

Divyang Mittal



EDUCATION

B.Tech (Hons.), Computer Science and Engineering

2017-2021

Indian Institute of Technology, Kharagpur

CGPA 9.28

Department Rank-13 | University Rank-32

FIELDS OF INTEREST

Distributed Systems, Systems and Networks

WORK EXPERIENCE

Software Development Engineer

July, 2021 -

Appdynamics, Cisco

- Developed and maintained multiple **microservices** that transform millions of data packets every minute with high scalability and resiliency.
- Created a library for **SLO** that was implemented as the standard solution company wide.
- Tech Stack: JAVA, Apache Kafka, Kubernetes, Micronaut, RocksDB, ReactiveX, Prometheus, etc

Software Engineering Intern

Summer, 2020

AppDynamics, Cisco

- Created an **indexing** mechanism over data present in AWS s3 buckets to speed up query.
- Worked with hadoop distributed file system(HDFS) and leveraged **map-reduce** to provide a faster solution. The tech stack also included Spark and Zeppelin.
- Took care of **small file problem** in the proposed solution by generating equivalent size files.
- The final solution was able to reduce the query time by 40 percent in our tests.

Bachelor Thesis Project

Fall, 2020

Prof. Sandip Chakraborty, IIT Kharagpur

- Developed a **video conferencing system** that uses p2p network for enhanced **security**.
- Used **WebRTC** protocol with JavaScript and nodejs to create a working prototype.
- Created a semi-distributed architecture that uses **supernodes** for better scalability.
- Implemented various Multipoint Control Unit(MCU) and Selective Forwarding Unit(SFU) like kurento, jitsi video-bridge.

RELEVANT PROJECTS

Cluster Management System

Spring, 2021

Research Areas and Tools: Operating Systems, Computer Networks, Consistency Models, Python

- Developed a fault tolerant cluster management system with an **active-passive** architecture with sequential consistency, several compute nodes and a file server.
- Incorporated **fault tolerance** against one master node and any number of computation nodes.

Advances in Operating Systems Course Project

Fall, 2020

Research Areas and Tools: Operating Systems, Kernel Programming, C++

- Created a **loadable kernel module** for Ubuntu that performs CRUD operations on a file.
- Developed a file system, "Simple file system", for Ubuntu similar to ext2 file system.
- Simple file system supports **CRUD** operations on both files and directories.

High Performance Parallel Programming Course Project

Spring, 2021

Research Areas and Tools: Parallel Programming, CUDA, DNN

- Implemented the **scheduling** algorithm for allocating tasks to GPU from the work, "s3DNN[3] Supervised Streaming and Scheduling for GPU Accelerated Real Time DNN Workloads".
- It leverages the low GPU utilization by tasks in the final layers of DNN to concurrently schedule multiple concurrent **CUDA** tasks.

Database Management Systems Course Project

Spring, 2020

Tools: DBMS, Javascript, Django, MySQL

- Developed a social networking **web application** that helps people to create groups and chat.
- Users can create groups, post text and images in these groups which could be liked and commented by other group members. Group admins can add/remove members and appoint new admins.
- Created elaborate design of the database to **optimize** the fetch and write operations.

Virtual Assistant - JARVIS

Spring, 2019

Tools: Javascript, Flask, MySQL

- Developed a **virtual assistant** web application which allows users to organise their life.
- Use cases included scheduling meetings, providing reminders, creating resume, etc.
- Used standard software engineering practices like creating **SRS** document and **DFD**.

SKILLS AND COURSE WORK

<i>Programming Languages</i>	C++, JAVA, Python
<i>Tools/libraries</i>	APACHE KAFKA, MICRONAUT, KUBERNETES, REACTIVEX, PROMETHEUS, FLASK, WEBRTC
<i>Systems Courses</i>	Operating Systems, Computer Networks, Advances in Operating System Designs, Distributed Systems, High Performance Parallel Programming
<i>Other Courses</i>	Software Engineering, Computer Organization and Architecture, High Performance in Computer Architecture, Database Management Systems

ACHIEVEMENTS

- Department Rank **13** in the Computer Science and Engineering Department, IIT Kharagpur.
- University Rank **32** among over 600 students at IIT Kharagpur.
- Winner of annual Appdynamics Hackathon 2022 edition.
- Achieved **175** rank in ICPC Amritapuri Regionals 2019-2020.
- Secured All India Rank **214** in JEE Advance 2017 among 1.7 Lakh Students.
- Achieved All India Rank **829** in JEE Main 2017 among 10 Lakh Students.

EXTRA CURRICULAR ACTIVITIES

- **President** at Code-Club (Affiliated to Computer Science and Engineering Department, IIT Kharagpur). **Organised** and **taught** at introductory python classes, competitive programming bootcamps attended by hundreds of students. Organised competitions to improve the coding culture of the institution. **Coordinated** up.AI summit, the first Artificial Intelligence summit in our campus.
- **Tutored** 50 first year students for Introduction to Programming course.
- Member of National Service Scheme (NSS), IIT Kharagpur, Received recognition for showing **exceptional** service for the betterment of society and **leading** a unit of 80 students.