

TIRTH JAIN

Mumbai, India

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Education

Birla Institute of Technology and Science, Pilani

Aug. 2019 – May 2023 (Expected)

Bachelor of Engineering (Hons.) in Computer Science

Pilani, India

Courses: Network Programming | Operating Systems | OOP | DBMS | Intro to Computer Programming

Positions: Teaching Assistant for Intro to Computer Programming | Vice Chair of the BITS-ACM Chapter

Experience

University of Utah

August 2022 – December 2022

Research Intern

Utah, United States

- Implemented a userspace network stack in **Rust** with built-in isolation mechanisms.
- Modified an existing userspace network driver in **Rust** to make it thread-safe so that it can be shared between applications.
- Evaluated the performance of contemporary software and hardware isolation mechanisms on a video processing pipeline.

Wells Fargo

May 2022 – July 2022

Software Development Intern

Bangalore, India

- Built an internal tool for automating the process of scanning and filtering applicant resumes for the company.
- Reduced the time taken to process each resume from 2-3 hours to a few minutes.
- Wrote a task scheduler to offload the processing of ML models from the backend to separate worker nodes to improve performance of the UI.

Datamove Team, INRIA

May 2021 – August 2021

Research Intern (Under Dr. Frederic Wagner)

Grenoble, France

- Worked on improving scheduling algorithms and functional abstractions for parallel-programming in **Rust**.
- Wrote novel algorithms for distributing work between threads based on the idea of **work-stealing**.
- Benchmarked these algorithms and integrated them with the existing **Rayon** code.

Hallparty, Inc.

May 2020 – April 2021

DevOps and Infrastructure Engineer

Delhi, India

- Setup and maintained a **multi-tenant architecture** for a social media application with about **10,000 users**.
- Deployed an architecture consisting of multiple services and databases using **Kubernetes** on **AWS**.
- Set up **autoscaling**, **load balancing**, and a **CDN** to handle the increasing load and a **CI/CD pipeline** to push new features faster.
- Wrote services to integrate the existing application server with multiple databases in the background using **Kafka** and **Go**.

Projects

Ocean

- Created a filesystem-like CMS with NodeJS and MongoDB to be used with the university's website across all four campuses.
- Implemented a permissions system to restrict access among various types of users.
- Packaged and deployed the CMS using Docker and Nginx on a server to integrate it with the university's new website.

qoi2png

- Wrote an encoder/decoder for the new QOI image format in **Rust**.
- Used **nom** to write parser combinators for parsing input files.
- Wrote a CLI tool to convert images between the PNG format and the QOI format.

Technical Skills

Languages: *Advance:* Python, Rust | *Intermediate:* Go, JavaScript, TypeScript, C | *Basic:* Haskell, Bash

Technologies: SQL Databases, NoSQL Databases, Neo4j, Kafka, Docker, Kubernetes, AWS, Nginx, Unix, Git

Frameworks: Django, Express, Flask, Apollo, Actix-Web