

# Sharon Moses J

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## EDUCATION

### Master of Science - Network Engineering (Computer Science)

May 2024

University of Colorado Boulder, Boulder, CO

- Relevant course work: Design and Analysis of Algorithms, Network Systems, Natural Language Processing.

### Bachelor of Technology - Computer Science and Engineering

May 2017

VNR Vignana Jyoti Institute of Technology, Hyderabad, Telangana

- Relevant course work: Computer Programming, Data Structures, Computer Organization, Software Engineering, Operating Systems, Computer Networks, Principles of Programming Languages, Object Oriented Analysis and Design, Linux Programming, Cloud Computing, Compiler Design.

## EXPERIENCE

### Graduate Student Assistant, University of Colorado, Boulder

August 2022 - Present

- Assisting Professor Dr. Ryan Layer with the course work of Software Engineering for Scientists.
- Clearing graduate students' doubts and helping with assignments and grading the submitted assignments and projects.

### Senior Software Engineer, Radisys, Bengaluru, India

January 2021 - August 2022

- Incorporated message communication for micro-services based cloud-native 5G Core Network Functions - AMF, SMF in a team of 4 leveraging C++, Protobufs, Docker, Kubernetes.
- Developed and deployed Watch-DB micro-service that monitored documented-based user data and notified respective cloud-native 5G Core Network Functions using C++, MongoDB, CTest.
- Enhanced the performance efficiency of stateful UDM, a 5G network node by 23% by utilizing the micro-services based 5G architecture and MongoDB thereby making it platform-agnostic and stateless.
- Developed stateless cloud-native 5G Network Node, UDR to provision user authentication and subscription data using C+++, MongoDB.
- Honored with the 'Gone Extra Mile' award for the commitment towards the project.
- Improved debugging effort of team by 7 hours/week through automation of CI/CD packaging aspects for UDM, UDR - 5G network nodes - and Watch-Db micro-services.
- Conceptualized and formulated a HTTP2 Client model for UDM network node to support Watch-Db server notification whenever there is a change in user subscription data stored in MongoDB.
- Reduced node level bugs by 43% for AMF by debugging existing memory leaks and refactoring the entire code.
- Collaborated with Sr.Director to cut down the MongoDB call cost during UDM call procedures thereby increasing the maximum users supported by UDM node.

### Senior Software Engineer, Samsung Research Institute(Partner Employee), Bengaluru, India

September 2018 - December 2020

- Spearheaded design, development and deployment of micro-services based cloud-native 4G network node - MME using C++, Protobufs, Docker, and K8s in a team of 8 and was awarded Samsung S.P.O.T award for the contributions.
- Created and tested 17 ConfD commands (NETCONF/CLI) for containerized MME, a 4G network node.
- Coded a discrete-event network simulator to evaluate behavior and performance of 3 major 5G cloud-native network functions - AMF, SMF, and NG-RAN.
- Employed Server BT test cases for SMF to identify and rectify internal issues during message exchange between network nodes in call procedures and increased the stability of SMF by 17%.

### Software Engineer, Global Edge Soft Ltd, Bengaluru, India

June 2017 - September 2018

- Introduced CUPS architecture to SGW, a 4G Core network node, through 6 Sx Node and Session related messages using PFCP protocol.
- Implemented proprietary PFCP(Packet Forwarding Control Protocol) dissector plugin in Wireshark based on TS 29.244 and TS 23.214.
- Documented LTE Core Network call procedures and protocols through a comprehensive in-depth understanding of technical specifications - TS 29.274, TS 29.281, TS 23.214, and TS 29.244.
- Awarded Global Edge Young Turk for the technical expertise in C, Data Structures, LINUX Kernel internals, Multi-threading, System Calls and Computer Networks and for contributions in documentation of the same.

## PROJECTS

### Network Systems, Jose Santos, University of Colorado, Boulder

September 2022 - Present

- Currently developing a Layer 4 (TCP) traffic demultiplexer that sniffs application data and reroutes connections to different targets(sockets/ports) in a team of 3.

## TECHNICAL SKILLS

- Programming Languages: C | C++ 17 | C++14 | Python | Java (basic)
- Technical: Sockets, REST APIs, Wireshark, YANG, RedisDb, Kubernetes, Docker, Helm Charts, GIT, CMAKE, MongoDB, Linux, GNU Tools, Readelf, Perforce, ConfD/NetConf, CTest, GTest, gRPC.