



**Rohtash**  
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**M.Tech**  
**Male**  
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Examination	University	Institute	Year	CPI/%
Post Graduation	IIT Bombay	IIT Bombay	2021	8.33
Graduation	LPU	LPU	2018	8.83
Intermediate /+2	HBSE	HGM Public School	2013	85.60
Matriculation	HBSE	MD Public School	2011	96.60

## M.Tech Project and Internship

- **Facial Attribute Analysis using Multi-tasking and Open Set Recognition(Deep Learning)** (June'20 - June'21)  
(M.Tech Project, Guide: Prof. Biplab Banerjee)
  - Detected facial attributes like gender, age, smile, smartness, beard and face recognition, etc.
  - Achieved **96 %** test accuracy by using transfer learning on VGG16 model with fine tuning for age prediction.
  - Improved test accuracy from **91.94 %** to **92.94%** on VGG16 model using CBAM for gender classification.
  - Implementing **Open set recognition** method to reject unknown classes during a test on digit dataset.
- **Internship at Karomi Technology** (Mar'21 - Apr'21)
  - Web Scraped Amazon Product images to create data set for types of 'Daal.
  - Performed Data annotation, trained Faster RCNN model for product recommendation.

## Machine Learning Projects

- **ML Algorithm to predict Flight Delay**  
(GNR652:Machine Learning, Instructor: Prof. Biplab Banerjee) (Jan'21-May'21)
  - Performed exploratory data analysis and feature engineering techniques on dataset.
  - Improved test accuracy from **88%** to **91%** by using Support Vector Machine instead of logistic regression.
- **Sentiment Analysis**  
(CS772: NLP , Instructor: Prof. Pushpak Bhattacharyya) (Jan'21-May'21)
  - Made a new model to achieve **75.31%** accuracy after data analysis, preprocessing and encoding techniques.
  - Solved Data Imbalance and Word Overlapping Problems on dataset of 50k reviews using Pytorch.
- **COVID-19 Patient Prediction by Chest X-ray Image**  
(GNR652:Machine Learning, Instructor: Prof. Biplab Banerjee) (May'20-Jun'20)
  - Preprocessed dataset using resizing, normalization and data augmentation techniques.
  - Achieved **93%** test accuracy on VGG16 model and explored **One-shot learning model** like siamese.
- **Image Captioning**  
(CS772: NLP , Instructor: Prof.Pushpak Bhattacharyya) (Mar'21-May'21)
  - Generated Textual description of images using CNN and NLP.
  - Used Resnet50 model for CNN and LSTM, Transformer for NLP with Flickr8k dataset.
- **Slimmable Neural Network (SNN)**  
(IE643: Deep Learning - Theory and Practice , Instructor: Prof. Balamurugan Palaniappan) (Aug'20-Dec'20)
  - Performed Switchable Batch Normalization to reduce computational power requirement on mobile devices.
  - Used convolution block attention module for Resnet50 model to improve classification accuracy.
- **Credit Card Fraud Detection**  
(self Project) (Jun'20-Jul'20)
  - Identified correlation between features using heat-map from sea-born library and derived confusion matrix.
  - Achieved **99.75%** test accuracy with isolation forest and **99.65%** with local outlier factor classifier.

- **Data Compression and Visualization using Principle Component Analysis**  
(self Project) (Apr'20-May'20)
  - Removed non-significant features and created new features through principal component analysis.
  - Applied k-means clustering method to classify data and used Elbow curve to find optimum k-value.
- **Machine Translation of Dates with Attention Mechanism**  
(self Project) (Aug'20-sept'20)
  - Applied attention mechanism with LSTM and word embedding for machine translation of date dataset.
  - Achieved Blue score of 0.4 for date translation.
- **Object Detection with YOLO**  
(self Project) (Feb'20-Mar'20)
  - Achieved **70%** accuracy with YOLO using Keras for car detection with bounding box coordinates.
  - Used convolution implementation of sliding window technique to improve computational speed.

## Positions of Responsibility

- **Vice-Captain Go-kart Championship, Lovely Professional University Punjab** (2015-2016)
  - Worked as vice-captain of a team of **20** members to make a go-kart from scratch.
  - Assigned duties, conducted market survey for vehicle parts and handled day to day activities.
- **Mood Indigo (MI) Media and Publicity organizer, IIT Bombay** (Nov'19-Dec'19)
  - Data-based and contacted **50+** Instagram and YouTube influencers, helped in organizing influencer meet.
  - Helped in managing **30+** photographers according to events' time-slot during Mood Indigo cultural fest.
- **Interview Coordinator, Placement cell, IIT Bombay** (Nov'19-Dec'19)
  - Coordinated with a team of **250+** members for interviews of **1600+** students.
  - Assisted in conducting Pre-placement talks and tests for **15+** firms.
- **Teaching Assistant**
  - ME 657: Thermal and Fluids Engineering Laboratory. (Jan'20-May'20)  
(under **Prof. Shivasubramanian**)
    - \* Conducted lab activities and experimental setup to help students.
    - \* Assisted **140+** Mechanical students to understand experimental theory and clarified their doubts.
  - ME 209: Thermodynamics (Aug'20-Nov'20)  
(under **Prof. Shivasubramanian**)
    - \* Assisted professor in conducting exams, tutorials, evaluated answers and guided **30+** students.

## Technical Exposure and Certifications

- **Tools & Technologies:** NumPy, Pandas, Matplotlib, Scikit-learn, Keras, TensorFlow, PyTorch, MATLAB
- **Programming Languages:** Python, C++
- **Certifications:** Basic Python Program (HackerRank), Workshop on mobile robotics by Tech-fest IIT Bombay

## Courses Taken

- |  |                                      |
|--|--------------------------------------|
| • Deep Learning for Natural Language Processing  | • What is Data Science (IBM)         |
| • Machine Learning                               | • Object Oriented Programming(Oops)  |
| • Deep Learning Specialization (deeplearning.ai) | • Data Management System             |
| • Deep Learning Theory and Practice              | • Mathematical Models in Engineering |
| • Computer Programming(C)                        | • Computational Methods              |

## Achievements and Extracurricular Activities

- Secured **98.09** percentile amongst **1.94** lakh students in GATE Mechanical(ME).
- Cracked **BARC** examination with **>95** percentile among **80k+** students.
- Achieved **4th** rank amongst **250+** students in 12th standard and was recognized in State Merit List.
- Secured **1st rank** among 50+ students in 10th standard and was recognized in State Merit List.
- Won **Gold medal** as part of 11 member team of ME department in Kho-Kho in PGGC, IIT Bombay.
- Participated in 12 km cyclothon with the motto "Brake Pollution to break Pollution" organized by IIT Bombay.