



## Saumya Sah

UG (IV Year II Semester)  
B.Tech. (Mechanical Engineering)  
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Indian Institute of  
Technology  
Roorkee



### Area of Interest

Data Science, Data Structures and Algorithms, Optimization

### Education

| Year | Degree/Examination       | Institution/Board                       | CGPA/<br>Percentage |
|------|--------------------------|---|---------------------|
| 2022 | B.Tech. 4th Year         | Indian Institute of Technology, Roorkee | 8.099               |
| 2019 | Intermediate (Class XII) | Indian Public School, Purnea            | 95.20 %             |
| 2017 | Matriculate (Class X)    | Delhi Public School, Siliguri(CBSE)     | 10.000              |

### Internships

#### Data and Applied Science Intern | Microsoft

May 2022 - July 2022

- Improved the answer quality of the answers displayed in the "People Also Ask" Block of Microsoft Bing
- Developed a series of Regex and ML based filters that would form a Data pipeline, for filtering out Bad quality Answers from the corpus
- The unlabeled big data was first explored by practicing extensive Exploratory Data Analysis.
- We were able to remove 6% of useless passages (equivalent to 10 million passages) from the English corpus and the load on other parts of the pipeline was reduced tremendously.
- Further research was done to figure out ways to remove bad passages from other the language corporuses.
- Packages used : Specific to Microsoft.

#### Developing a Layout Optimizer using Machine Learning Algorithms | PMG Engineering Pvt Ltd

February 2021 - February 2022

- Developed a Python Layout Optimizer specifically for the Food And Beverage industries, it's implementation is inspired by the basic Food Processing Flow in any Food Processing Factory.
- Using Genetic Algorithms and other Optimization algorithms which would suggest optimized layouts for the factories, given the required inputs.
- Supervised under Prof. Vidit Gaur
- Packages used : Rhino and Grasshopper.

#### Machine learning Internship | Trixno

August 2020 - September 2020

- Developed a machine learning application that would provide an approximate body fat percentage of a person, if his/her full body photo in standing position is provided as input.
- Used Mask R-CNN for this purpose
- Also , developed a python application that would input the photos of the medical reports of a person and would extract desired information from it.
- Packages used : Flutter, Pytesseract and OpenCV

### Projects

#### Built a Microsoft Teams Clone under Microsoft Mentorship | Microsoft

June 2021 - July 2021

- Was mentored by Microsoft to create a microsoft teams clone , that included the following features :
- Video calling (mute, camera on/off, screen share)
- Text Chatting
- User Authentication
- Packages used : WebRTC wrapper peerjs , socket.io , npm packages, Reactjs, Nodejs.

#### ML assisted Optimization | IIT Roorkee

January 2022 - December 2022

- Increased the speed of Evolution based Optimization Algorithms (mainly the NSGA-III algorithm) by the use of Machine learning
- Our Paper was published for the EMO Conference 2023.
- Compared various ML methods to see which one suits the algorithm the best
- Wrote structured and highly efficient code for conducting the extensive experiments.
- Done under the supervision of Prof Dhish Kumar Saxena

#### Hult Prize | Hult Prize IIT ROORKEE

November 2020

- Innovated a mobile app based solution for decreasing the losses faced by farmers due to exploitation by middle men and increasing the marketing of local crops.
- The Idea pitched was about the structure of the mobile app, for enabling the farmers to directly connect to the customers, rather than using middle men.
- Team Finished among Top 10 in the Regional Finale

#### Designed a Home Based Gym Equipment | IIT ROORKEE

October 2020 - November 2020

- Designed a cost efficient home based gym equipment that would use the weight of the user as a source of resistance training for him/her
- Supervised by Prof I V Singh

### Awards / Scholarships / Academic Achievements

- Secured a rank of 6615 in JEE ADVANCED 2019
- Secured a rank of 1668 in Google CodeJam to I/O for Women 2021, among worldwide female participants
- Secured a rank of 223 in Reply Code Challenge 2021
- Secured a rank of 5601 in Google HashCode 2021
- Got Qualified for Engage Microsoft Mentorship Program as a Mentee
- 99.5 percentile in JEE MAINS 2019

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## Skills

|                    |   |
|--------------------|---|
| Computer languages | C++, JavaScript, HTML, Python   |
| Software Packages  | Tensorflow, OpenCV, Reactjs, Nodejs   |
| Additional Courses | ~Mathematical Statistics(MAN-303), ~Abstract Algebra-I(MAN-301), ~Graph Theory(MAN-206), ~Data Mining for Business Intelligence(IBM-312), ~Economics(HSS-01), ~The Web Developer Bootcamp 2020(Udemy), ~Improving Deep Neural Networks: Hyperparameter tuning (Coursera), ~Regularization and Optimization (Coursera) |
| Languages Known    | English(SRW), Hindi(SRW), Bengali(SR)   |

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## Positions of Responsibility & Extra Curriculars

**Volunteer** | Nation Service Scheme (NSS), IIT ROORKEE

July 2019 - June 2020

- Was a part of the Rural Transformation through Education Cell, helped students of nearby rural schools to get proper education environment
- Was certified for excellence performance
- Volunteered for the Blood Donation Camp, conducted by NSS, IIT ROORKEE