Mohit Agarwala   19307R004

Electrical Engineering   **M.Tech.**

Indian Institute of Technology Bombay   **Gender: Male**

Specialization: Communications Engineering   **DOB: 04-11-1996**

Examination	University	Institute	Year	CPI / %
Post Graduation	IIT Bombay	IIT Bombay	2022	8.34
Graduation	MAKAUT	Heritage Institute of Technology	2018	7.85
Graduation Specialization: Electronics & Communication Engineering				

AREAS OF INTEREST

● Machine Learning   ● Optimization   ● Data Science   ● Deep Learning in Image & Speech Processing

PUBLICATION

Online Partial Service Hosting At The Edge | *IEEE Xplore*   [***ICCCN 2021***]
V S Ch Lakshmi Narayana, **Mohit Agarwala**, Nikhil Karamchandani, Sharayu Moharir

  ○ Proposed a **Dynamic Policy**, α-**Retro Renting**, and provided its performance guarantees at the Edge Server
  ○ Found several regimes where α-RR **greatly improves cost-efficiency** and, in the worst case, it is **6-optimal**

KEY ACADEMIC PROJECTS

● **Speech to Sign-Language for the Hearing-Impaired** | *Automatic Speech Recognition*   [*Jan - Apr'21*]
● **Predicting Release Year of Songs** | *Kaggle Competition* | *Machine Learning*   [*Aug - Dec'20*]
● **Speech Command Recognition using End-to-End ASR** | *Automatic Speech Recognition*   [*Jan - Apr'21*]
● **Employee Attrition Classification** | *Kaggle Competition* | *Machine Learning*   [*Aug - Dec'20*]
● **Automatically Recognizing Swahili Speech using Kaldi** | *Automatic Speech Recognition*   [*Jan - Apr'21*]
● **Facial Emotion Recognition using Deep Learning** | *Machine Learning*   [*Aug - Dec'20*]

RESEARCH EXPERIENCE

● **Geolife Trajectory Data Analysis for Content Caching**   [*May - Dec'20*]
  Guide: Prof. Nikhil Karamchandani, EE Dept., IIT Bombay | *Research Project*

  ○ Developed tools for pre-processing and map simulation from **180+ GPS Taxi Data** of Beijing City
  ○ Implemented **K-means** clustering of data points using **Voronoi tessellation** to the original city map
  ○ Used a greedy **Fractional Knapsack** approach for **caching content** on a limited available cache size

● **On the Latency & QoS in Haptics Simulation using Video Streaming over Wi-Fi**   [*Jun'21 - Present*]
  Guide: Prof. Nikhil Karamchandani, EE Dept., IIT Bombay | *Master's Thesis*

  ○ **Objective :** To implement QoS for remote control & rendering of graphics in high bandwidth applications
  ○ Studied Operator/Tele-Operator-Based Haptics application to perform low latency tasks in a wired medium
  ○ Built a **reliable UDP** Protocol for **Multi-media applications** in **C++/Python** from scratch
  ○ Measured **one-way** latency in a congested environment using **Marzullo's Intersection Algorithm**(NTP)

● **High Throughput, Ultra-low Latency Multimedia over Wi-Fi**   [*Jul - Dec'20*]
  Guide: Prof. Nikhil Karamchandani, EE Dept., IIT Bombay | *M.Tech Seminar*

  ○ Studied the effect of **prioritizing traffic** in **IEEE 802.11ax** Wi-Fi, while maintaining **Fairness** and **QoS**
  ○ Studied practical design choices to find **optimal configuration** of scanning process for **delay optimization**

TECHNICAL SKILLS

● **Programming Languages :** C, C++, Python, HTML | **Operating Systems:** Windows, Linux
● **Tools and Software :** MATLAB/GNU Octave, TensorFlow, PyTorch, Pandas, MatplotLib, NumPy, Scikit-learn

RELEVANT COURSES

● Foundations of Machine Learning   ● Automatic Speech Recognition   ● DSP & its Applications
● Statistical Signal Analysis   ● Digital Message Transmission   ● Digital Image Processing
● Wireless & Mobile Communication   ● Optimization   ● Communication Networks

POSITIONS OF RESPONSIBILITY

● **Institute Interview Coordinator** | Institute Placement Team, IIT Bombay   [*Nov - Dec'19*]
● **Mess Councillor** | Hostel Council Team, IIT Bombay   [*Aug'19 - Apr'20*]

MISCELLANEOUS

● Secured **98.86** percentile in **GATE-19**(Electronics & Communication Engineering) among 104782 candidates
● Awarded **Hostel Organization Special Mention** for exemplary contribution to Hostel-4 throughout the year
● Won **Gem of the General Championship**(MDGC-2019) Hostel-4, IIT Bombay, as part of the Dramatics team
● Participated in short course on "Python for **5G MU**, **Massive MIMO**, and **mmWave MIMO**" by IIT Kanpur
● Vocational Training in **All India Radio** on Installation of Studios, High Power DRM Medium Wave Transmitters
● **Interests and Hobbies**: Cricket, Badminton, Table tennis, Listening to music