Quantum Communication Networks

Anna University **August 2020 - June 2024**
Bachelor's, Computer Science *GPA: 8.77*

PROFESSIONAL EXPERIENCE

Rivos (Now Acquired by Meta) **Santa Clara, CA, USA**
Infrastructure & Devops Engineer Intern *June 2025 - November 2025*

- Automated infrastructure with Puppet, and successfully migrated legacy configs to OpenVox with zero downtime following the Puppet acquisition.
- Migrated all user VMs from VMware to a Proxmox HA cluster; stood up Ceph (MONs + OSDs), validated failover, and completed node/VM cutovers with minimal disruption.
- Built a unified monitoring and alerting stack using Prometheus and Grafana, managing telemetry for over 500 SLURM nodes and power distribution units (PDUs); enabled faster incident detection, reduced false alarms.
- Designed and implemented power-aware scheduling for SLURM clusters by integrating SNMP-derived PDU power metrics; adjusted node weights dynamically, optimizing resource allocation and improving energy efficiency and maintaining the colocation providers MSA.
- Developed and maintained WAN performance metrics and observability solutions to monitor network health and utilization across offices worldwide, enabling faster troubleshooting and improving global operations reliability.

NatWest Group **Chennai, TN, India**
Security Software Development Engineer Intern *June 2023 - August 2023*

- Developed a Spring Framework application automating SSO token generation and consumption, reducing sign-in time and improving authentication efficiency across internal systems
- Integrated the bank’s Identity Provider (IDP) system, enhancing security for over 1,000 users and streamlining access to over 15 software suites
- Deployed the application in User Acceptance Testing (UAT) across three bank branches, reducing average sign-in time from 40 seconds to less than 10 seconds
- Implemented SAML and SOAP protocols, demonstrating technical versatility and reducing manual authentication errors.

SKILLS

Skills: Python, JavaScript, Java, HTML/CSS, Bash, C/C++
Frameworks: Tensorflow, OpenCV, React.js, tailwind, Next.js, Django, Flask, Express.js
Service Providers: Vercel, AWS, Google Cloud Platform, Netlify, github, Digital Ocean
Databases: Firebase, MongoDB, MySQL, Postgres, Oracle
Tools: Docker, Kubernetes, Git, Postman, vim, Linux, Unix, Netconf, Yang, SNMP, Puppet, Ansible
Expertise: Computer Networks Infrastrucure and Security, Network Management, Networking Protocols, Cryptography, Bitcoin Core, Distributed Systems, Backend

PROJECTS

Secure-by-Design Federated Learning Protocol

- Developed a secure-by-design and zero-trust privacy-preserving ML protocol using Fully Homomorphic Encryption for secure distributed training and inference
- Implemented a custom modification of SecAgg+ for collaborative learning, optimized FHE performance via quantization and programmable bootstrapping
- Created disease prediction model on encrypted data, matching non-encrypted accuracy while preserving privacy.

HPC workflow Management System Integration

- Integrated Covalent plugin with university’s SLURM-managed HPC cluster, optimizing machine learning workflows by enabling dynamic job scheduling and resource allocation while enforcing strict HPC policies.
- Resolved critical Prefect workflow monitoring challenges by eliminating indefinite worker processes on head nodes and mitigating port exhaustion through compute-node task routing.
- Designed a custom SLURM job wrapper to enforce policy compliance, ensuring efficient resource utilization and preventing system-level conflicts during high-throughput ML tasks.

High-Performance Network Infrastructure Design **Homelab**

- Created a Kubernetes cluster with 1 master node and 4 worker nodes using Raspberry Pi 4s, implementing containerd as the container runtime.
- Hosted multiple services including Jellyfin media server, code-server (VS Code), and *arr stack (Sonarr, Radarr, Lidarr) for media management.
- Configured Caddy as reverse proxy with automatic SSL/TLS certificate management via Let's Encrypt ACME protocol, enabling secure access to all services.
- Implemented HAProxy as L4 load balancer with round-robin algorithm and health checks, ensuring high availability and even distribution of incoming traffic.
- Implemented comprehensive network security using UFW/iptables with stateful packet filtering, rate limiting, port-based access controls, and strict input/forward chain policies for DDoS protection.
- Established network monitoring using Prometheus and Grafana with custom alerts.

Zero-Trust Network Architecture Implementation **Homelab**

- Deployed OpenZiti with mutual TLS (mTLS) and granular role-based access control (RBAC) to ensure secure access without exposing services to the public internet.
- Implemented Network segmentation using VLANs (10/20/30) for logical isolation of personal devices, community-accessible devices and management network for administrative access.
- Configured enterprise-grade network security using Layer 3 subnet isolation (192.168.10.0/24, 192.168.20.0/24), Custom iptables rulesets for inter-VLAN routing and access control and UFW for stateful packet filtering and application-layer firewall.
- Created scalable, secure network infrastructure with minimal external attack vectors.

Distributed Computing Beowulf Cluster Implementation

- Designed and built a Beowulf cluster using 6 Raspberry Pi nodes (1 head node, 5 compute nodes) connected via Gigabit Ethernet.
- Implemented SLURM for workload management and job scheduling, integrated with OpenMPI for enabling parallel computing capabilities.
- Configured NFS for shared storage across all nodes, with the NFS server running on an independent node for optimal performance.
- Deployed custom monitoring system using Ganglia for real-time cluster performance metrics and resource utilization.
- Successfully deployed and tested parallel computing tasks including distributed matrix operations and Monte Carlo simulations.