

Manoj Kumar

Software Engineer

Webpage: cse.iitd.ac.in/~cs5180411

Email: manoj18.iitd@gmail.com

Github: [manoj2601](https://github.com/manoj2601)

Mobile: +91-9509196171

EDUCATION

- **Indian Institute of Technology (IIT), Delhi** New Delhi, India
B.Tech. and M.Tech (dual) - Computer Science; CGPA: 8.25 *July 2018 - June 2023*
- **Rajasthan Board of Secondary Education** Sikar, Rajasthan
12th: 98.20% 10th: 93.50% *2015 - 2017*

WORK EXPERIENCE

- **Zomato Pvt. Ltd** Head Office, Gurgaon
Software Engineering Intern (Go · microservices · gRPC · Kafka) *Jan 2023 - May 2023*
 - Responsible for managing all types of time and distance deliverables in Zomato, including ETA computation for an order
 - Worked on Go microservices, redis, dynamoDB, Kafka producers-consumers and gRPCs. OSRM is used for distance
- **Uber India R & D Pvt. Ltd.** Bangalore, India
Software Engineering Intern (U4B: Go · Microservices · gRPC · Fx) *June 2022 - July 2022*
 - Worked in service and DB layer to design database schema and create APIs to upsert and fetch records using **presto**
 - Designed multiple optimization approaches and got Design Doc reviewed. Implemented in **Go** with **Fx/Glue** framework
 - **Impact:** Optimized service fee collection workflow by **98%**, responsible for collecting payments from U4B organizations
- **Aarhus University, Denmark** *June 2021 - July 2021*
Research Intern: Prof. Magnus Madsen
 - Worked on **Flix programming language** (www.flix.dev) to improve its compiler and VSCode extension
 - **Language-Server-Protocol** is used to communicate between the client and the server, that connects to the compiler
 - **Impact:** Added features: auto-completion, highlight, semantic and symbol support, add/remove packages, code-lenses

RELEVANT PROJECTS

- **Route Optimization and Fairness in Domino's Delivery System** IIT Delhi
M.Tech. Project: Prof. Sayan Ranu, Prof. Amitabha Bagchi *Jan 2022 - present*
 - Worked in collaboration with **Domino's** to minimize the food-delivery time in a decoupled order - restaurant - delivery vehicle model. Order assignment to restaurant and delivery vehicles also takes care of **fairness** among all riders
 - Built a **XGBoost** ML model to predict the preparation time for orders in a restaurant and trained using real data
 - Investigate **heuristics** solutions in polynomial time on **real-world** data since the problem is NP-hard and inapproximable
- **Job Scheduling and Management** IIT Delhi
Data Structures & Algorithms: Prof. Subodh Kumar *Nov 2019 - Nov 2019*
 - Designed Java module to handle multiple jobs of different users/projects, execute based on **priority** and budget available
 - Used multiple self-implemented & efficient data structures **Trie**, **Min/Max Heap**, and **Red Black Tree** to store data
- **Personalized Instagram Helper with Auto Posting Feature** Independent Project
Android Studio + Flask Server *April 2022*
 - Built a server that takes text from google form responses, creates a picture using a template and posts it on Instagram
 - Created an **Android App (Java)** with options to manually approve or decline a response of google form before posting it
 - Used **Flask**, **postgresql**, **PIL** and **instagrapi** framework to implement the server. **AWS** is used for hosting
- **Large File Downloader using multiple TCP sockets (BitTorrent)** IIT Delhi
Computer Networks: Prof. Aditeshwar Seth *November 2020*
 - Module programmed to download data in chunks by opening parallel **TCP** connections to server using **multi-threading**
 - Resilient to **Error Handling** and resumes downloading from the last received packet in case of any disconnection
- **Twitter Trending List on stream of large data** IIT Delhi
Cloud Computing and Fundamentals: Prof. Abhilash Jindal *March 2022 - April 2022*
 - Designed a scalable and **fault-tolerant** application to process **tweets** on the fly and gives the top 10 words at any time
 - Deployed on a cluster of 3 nodes with **network partitioning** among the replicated storage systems on the nodes to build an eventually consistent system. **Redis**, **RabbitMQ**, and **Celery** packages are used for the concurrency & consistency

TECHNICAL SKILLS

- **Programming Skills:** Go, Java, Python, C/C++, SQL, Javascript
- **Frameworks & Tools:** pandas, sklearn, Springboot, Fx, Git, AWS CLI, Docker, Redis

SCHOLASTIC ACHIEVEMENTS

- Secured **3rd** merit in Class XII among more than **2,000,00** students who appeared in the exam - May, 2017
- Certified in Data Structures and Algorithms Program (**CCDSAP**) by **Codechef** - February, 2020
- Mission Helix's Coding Contest **Rank 3** in All India organized by Coding Club, India - November, 2020

POSITION OF RESPONSIBILITIES

- **Teaching Assistant (TA): Logic for Comp. Science** - Fall 2022 and **Parallel Programming** - Spring 2023
- **Head Mentor BSW:** Responsible for the BSW mentorship program and guided the selected Student mentors - 2022
- **GCL Coordinator CSE Dept:** Responsible for managing and coordinating General Computing Lab representatives
- **Hostel Representative of Indoor Sports Club - IIT Delhi.** Responsible for organizing indoor games in Hostel