

# Mohit Agarwala

M.Tech (EE), IIT Bombay



(+91) 9981763633



mohit-iitb.github.io



mohit.496.ece@gmail.com



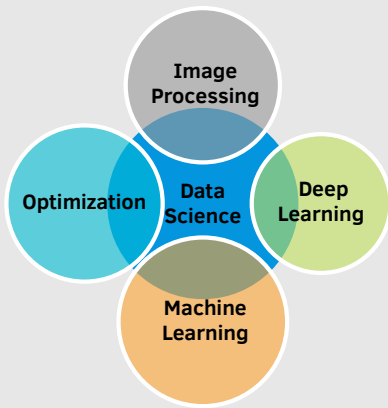
/in/mohit-iitb



mohit-iitb

## Technical Skills

### Overview



### Programming

0 LOC —————> 5000 LOC

C • C++ • Python

TensorFlow • PyTorch • Scikit-learn

HTML •  $\text{\LaTeX}$

## Education

**M.Tech, Electrical Engineering** (CGPA: 8.34)

Specialization: Communication & Signal Processing

IIT Bombay

2019 - 2022 | Mumbai, India

**B.Tech, Electronics & Communication Engineering** (CGPA: 7.85)

Heritage Institute of Technology

2014 - 2018 | Kolkata, India

## Academic Projects

Aug 2020 - Dec 2020 **Facial Emotion Recognition using Deep Learning**

- Used FER-13 dataset which comprises a total of 35887 pre-cropped, 48-by-48-pixel grayscale images
- Trained various CNN models like VGG-16, Inception, AlexNet and studied evolution of their performance
- Deployed our best model, VGG-16, with 5 emotions for real-time prediction using openCV cascade classifier

Jan 2021 - Apr 2021 **Speech to Sign-Language for the Hearing-Impaired**

- Trained Convolutional Neural Network on RAVDESS audio samples to detect emotion from speech
- Used a Conformer-based pre-trained model from ESPNET-model zoo, for Speech2Text conversion
- Created a streamlit based UI to record audio and display the corresponding predicted text and emotion

Aug 2020 - Dec 2020 **Employee Attrition Classification**

- **Objective:** To predict whether an employee will leave the company or not based on 33 information points
- Extracted relevant and less correlated features and applied One-Hot Encoding for multi-classes features
- Achieved an accuracy of 88.47% by training SVM (Support vector machine) classifier on IBM HR dataset

Jan 2021 - Apr 2021 **Speech Command Recognition using End-to-End ASR**

- Designed an LSTM-based Recurrent Neural Network using MFCC features as inputs at each timeframe
- Used a Language Model(LM) with beam search decoding to avoid misspelled words in predictions
- Used Softmax output layer that gives a probability distribution over characters for each timeframe

## Research Experience

2019 - 2020 **Stochastic Systems Lab, Graduate Research Assistant** IIT Bombay  
**Title:** Geolife Trajectory & Google Cluster Data Analysis for Content Caching

- Proposed a Dynamic Policy,  $\alpha$ -Retro Renting, and provided its performance guarantees at the Edge Server
- Developed tools for pre-processing and map simulation from 180+ GPS Taxi Data of Beijing City
- Implemented K-means clustering using Voronoi tessellation to the original city map
- **Tools:** Matlab, Python, scikit-learn, pandas

## Publication

V. S. C. L. Narayana, M. Agarwala, N. Karamchandani and S. Moharir, "Online Partial Service Hosting at the Edge," 2021 International Conference on Computer Communications and Networks (ICCCN), 2021.

## Positions of Responsibility

2019 - 2020 **Institute Interview Coordinator | IPT**

IIT Bombay

2019 - 2020 **Mess Councillor | Hostel Affairs**

IIT Bombay