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UG (V Year I Semester)  
Integrated M.Tech. Geophysical Technology  
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## Work Experience

### Conversational AI Developer | Trust-Net Technologies

April 2021 - June 2021

- Developed and tested Conversational Chatbots utilizing Rasa, Python, and Twilio, allowing clients to perform or get data-specific comes about with the straightforward messages within different social media applications for easy accessibility and diminished the time for downloading or opening the parent website.

### Backend Developer | Trust-Net Technologies

December 2020 - January 2021

- Developed REST APIs utilizing Flask and Python and explored Microservices Architecture. Improved the data solutions for enquiry data extraction in various websites and social media applications and implemented client category-based results for additional recommendations.
- Developed a web application for removing some of the peripheral regions of image datasets to remove extraneous trash from the picture and isolate the subject matter from its background.

### Machine Learning Developer | Libra

May 2020 - September 2020

- Developed and tested a python deep learning API using TensorFlow, Scikit Learn and other libraries that allows users to use machine learning in their workflows in fluent one-liners.
- The core functionality of Libra works through the object created for every dataset for which the results are required. All information about the built models, the generated plots, and the metrics designed are stored in the object.

### Software Engineering Virtual Experience | JPMorgan Chase & Co

July 2020

- Familiarised with JP Morgan Chase frameworks and applied technical skills to conditional requests of the supply chain from the firm's trading floor to analyze and visualize data in a new way.
- Balanced the client-side web application, which displayed a graph that automatically updates when received data from the server application.

## Projects

### Coupled Snow and Energy Mass Balance Model for Glacier Mass Balance Estimation | Earth Sciences

Ongoing

- Master Thesis on the glacier mass balance state and their analysis under the changing climate in the Indian Himalayan Region, and tries to analyze and quantify the presence of any trends in the Energy Balance of the River basin.
- Implementation of a standalone open-source application for the same as an attempt to aid researchers/engineers mainly in the field of snow-cover variability assessment and energy-mass modelling in their study through quality improvement and constrained optimization.

### Building PC Application Plugin | Earth Sciences, IIT Roorkee

January 2020 - March 2020

- Contributed to an open-source research-oriented QGIS Plugin named SMProcessing, supplementary to a Masters' Thesis submitted at IIT Roorkee. Coded GUI (PyQt) and Logic for re-classification of Raster files. The aim was to provide users an intuitive interface to reclassify raster files by giving visual feedback, contrasting to the GRASS GIS' feature-rich yet unintuitive re-classification algorithm.

**Predictive analysis of GRACE satellite data over the Ganga River basin using Deep Learning | Earth Sciences, IIT Roorkee** May 2019 - June 2019

- Developed a deep convolutional neural network (CNN) model to learn the spatiotemporal patterns of mismatch between Total Water Storage Anomalies (TWSA) derived from GRACE and those simulated by NOAA, a widely used land and surface model.
- Testing and validating the results by observing the correlation coefficient, Nash-Sutcliffe model efficiency coefficient, and RMSE for the algorithm.

**Geophysical Field Surveying | NGRI, Hyderabad** January 2020

- Participated in a land survey for Data acquisition, processing, and interpretation at National Geophysical Research Institute, Hyderabad.
- Performed Gravity, Magnetic, ERT, and GPR survey in NGRI, Hyderabad, using different instruments like CG-5 Gravimeter, Resistivity meter, and proton-precision magnetometer.

**Ground Water level Measurement using MASW and HVSR data in Nainital | Earth Sciences, IIT Roorkee** September 2019 - October 2019

- Conducted horizontal to vertical spectral ratio (HVSR) and Multichannel Analysis of Surface Waves (MASW) surveys using Tromino at six different locations in Nainital.
- Determined the Shear wave velocity structure modelling of top 30 meters using the joint fit curve of HVSR and dispersion curve of MASW using Grilla Software.

**Geological Field Surveying | Earth Sciences, IIT Roorkee** January 2019

- Participated in the calculation of the Strike and Dip of faults, folds, and lineations of the exposed rocks using Brunton compass and GPS in the Rishikesh region, majorly along the banks of river Ganges.
- Contour map profiling of the Rishikesh region for further use in different studies.

## **Awards/Scholarships/Academic Achievements**

- Participated in Spotle AI-thon Level I - The AI Quiz and secured 43rd rank out of 7098 participants.
- Participated in Tech4Heritage Online Hackathon, 2020, as a part of Team Underdogs.
- Secured Fourth position in Weightlifting in InterIIT Sports Meet'18 held in Guwahati, and the team overall secured the First position in the event.
- Winner, Football Tournament conducted by Hamrock Society.
- Secured Third position in InterBhawan Weightlifting event.
- Secured Third position in Colors Trophy under Weightlifting event.

## **Key Skills**

**Computer languages:** Python (Advance), Java (Intermediate)

**Software Packages:** MATLAB, TensorFlow, QT creator, GitHub, Flask, Postman, Git, Quantum GIS, Streamlit, Dialogflow, OpenCV, MS PowerPoint, MS Excel, MS Word, Seisan.

**Additional Courses:** Build a Data Science Web App with Streamlit and Python, Neural Network Visualizer Web App with Python, The Artificial Intelligence Bootcamp – Introduction to AI, Conversational Bot Design.

## **Positions of Responsibility and Extra Curriculars**

**Organizing Secretary | Sangram, IIT Roorkee** January 2019 - May 2020

- Leading a team of coordinators from all the sports teams, responsible for the Promotion and Design under Sangram.

- Previously planned and supervised the marketing activities for the fest's sponsors, ensuring the utmost satisfaction, maintaining relationships with existing and potential sponsors, and managing end-to-end logistics.

**Secretary | Cognizance, IIT Roorkee**

January 2018 - March 2020

- Leading a 3-tier team of 12 members responsible for the Promotion and Sponsorship under the Departmental Cognizance.
- Collaborating with Society of Exploration Geophysicist (SEG) to supervise Poster presentation during Cognizance.

**Associate Coordinator | Internship and Placement Cell, IIT Roorkee**

September 2019 - January 2020

- Worked with a 12 Associate Coordinator team during the 2019-20 Internship and Placement Session at IIT Roorkee and successfully placed 850+ students in 150+ companies.
- Coordinated with more than 15+ companies during the internship and placement session and strengthened relations with the existing companies.

**Executive | InterIIT Cultural Meet**

December 2018 - December 2019

- Responsible for handling the Workshops and the media coverage of all the events over various social media platforms, national television, newspapers, etc. and the personnel involved during the InterIIT Cultural Meet 2018

**Member | Weightlifting Team, IIT Roorkee**

July 2017 - Present

- Participated in InterIIT Sports Meet held in Guwahati (2018) under 56 kg weight category and secured 4th position overall.
- Participated in SANGRAM'19 in Weightlifting and Powerlifting 62 kg category (2019).
- Participated in SANGRAM'18 in Weightlifting under the 62 kg category (2018).
- Participated in UDGHOSH'18 in Weightlifting under the 69 kg category (2018).
- Participated in InterBhawan Sports Meet in Weightlifting and Powerlifting under the 62 kg weight category (2018).
- Participated in InterBhawan Sports Meet in Weightlifting under the 62 kg weight category (2019).

**Coordinator | What After College (WAC)**

March 2018

- Responsible for the event management of What After College, conducting different training sessions during the Sangram'18.

**Coordinator | Thomso, IIT Roorkee**

August 2017 - October 2017

- Coordinator under the Event Management Team, Thomso'17.

**Member | Hamrock Society, IIT Roorkee**

July 2017 - December 2017

- Introduced the first departmental magazine, 'Terra,' which informed about Geophysics and Geology's research and events.

**Research Publications**

Mohammad, P.; Goswami, A.; Chauhan, S.; Nayak, S, "Machine Learning algorithm based prediction of land use land cover and land surface temperature change to characterize surface urban heat island phenomena over Ahmedabad city, India (Revision Submitted) [IF=5.731]", in Urban Climate, Elsevier B.V., 2021