

Joel Tony

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Education

Birla Institute of Technology and Science Pilani, K.K. Birla Goa 2021 – present | Goa, India
Campus, B.E. Computer Science
CGPA: 8.90/10
Relevant coursework: Distributed Computing (graduate-level), Compiler Construction, Computer Networks, Data Storage Technologies & Networks, Operating Systems, Computer Architecture, Principles of Programming Languages

Professional Experience

Coditation Systems, Summer Intern May 2023 – Jul 2023 | Pune, India
- Developed a **GPU remote development suite** for graphics applications
- Configured and deployed **Bazel** to optimize build processes, resulting in a significant reduction in build times

Research Experience

Google Summer of Code, Contributor ☑ May 2024 – present
- Working with Dr. Jean Luca Bez ☑ and Prof. Suren Byna ☑ on providing **I/O insights for ML applications**
- Contributing to **Drishti**, an open-source framework for I/O insights to improve an application's I/O performance, by extending its capabilities to support AI/ML workloads under the UC OSPO ☑ organisation.

SCI Institute, University of Utah, Undergraduate Researcher Jan 2024 – present | Utah, USA
- Working with Dr Manish Parashar ☑ on implementing a **POSIX-compliant API for DataSpaces** ☑

Data, Systems & High Performance Computing (DaSH) Lab, Undergraduate Researcher Oct 2022 – present | Goa, India
- Deployed and maintaining a **40-node cluster** consisting of rack servers, desktop workstations, GPU nodes and edge devices
- Monitored system metrics across the cluster, using **Netdata, InfluxDB and Grafana**

Embedded Systems Lab, Undergraduate Researcher Aug 2023 – Dec 2023 | Goa, India
- Worked under Dr K.R. Anupama ☑ on **designing a network protocol stack** for a **distributed cloudlet cluster**

Central Electronics Engineering Research Institute (CSIR-CEERI), Undergraduate Researcher Jul 2022 – Aug 2022 | Pilani, India
- Collaborated with Dr. Dhiraj Sangwan ☑ on **parallelizing pseudo-colouring of X-ray baggage scans**

Publications

Does Varying BeeGFS Configuration Affect the I/O Performance of HPC Workloads?, *IEEE CLUSTER*, 2023 ☑ 2023
Arnav Borkar†, **Joel Tony**†, Hari Vamsi K.N, Tushar Barman, Yash Bhisikar, Sreenath T.M, Arnab K. Paul

Projects

Dynamic Striping Configuration for HPC Storage, Oct 2022 – present
BeeGFS, IOR, Distributed File System
- Working on **optimal file-volume mapping** in BeeGFS, considering factors like file access patterns and storage utilization

Data Prefetching for Edge Deep Learning Workloads, Aug 2023 – Dec 2023
Apache Kafka, PyTorch, Distributed Deep Learning
- Implementing a **prefetching** mechanism to **reduce I/O overhead** and reduce overall training time
- Using **Apache Kafka** to stream data from a **distributed file system** to compute nodes

TCP/IP Stack Using Rust & C, *Computer Networks, Rust, C* ☑ Aug 2023 – Dec 2023
- Integrated **Rust with a C-based TCP/IP stack** and explored **conditional memory safety** guarantees and the performance
- Leveraged **perf** and the **Valgrind** suite to analyze the performance gap between the integrated Rust code and original code

OpenCSRankings, Pandas, XML ☑ Apr 2024 – present
- A metrics-based ranking of the top Computer Science institutes and faculty in India, based on publications
- Built a **streaming XML parser** to identify and aggregate publication statistics of researchers from DBLP

Proficiency

Languages

Python, C/C++, Rust, Bash, Haskell, LaTeX

Technologies

Linux, Kubernetes, Docker, Git, Kafka, Ansible

Awards

AWS AI/ML Scholarship, AWS, Intel Corporation & Udacity ☑ Nov 2022
One of the 1000 students selected internationally for the AWS AI/ML Scholarship in collaboration with Intel and Udacity.