



**Mohit Agarwala**  
**Electrical Engineering**  
**Indian Institute of Technology, Bombay**  
**Specialization: Communications Engineering**

**19307R004**  
**M.Tech.**  
**Gender: Male**  
**DOB: 04-11-1996**

Examination	University	Institute	Year	CPI / %
Post Graduation	IIT Bombay	IIT Bombay	2022	7.81
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**,  $\alpha$ -**Retro Renting**, and provided its performance guarantees at the Edge Server
- Found several regimes where  $\alpha$ -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