

# SARTHAK CHAUHAN

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<https://github.com/Sar1hak>

## EDUCATION

**Indian Institute of Technology Roorkee** | Int. MTech in Geophysical Technology

July 2017 – Present

## WORK EXPERIENCE

### CONVERSATIONAL AI DEVELOPER | LIVE101

- Utilized Twilio and Python to develop and test NLP Conversational Chatbots, allowing clients to perform or get data-specific outcomes with straightforward messages.
- Bots used within different social media applications for easy accessibility and reduced costs for downloading or opening the parent website.

### BACKEND DEVELOPER | TRUST-NET TECHNOLOGIES

- Implemented client category-based results for additional recommendations by developing 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.
- Implemented a web application to remove some of the peripheral regions of the image dataset and isolate the subject matter from its background.

### MACHINE LEARNING DEVELOPER | LIBRA

- Developed and tested an open-source 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.

## PROJECTS

### QGIS PATHFINDING AND ROUTE ALIGNMENT PLUGIN | INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

- Developed a Quantum Geographic Information System plugin sponsored by DRDO to identify the shortest possible route alignment in a given region.
- Plugin is parallelly processed, and a high-performance python script is used to reduce the time complexity.

### COUPLED SNOW AND ENERGY BALANCE MODEL FOR GLACIER BALANCE ESTIMATION | EARTH SCIENCES, IIT ROORKEE

- 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 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 snow-cover variability assessment and energy-mass modelling in their study through quality improvement and constrained optimization.

### SNOW MELT RUNOFF MODELLING DATA PRE-PROCESSING PLUGIN | EARTH SCIENCES, IIT ROORKEE

- Contributed to a research-oriented QGIS Plugin, supplementary to a Master Thesis submitted at IIT Roorkee. Coded GUI (PyQt) and Logic for re-classification of Raster files.
- The aim was to provide users with 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

- Developed a deep convolutional neural network (CNN) model to learn the spatiotemporal patterns of mismatch between Total Water Storage Anomalies (TWSA) derived from Gravity Recovery and Climate Experiment (GRACE) and those simulated by NOAA, a widely used land and surface model.

## SKILLS

**Languages:** Python, Java, SQL

**Technology:** TensorFlow, QT creator, GitHub, Flask, Postman, Git, Quantum GIS, Streamlit, Dialogflow, OpenCV, MS Office, PyTorch, Scikit Learn, Keras, Spark, Postman, Data Structures and Algorithms.

## EXTRACURRICULAR ACTIVITIES

### ORGANIZING SECRETARY | SANGRAM, IIT ROORKEE

- Leading a team of coordinators from all the sports teams, responsible for the Promotion and Sponsorship under Sangram.
- Supervised the marketing activities, ensuring the utmost satisfaction, maintaining relationships with existing and potential sponsors, and managing end-to-end logistics.

### SECRETARY | COGNIZANCE, IIT ROORKEE

- Lead and influence a 3-tier team of 12 members responsible for the Promotion and Sponsorship under the Departmental Cognizance.
- Organized events like paper presentation competitions and Geo-modelling competitions and collaborated with SEG to supervise Poster presentations during Cognizance.

### ASSOCIATE COORDINATOR | INTERNSHIP AND PLACEMENT CELL, IIT ROORKEE

- 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.

### MEMBER | WEIGHTLIFTING TEAM, IIT ROORKEE

- Participated in various sports events held within and outside the university like InterIIT Sports meet, Udghosh, Sangram and InterBhawan.

## RESEARCH PUBLICATIONS

Mohammad, P.; Goswami, A.; Chauhan, S.; Nayak, S, "**Machine Learning algorithms based prediction of land use land cover and land surface temperature change to characterize surface urban heat island phenomena over Ahmedabad city, India**" [IF=5.731], in Urban Climate, Elsevier B.V., 2022.