Rohit Jain

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EDUCATION

Birla Institute of Technology and Science (BITS) Pilani Pilani, India | 2017-2021
BE Computer Science GPA 8.86/10
Coursework: Object Oriented Programming, Data Structures & Algorithms, Computer Architecture, Operating Systems, Database Systems, Computer Networks, Data Mining, Image Processing, Neural Networks, Compiler Construction
Scholarship: Merit Scholarship for six out of eight semesters

WORK EXPERIENCE

RUBRIK | Software Development Engineer - II Bengaluru, India | Apr 2024 – Present

- Engineered a **snappable agnostic** framework to support **backup, disaster recovery and, archival** solutions for enterprise and open source databases cutting development times down to **1/4th** of the original time.
- Added support for **Postgres** backup and archival on **Rubrik Security Cloud** enabling the customers to onboard their 100+ Postgres VMs to the unified data management platform.
- Tech Stack: **Scala, C++, Python, Git, Postgres, RHEL, Linux**

NUTANIX | Member of Technical Staff - II Bengaluru, India | Jun 2021 - Apr 2024

- Led the redesign of metadata store replacing **Cassandra** with **RocksDB** and scaling support for **deep storage** with read-heavy workflows from 100 physical nodes to more than **300 nodes**.
- Optimized the **iSCSI** target digest computation process by introducing a shared locking mechanism resulting in a remarkable **decrease in login times** and scaling simultaneous logins from **128 targets to 2000+** targets.
- Pioneered the implementation of a robust **network interface hosting** mechanism on multiple nodes, providing **multi-path IO** services to clients, dramatically reducing iSCSI reconnection latencies from **15s to under 1s**.
- Won **Nutanix hackathon 2023** for innovating a **snapshot chain management** solution over S3, reducing the primary cluster storage requirement to **1/10th** saving crucial space for other metadata operations.
- Led the **research paper initiative** to foster culture of **academic review** of innovation in large-scale storage systems.
- Tech Stack: **C++, Python, Git, Gerrit, Linux**

NUTANIX | Intern, Member of Technical Staff Bengaluru, India | Aug 2020 – Dec 2020

- Developed an error injection framework for failing **gRPC requests** reducing simulation **testing times by 80%** for a degraded **distributed cluster**.
- Extended the framework for detection of slow nodes with minimal false positives and latency of **less than 100ms**.
- Tech Stack: **C++, Git, Gerrit**

RESEARCH EXPERIENCE

SAMSUNG R&D | Research Intern Bengaluru, India | May 2020 – Jul 2020

- Created an **android application** that learns the user color-tone preferences via on-device learning approach.
- Trained a **GAN-based Model** for user behavior learning in a **few-shot meta-learning** scenario, achieving user satisfaction **score of 90+**.
- Tech Stack: **Java, Android Studio, Python, Pytorch, OpenCV**

CSIR-IGIB | Research Intern New Delhi, India | May 2019 – Jul 2019

- Worked under Dr. Bhavana Prasher, Dr. Mitali Mukherjee and Rintu Kutum on **entropy-based** model for unifying categorical data to perform **clustering** and other data modeling tasks for 10000+ questionnaire data.
- Used divergence model for **classification** of healthy individuals into different Prakriti classes and achieved an **accuracy rate of over 95%**.
- Tech Stack: **Python, pandas, numpy, OpenCV, D3.js**

TEACHING ASSISTANTSHIP

Data Mining under Prof. Poonam Goyal: Second Sem 2019-2020, BITS Pilani
Data Mining under Prof. Yashwardhan Sharma: Second Sem 2020-2021, BITS Pilani

PATENTS AND PUBLICATIONS

TECHNIQUE FOR IMPROVING OPLOG FLUSHING | Nutanix — Filed | June 21, 2024

Patent for improving temporary write buffer (oplog) flushing, achieving **eightfold performance gains** by optimizing drain speeds for **consistent I/O performance** during various states (e.g., idle, rebuild) when serviced by the persistent storage tier or SSD-based oplog.

EBDM PYTHON PACKAGE | CSIR-IGIB — MIT License | Jan 26, 2020

Published a **PyPi package** based on the research paper on Unified EBDM by Zhang et al., for finding a common **distance matrix** for ordinal and nominal data using entropy measures.

CERTIFICATIONS

Machine Learning | Stanford Online
Blockchain Specialization | University of Buffalo Online
Deep Learning Specialization | DeepLearning.AI
Agile Software Development | LinkedIn Learning

RESEARCH PROJECTS

UPSCALING BLURRY IMAGES FOR VIDEO CONFERENCING — Prof. J. Jennifer Ranjani | BITS Pilani

Built a GAN-based model for **super-resolution of videos** during web conferencing. Also performed a detailed **comparative analysis of DCNN and GAN-based** approaches to model our own loss function combination resulting in **NIQE metric of 4.36**.

HUMAN DETECTION AND SEGMENTATION — Prof. J. Jennifer Ranjani | BITS Pilani

Conducted a **comprehensive study** of cutting-edge computer vision algorithms for human detection and segmentation; analyzed COCO, TownCentre and VIRAT datasets for images and videos to research further on **high occlusion tasks**.

OTHER PROJECTS

DEEP PHOTO STYLE TRANSFER — Computer Vision | Neural Networks

Worked on the **Pytorch** implementation of the paper on Deep Photo Style Transfer by Luan. et. al. to **transfer styles** like illumination or time of the day of reference photo to another while **preserving structural and semantic accuracy**.

SOCKET PROGRAMMING — Computer Networks | Concurrency

Worked on implementing both **TCP and UDP** connection-based approaches between client and server nodes in absence/presence of intermediate **relay nodes** with **out-of-order** network packet handling in **C**.

ERPLAG COMPILER — Compiler Design | Software design

Built a compiler for a toy language ERPLAG, in **C language**. Implemented the **compiler design** in four phases: lexical analysis, syntax analysis, semantic checks and, code generation.

BLOCKCHAIN BASED E-VOTING SYSTEM — Azure | Smart Contracts

Simulated the election voting system of India to build a **blockchain-based decentralized e-voting system** using Azure. Used **smart contracts** to build a **D-App** for separate voter registrations, party registrations and, voting facilities.

SKILLS

Languages: C++, C, Java, Python, Scala
Frameworks: Pandas, numpy, Pytorch, Tensorflow, OpenCV
Technology: Git, Linux, gRPCs, Protobufs, Thrift, NFS, iSCSI
Softwares: IBM SPSS, Wireshark, IntellIj, VSCode, Microsoft RDP
Domain Experience: Distributed Systems, Microservices, Storage Systems, Computer Vision, Machine Learning

EXTRACURRICULAR

- Acted as the **student representative** for my batch in the 2020 **Computer Science Student Faculty Council (SFC)** at BITS Pilani, facilitating discussions on academic and lab quality, and course feedback between students and faculty.
- Led the **design team** of **TEDx, BITS Pilani** organization for 2020 event, handling on day production and technology.
- Served as the **member of BITS-ACM**, Student Chapter and **Student Union** during freshman year of undergarduate.

VOLUNTEER EXPERIENCE

- Volunteered for **United Nations** on **World Environment Day 2018** by creating online awareness through social media. Also, organized a **community campaign** near the district park for awareness on **harmful effects of plastics**.
- Volunteered at **HarVa** in 2018, conducting research on **rural Indian artisans'** challenges and proposed a **standardized** platform and supply chain solutions to **enhance their global market reach**.