RUDRAKSH SINGH TOMAR

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SUMMARY

Highly skilled GIS Specialist with hands on experience in geospatial analysis, remote sensing, and spatial data management. Proficient in ArcGIS, QGIS, and GIS-based enterprise integration, with expertise in map design, spatial data collection, and point data analysis. Strong analytical and problem-solving skills, with a keen ability to develop GIS-based solutions for business and environmental applications. collaborating with clients to deliver high-quality GIS solutions.

PROJECTS

Estimation of soil moisture using microwave remote sensing and multivariate statistics   July 2024 – Present
Advisor: *Prof. A K Keshari*
- Integrated microwave and optical remote sensing to estimate soil moisture
- Applied Multivariate Statistical Techniques (Regression Analysis- MLR, Random Forest) to model soil moisture variability.
- Conducted ground truthing at multiple field locations using gravimetric soil moisture sensors to validate satellite-derived moisture estimates.

Seasonal Variability and Extreme Event Analysis   Sep 2023 – Nov 2023
Advisor: *Prof. Manabendra Saharaia*
- Analyzed precipitation patterns using seasonal indices and extreme rainfall events.
- Examined global climatic phenomena (El Niño, La Niña) and their impact on extreme rainfall frequency.
- Provided insights for flood risk assessment and urban planning in climate-sensitive regions.

Geomorphological Parameters-Based Prioritization Using Remote Sensing and GIS   June 2022 – Dec 2022
Advisor: *Prof. S.K. Sharma*
- Estimated soil erosion in the Kanahiya Nala watershed using geomorphometric parameter prioritization in ArcGIS.
- Delineated the watershed into 8 sub-watersheds and ranked them based on linear and areal geomorphic features.
- Assisted in watershed management by interpreting key terrain characteristics.

EXPERIENCE

Georeferencing and GIS Mapping Intern   IIT DELHI
GCRF Water Security and Sustainable Development Hub   *March 2024 – April 2025*
- Georeferenced over 30 scanned toposheets of NCT Delhi using ArcGIS, ensuring accurate alignment with modern geospatial data.
- Digitized pipeline networks across 1,484 sq. km for Water Treatment Plants (WTPs) and Sewage Treatment Plants (STPs).

Landslide Database and Machine Learning Intern   IIT DELHI
HydroSense Lab   *Jan 2024 – March 2025*
- Compiled and processed Pan-India landslide data from ISRO, creating a comprehensive national landslide database for hazard assessment.
- Utilized QGIS, Google Earth Engine, and Python to annotate, classify, and analyze landslide-prone regions.

EDUCATION

INDIAN INSTITUTE OF TECHNOLOGY   DELHI
M.Tech in Water Resources Engineering   *Jul 2023 – May 2025*

JAWAHARLAL NEHRU AGRICULTURAL UNIVERSITY   JABALPUR
B.Tech in Agricultural Engineering   *Sep 2019 – May 2023*

Technical Skills

Programming Languages: Python (NumPy, Pandas, Scikit-learn), SQL, Google Earth Engine

Software: ArcGIS, QGIS, HEC-RAS, SWMM, ERDAS-IMAGINE, MS-Excel

Achievements

- GATE (AG) 2023 AIR-23
- GEODATA PROCESSING USING PYTHON, ISRO
- -Data Analytics With Python, IIT Roorkee