Suman Bhowmick

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Research Interest

My research interests are rooted in hydrology, including isotope hydrology, groundwater–climate interactions, and the hydrological response of landscapes to land use changes. I am also engaged in agricultural geospatial modeling, climate–soil interactions, river course changes, and sediment transport analysis. My current focus lies in integrating remote sensing and machine learning approaches for modeling soil fertility, erosion, and environmental dynamics.

Education

M.A./M.Sc in Geography   **2022–2024**
North-Eastern Hill University, Shillong
CGPA: 8.00

B.Sc in Geography   **2019–2022**
Acharya Prafulla Chandra College, New Barrackpur
CGPA: 8.46

Technical Skills

GIS	: ArcGIS Pro, ArcGIS, QGIS
Programming	: R, Python, LaTeX, Google Earth Engine
Data Analysis	: SPSS, Stata, NVivo, TerrSet
Image Processing	: Satellite Imagery, Aerial Photography
MS Office	: Excel (Climate Data Processing), Word, PowerPoint
Citations Manager	: Mendeley, Zotero

Projects & Web Applications

- **Global Forest Monitoring App**   *July – Oct 2025*
  Developing an interactive web application for monitoring global forest cover changes using satellite imagery. Implementing data processing scripts and visualizing forest change metrics.
  Technologies: Google Earth Engine (JavaScript API), Landsat & MODIS data.
  Link: View App

- **Personal Portfolio Website**   *May 2025 – Present (Ongoing)*
  Designed and developed a professional portfolio to showcase GIS projects, research, and technical skills. Implemented responsive design and interactive features for enhanced user experience.
  Technologies: HTML, CSS, JavaScript, GitHub Pages.
  Link: View Portfolio

Field Experience

Ri-Bhoi District, Meghalaya   **Feb 2024 – Apr 2024**

- Conducted field visits for systematic soil sampling across diverse topographic units.
- Used GPS devices for geotagging and elevation measurement of all sampling points and preparation of road map.
- Collected field notes on vegetation, barren and land use for each location to support GIS-based LULC modeling.

Research Engagement

Remote Sensing Application for Flood Hazard Assessment: A Study in the Lower Gangetic Plain of West Bengal   *Aug 2025 – Present*
Collaborative Research with Dr. Abhishek Ghosh, North-Eastern Hill University
Role: Research Collaborator

- Applying satellite remote sensing and GIS-based modelling to map and monitor flood hazards.

Workshops and Training Programs

- **Advanced Image Analysis for Geospatial Professionals**   [Online] Aug 2025
  Coordinator: Dr. Poonam S. Tiwari (IIRS-ISRO) (1-day Workshop)   *View Certificate*

- **Transforming GIS with Python Integration**   [Online] Jul 2025
  Lecture by Krishna G. Lodha (GIS Enthusiast, Ronten Grass)   *View Certificate*

- **AI-ML for Earth Observation: Ground Segment Operations, Data Processing & Applications**   [Online] Jun 2025
  Bhoonidhi Workshop Series, NRSC, ISRO (1-day Workshop)   *View Certificate*

- **Deep Learning for SAR Image Processing**   [Online] Jun 2025
  Lecture by Dr. Florence Tupin (Télécom Paris),
  IEEE GRSS and IEEE Madras Section

- **Road Map of Future Geographies: Drone Technology and Geo-Spatial Analysis**   Mar 2019
  Department of Geography, Adamas University (2-day Workshop)   Kolkata, India

Online Courses

- **Hydraulic Modeling with HEC-RAS**   Sep – Oct 2025
  UNESCO Open Learning — USACE Open Hydrology Series   *View Certificate*
  Introduced 2D hydraulic modeling using HEC-RAS, covering terrain data integration, mesh generation, boundary conditions, dam and levee breaching simulation, and result visualization techniques.

- **Remote Sensing and Numerical Ocean Modelling for Oceanic Processes** Aug 2025
  IIRS-ISRO (5 Days, Coordinators: Dr. D. Mitra & Dr. Sachiko Mohanty)   *View Certificate*
  Covered ocean circulation fundamentals, upwelling processes, wave modelling, remote sensing of oceanic processes, and ocean biogeochemistry.

- **Python for Data Science**   Jul–Aug 2025
  NPTEL (IIT Madras) — Instructor: Prof. Raghunathan Rengasamy
  Equipped participants with Python programming skills for solving data science problems. Covered Spyder basics, Python data types, NumPy, Pandas, data visualization (Matplotlib, Seaborn), control structures, and a case study.

- **Writing in the Sciences**   Jun–Jul 2025
  Coursera (Stanford University) — Instructor: Prof. Kristin Sainani
  Covered scientific writing structure, clarity, and publication ethics through hands-on assignments.

- **Remote Sensing Data Analytics for Crop Production Forecasting**   Jun 2025
  IIRS-ISRO (5 Days, Course No. 168, Coordinator: Dr. N. R. Patel)   *View Certificate*
  Covered RS-based crop discrimination, yield estimation, and UAV-assisted crop simulation techniques.

Honors and Awards

- **UGC-NET Qualified** – December 2024 and June 2025 (Ph.D. Only)

- **Top Rank Holder in M.Sc. Geography**, NEHU – 2024

Other Certifications and Extracurricular Engagement

- **NCC Combined Annual Training Camp (CATC-12)**   Oct–Nov 2017
  31 Bengal BN NCC, Matiaburj High School   Kolkata, India

- **Information Technology Application**   Jan–Jun 2017
  Youth Computer Training Centre, Govt. of West Bengal   Kolkata, India
  Certified by Hewlett Packard Enterprise

- **Yoga Training Programme (1 Month)**   May–June 2016
  Ramakrishna Mission Vivekananda University, Belur Math   Kolkata, India
  Sponsored by CCRYN, Ministry of AYUSH

Languages

- Bengali (Native), English (Fluent), Hindi (Fluent)