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## EDUCATION

- Carnegie Mellon University** | MS in Information Networking (GPA: 3.9/4) August 2024 – May 2026
- *Courses:* Machine Learning, Distributed Systems, Information Security, Packet Switching & Networking
- Indian Institute Technology, Jodhpur** | B.Tech in Computer Science and Engineering August 2018 - May 2022
- Received Silver Medal for Student Distinguished Contribution Award
  - *Course:* Software Engineering, Virtualization & Cloud Computing, Theory of Computation

## SKILLS

**Languages:** Golang, C++, C, Java, Python, JS/ES6

**Technologies:** Terraform, Kubernetes, Docker, gRPC, ORM / SQL, React/Redux, Django, REST, GraphQL, Service Meshes, Microservice Architecture, Linux

## EXPERIENCE

- Oracle Cloud Infrastructure** | Member of Technical Staff | Bangalore, India August 2022 - August 2024
- Led the software development cycle for a production-ready **Terraform provider** for OCI PostgreSQL service, along with comprehensive test suites. This led to 30% more customer onboarding during limited availability (Pre-GA).
  - Developed *fault tolerant and recoverable workflows* of **vertical scaling, password management and system restart**.
  - Implemented **custom pagination solution** at the DAO layer for key-pair database interactions for complex user queries.
  - Led multiple org API spec review, separated control and management plane logic, authored multiple on-call runbooks.
  - Integrated service to: Quota/Limits enforcement, SDKs and CLI generation, led API design and review.
- CNCF** | Open Source Maintainer (Frontend, [Meshery](#) and [MeshMap](#)) | Remote July 2021 - January 2022
- Designed a **Ruby application** to **automate GraphQL documentation generation** for the Meshery website, improving developer experience and documentation accuracy.
  - Authored *technical docs* and *how-to guides* on **Service Meshes, Envoy Proxy, and ProtoBufs**.
  - Mentored new contributors by providing technical guidance, code reviews and hosting newcomer's meetings.
- Google Summer of Code** | Summer Intern | Remote May 2021 - August 2021
- Developed a **Kubernetes visual topology dashboard** with pod-specific **log viewer** and **interactive terminal** using React, Cytoscape.js and GoLang.
  - Led **migration of Meshery's API** architecture from REST to GraphQL, enabling more flexible data fetching capabilities.
- The Linux Foundation Mentorship Program** | Winter Intern | Remote September 2020 - December 2020
- Engineered a comprehensive validation suite for **Service Mesh Interface compliance** as a gRPC spec, validated using a SMI operator deployed across various k8s platforms by cloud platforms like AWS, Azure, GCP, and Alibaba.
  - Implemented automated persistence of those tests in Meshery cloud (psql) and publication on the public-facing website.

## PROJECTS

### RPC Protocol (Go, Reflection, Networking)

- Engineered a generic RPC library enabling remote method invocation with **automatic stub generation using reflection**.
- Implemented fault-tolerant mechanisms to **handle network failures and reconnections**, enhancing system reliability.

### Heap Allocator (Linux, C, GDB):

- Developed a high-performance heap allocator using **segregated free lists and best-fit search**, achieving **10180 Kops/sec** throughput and **76% utilization**.
- Optimized memory management for small allocations with a **dedicated mini-block list, reducing fragmentation**.

### Raft Consensus Protocol (Go, Distributed Systems, Microservices)

- Developed a **Raft-based consensus system** in GoLang ensuring consistency **across distributed nodes**.
- Implemented **leader election, log replication, and failure recovery**, validated through rigorous testing of network partitions and peer failures.

### Unix Shell with Job Control (C, Unix, Signal Handling)

- Built a fully functional Unix shell in C, featuring **job control for managing foreground and background processes** with a dynamic job list.
- **Managed child process reaping and job states** using signal handling and I/O redirection.

## PUBLICATIONS

### CrossTrustchain: Cross-Chain Interoperability using Multivariate Trust Models (First Author)

2023 15th International Conference on COMMunication Systems NETworkS [10.1109/COMSNETS56262.2023.10041399](https://doi.org/10.1109/COMSNETS56262.2023.10041399)

## LEADERSHIP & KEY ACHIEVEMENTS

Winner of Tata Crucible Hackathon | Founding member of Devlup Labs, IITJ Open-Source Development Enthusiasts Group | Selected as a speaker at KubeCon North America 2020, "Meet the Maintainer: Service Mesh Interface" event | Assistant Head, Student Wellbeing Committee | Web Development Head, Varchas Sports Fest