

Prajakta Bhimrao Mali

Pune, Maharashtra

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PROFILE

A Remote Sensing and GIS Analyst with a Master's degree in Remote Sensing and GIS, specializing in urban and environmental studies. Experienced in using geospatial tools and data analysis for urban planning, flood risk assessment, and resource management. I am passionate about applying GIS technologies to solve real-world challenges and support sustainable development. With a collaborative mindset and a focus on continuous learning, I strive to contribute to data-driven, impactful projects that enhance urban resilience and environmental sustainability.

EDUCATION

- **Indian Institute of Remote Sensing (ISRO)** Dehradun, India
M.Tech in Remote Sensing and GIS; CGPA: 8.24 2022 – 2024
- **DACOE, Shivaji University** Kolhapur, Maharashtra
B.Tech in Civil Engineering; CGPA: 8.79 2019 – 2022
- **Govt. Residential Women's Polytechnic** Tasgaon, Maharashtra
Diploma in Civil Engineering; Percentage: 80.79% 2016 – 2019

TECHNICAL SKILLS

- **Geospatial Tools & Software:** ArcGIS, ERDAS, QGIS, eCognition, Google Earth Engine, Pix4D, WebGIS
- **Programming:** Python, R, MATLAB, Java
- **Hydrological Modeling:** HEC-HMS, Arc-SWAT, R-SWAT
- **Others:** AUTO-CAD, ENVI, MS Office, SNAP

PROFESSIONAL EXPERIENCE

- **Maharashtra Institution for Transformation (MITRA)** Pune, Maharashtra
Young Professional – WebGIS Jul 2025 – Present
 - **Urban Resilience and Infrastructure Planning:** Supported urban resilience and infrastructure planning through geospatial solutions under the Maharashtra Resilience Development Program (MRDP).
 - **Statewide GIS Mapping and Validation:** Led statewide GIS-based mapping and quality validation of rural roads under MMGSY, PMGSY, and Proposed categories, ensuring spatial accuracy and attribute consistency across all tehsils of Maharashtra.
 - **GIS Training Sessions:** Designed and conducted hands-on GIS training sessions for 300+ government officers from Zilla Parishads and PWD divisions, enhancing their capacity in road data mapping, standardization, and digital monitoring workflows.
 - **Analytical Summaries:** Prepared comprehensive district-wise abstracts and analytical summaries for rural road categories, supporting decision-making in connectivity planning and infrastructure prioritization at the state level.
 - **WebGIS Dashboard Development:** Developed an interactive WebGIS dashboard integrating datasets on Thermal Power Plants and Sewage Treatment Plants (STPs) to visualize STPs within 50 km buffer zones, identifying potential opportunities for treated wastewater reuse in thermal power generation.
 - **Climate-Informed Spatial Planning:** Contributed to climate-informed spatial planning and flood risk assessments under MRDP, leveraging GEE, QGIS, and Leaflet for integrated, data-driven decision support.
- **Indian Institute of Science (IISc)** Bangalore, Karnataka
Junior Research Fellow Jul 2024 – Jun 2025
 - **Collaborative Research:** Collaborated with multidisciplinary teams from IISc and NIT Tiruchirappalli to support integrated river basin management and sustainable planning strategies.
 - **Climate Data Processing:** Processed and analyzed climate datasets (CMIP6, IMD) using Python for hydrological and environmental modeling, contributing to Earth System Model integration.
 - **Intern Supervision:** Supervised a team of four interns and coordinated with partner institutions to ensure timely execution of geomorphological and hydrological tasks.
 - **River Channel Mapping:** Mapped river channels and valley margins using Sentinel-2 and Google Earth; generated centrelines, longitudinal profiles, and contours from DEMs for detailed geomorphological analysis.
 - **Physiographic Zone Mapping:** Mapped physiographic zones, classified channel sinuosity, and conducted river style classification (40+ styles) based on valley confinement, lithology, and channel pattern.
 - **Flood Inundation Mapping:** Produced multi-year flood inundation maps (2015–2024) using Sentinel-1 SAR data; delineated active floodplains and developed automated geospatial workflows using Python.
 - **Environmental Data Processing:** Processed environmental datasets including soil moisture, lithology, texture, nutrients (15+ parameters), and satellite imagery (Planet Scope, Bhuvan, Bhukosh, CORONA) for hydrological, land use, and suitability analysis.

- **Field Surveys and Mapping:** Participated in field surveys for water quality, sediment sampling, geomorphology, and bio-assessment; contributed to agricultural mapping, UAV planning, and represented the Cauvery Basin at the India Water Impact Summit 2024.
- **Soil Erosion Calculation:** Calculated soil erosion using the RUSLE model and estimated sediment yield for the Cauvery River Basin from 1990-2024 to support watershed management and conservation planning.
- **India Water Impact Summit (IWIS) and Climate Investments and Technology Impact Summit (CITIS):** Represented Indian Institute of Science (IISc) as a Project Associate at the 9th India Water Impact Summit (IWIS) and the 2nd Climate Investments and Technology Impact Summit (CITIS) in Delhi (December 4-6, 2024). Attended sessions focusing on “River Rejuvenation and Conservation: Learning from the Past and Strategizing for the Future” and “Climate Innovation: FOAK as an Asset Class, NOAK as the Scaling Model.”

PROJECTS

- **Exploring Urban Water Balance Dynamics: Insights from VIS Fraction Mapping and Hydrological Modeling (M.Tech Project):** Analyzed urban water balance dynamics through high-resolution VIS (Vegetation-Impervious Surface-Soil) fraction mapping and hydrological modeling, evaluating spatio-temporal variations in surface runoff, infiltration, and evapotranspiration.
- **Multi-Polarized SAR Data for Urban Flood Extent Delineation: A Case Study of Parts of Mumbai City:** Analyzed flood extent using advanced SAR data techniques, providing valuable insights for flood risk management in urban environments.
- **Providing Web-Based Solutions for Users to Avoid Water Logging Areas Using APIs:** Developed a web-based tool utilizing APIs to identify and guide users away from water logging-prone areas, improving urban flood resilience.
- **GIS-Based Site Suitability Analysis for Sewage Treatment Plants in Satara District, Maharashtra, India:** Conducted GIS-based site suitability analysis to identify optimal locations for sewage treatment plants, contributing to better waste management in Satara District.
- **Google Earth Engine App for CMIP6 Data Explorer:** Developed an interactive app using Google Earth Engine for CMIP6 data visualization. The app allows users to explore climate model projections. [GitHub Repository](#).

TEACHING AND OUTREACH EXPERIENCE

- **Indian Institute of Remote Sensing (ISRO)** Dehradun, India
Teaching Assistant – Remote Sensing and GIS 2023 – 2024
 - **M.Tech Courses:** Mentored participants in national and international short-term courses on GIS, remote sensing, and urban applications, supporting hands-on training sessions and resolving queries.
- **National Institute of Technology (NIT), Patna** Patna, India
Guest Instructor – Application of GIS in Urban Planning May 2025
 - **Urban Planning Session:** Conducted a hands-on session on GIS-based spatial analysis and urban land suitability using Multi-Criteria Decision Analysis (MCDA) with QGIS/ArcGIS, targeted at urban planners, researchers, and postgraduate students.

CERTIFICATIONS & ACHIEVEMENTS

- **GATE (GE):** AIR 129 (2023), AIR 189 (2024), AIR 132 (2025)
- **1st Place:** In Shivaji University’s B. Tech Project Competition for water quality analysis.
- **Best Poster Award:** Received the Best Poster Award at the INTROMET 2025 Conference.
- **Certifications:** Esri Training, MATLAB, Deep Learning, GIS for Climate Action, Leadership in Project Management