

# Rohit Gupta

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## Education

### Indian Institute of Technology Kanpur

Kanpur, India

MASTER OF TECHNOLOGY, MECHANICAL ENGINEERING **CPI: 8.0\*/10.0**

2018 - 2019

BACHELOR OF TECHNOLOGY, MECHANICAL ENGINEERING **CPI: 7.7\*/10.0**

2014 - 2018

### Aggarsain Public School

Kurukshetra, India

CLASS XII, CENTRAL BOARD OF SECONDARY EDUCATION **PERCENTAGE: 90.8%**

2013 - 2014

## Scholastic Achievements

2014 **All India Rank 946**, Joint Entrance Exam Advanced, 150,000 candidates

India

2014 **National Top 1%**, National Standard Examination in Astronomy (NSEA)

India

## Selected Projects

### Multi-Task Learning for NLP tasks

TERM PROJECT, MENTOR: PROF. HARISH KARNICK

Jan. 2018 - Apr. 2018

- Developed a deep neural network capable of learning from different related tasks
- Implemented MTL on existing networks by introducing sharing matrix between 2 different task specific network
- POS & Chunking tasks were learned simultaneously with parameter sharing with improved accuracy

### ModAV: Modular Aerial Vehicle

B.TECH PROJECT, MENTOR: PROF. ASHISH DUTTA

Jul. 2017 - Apr. 2018

- Build modular UAV(different configuration like quadrotor, hexacopter) inspired by DFA project at ETH Zürich
- Designed autonomous docking mechanism for joining the 4 rotor units to 1 control unit
- PX4 autopilot on-board Pixhawk flight controller was used for autonomous navigation
- Proposed method for autonomous landing and take off by adding mono color camera and laser

### Stock Market Prediction

COURSE PROJECT, PROF. PURUSHOTTAM KAR

Jul. 2017 - Nov. 2017

- Fore-casted the variations of a given market [NASDAQ Composite Index] with 62% accuracy
- Incorporated NIKKEI, RUSSELL and WILSHIRE indices, along with FOREX rates into the feature set for model
- Predicted the values as +ve/-ve using Weighted Voting Ensemble of ARIMA, Kernel SVM and Neural Network

### RGB-D SLAM

TERM PROJECT, MENTOR: DR. GAURAV PANDEY

Jan. 2017 - Apr. 2017

- Improved the accuracy and robustness of SLAM method using planar point features to accurately align point features

- Techniques used: SURF feature extraction, RANSAC, Loop Closure detection, Graph optimization

### Twitter Mood Visualization

SUMMER PROJECT, ELECTRONICS CLUB

May 2015 - Jun. 2015

- Created a dynamic art model for generating artistic pattern using different colored sand describing mood of twitter
- Tweets obtained using Twitter API were classified by Naive Bayes Classifier into different emotion-type.
- Arduino controlled servo motors which pour the sand corresponding to current emotion to create patterns

## Relevant Courses

Machine Learning

Probabilistic Mobile Robotics

Computer Systems Securities

Robot Motion Planning

Mechatronics

Data Structures & Algorithms

Multi-agent systems

Natural Language Processing

Linear Algebra

## Technical Skills

**Programming Languages:** C++, Python, Javascript

**Python Libraries:** Numpy, Pandas, TensorFlow Keras

**Softwares:** Matlab, Ansys, AutoDesk Inventer, GDB

## Work Experience

### Engineer

EATON INDIA INNOVATION CENTRE

Aug. 2019 - Present

- Worked as design analyst for electrical portfolio of the company. Tools Used: Ansys Mechanical, Spaceclaim

- Automated the preprocessing part of the structural analysis leading to significant efficiency improvement.

## Master's Thesis

### Modelling natural structures

GUIDE: DR. SUMIT BASU

May 2018 - Jun. 2019

- Objective: To obtain mechanical model of natural structure as a result of structural optimization applied to constituent materials under given constraints of loading and boundary conditions
- Implemented Method of Moving Asymptotes algorithm in MATLAB for topology optimization
- Designing FEM routine for evaluation of structures generated in each optimization step
- Developing pipeline to generate topologically optimum structure satisfying given constraints

## Position of Responsibility

### Book Master, Gymkhana Library

PRESIDENTIAL COUNCIL

May 2016 - Apr. 2017

- Led a team of 8 secretaries to ensure proper working of the library

- Administered a budget of 35K and maintained a good collection of books

### Teaching Assistant

DYNAMICS, ES0209A

Jul. 2018 - Apr. 2019

- Conducted Tutorials and quizzes for the class for 220+ students

### Astronomy Event Coordinator

TECHKRITI'16

Jan 2016 - Mar. 2016

- Coordinated all the astronomy like Astro Quiz, Whatup etc. in Techkriti'16

## Extracurricular Activity

2017 **2nd Prize**, Astro Quiz, Techkriti'17

IIT Kanpur

2015 **German Language**, A Grade, Level 1

IIT Kanpur

2015 **Secretary, Association ME**, Managed the conduct of Freshers' night of Y15 ME dept.

IIT Kanpur