

# Roshan Nair

Software Engineer

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## SKILLS

c++, python, c, bash, ansible, tox, vagrant, ceph, spdk, nvme-of, ML, storage, distributed systems, mathematical modeling, dynamical systems

## EDUCATION

### M.Sc.(Hons.) Mathematics

🏛 BITS Pilani 📅 2015-2020

• CGPA 8.79/10

### B.E. (Hons.) Electrical and Electronics

🏛 BITS Pilani 📅 2015-2020

• CGPA 8.79/10

## EXPERIENCE

### Associate Staff Engineer

🏢 Samsung Semiconductor India R&D 📅 March 2022 – Present 📍 Bangalore

Currently working on performance engineering, SQA testing cycle and designing and implementing the optimal Load Balancing Algorithm for the disaggregated, distributed storage system.

- Built a framework using c++ to identify and fix the key deficiencies in the load balancing policy (distribution policy). Designing and implementing the optimal policy based on the bottlenecks identified.
- Leading the effort to develop a framework using python to identify the key performance bottlenecks of the disaggregated storage system for performance optimisation.

### Senior Engineer

🏢 Samsung Semiconductor India R&D 📅 Aug 2020 – March 2022 📍 Bangalore

Designed and developed features of a disaggregated (controller-storage) distributed block storage system using NVME-OF and SPDK. Lead the demos of the solution to various stakeholders including SVPs.

- Lead the effort in creating a comparison report with Ceph on various KPIs like latency, KIOPS, BW, QoS, etc.
- Helped design and develop the scale up and down modules along with error scenarios catering to NPO/SPO of nodes.
- Designed and developed the Replication (IO path) and Replication recovery methodologies catering to node SPO/NPO
- Developed a VM deployment framework and used Ansible to ease the testing of the solution.

### Software Intern

🏢 Samsung Semiconductor India R&D 📅 July 2019 – July 2020 📍 Bangalore

Worked on the research problem of Multi-Workload Identification in DC environments

- Created a framework to run different workloads (OLTP, OLAP and ML/AI workloads) on a SPDK target and collect data from different layers of the Linux Kernel.
- Developed a high accuracy ML module to identify multi-workloads in a DC environment.

### Intern

🏢 Invento Robotics 📅 May 2017 – July 2017 📍 Bangalore

- Worked on implementing a Face Detection and Recognition module for the robot which was run on a Raspberry Pi.
- Worked on training and improving the accuracy of the Neural Network for Face Recognition.

## PAPERS & PATENTS

**A system and Method for Multi-Workload Identification**  
(Filed) First Inventor, 2022

**A Flash-aware Replication methodology in a Disaggregated Storage**  
(Provisional) First Inventor, Jan. 2022

**Flash-Aware Disaggregated Storage Architecture with flexible deployment**  
(Provisional) Inventor, Jan. 2022

**Numerical solution of a nonlinear fractional model for hepatitis C by using Haar wavelets**

AIP Conference Proceedings, Volume 1975, 2018

**Dynamics of avian influenza A (H5N1) under facility closure and vaccination**

Conference Paper Presentation - ICMCMC, 2018