

Manas Ranjan Patra

Pune, India | manaspatra1999@gmail.com | +91 7735310363 | [LinkedIn](#) | [GitHub](#)

Career Objective

Geologist-turned-Geospatial Data Scientist applying GIS, remote sensing, and Python to deliver spatial insights for infrastructure planning, disaster management, and environmental intelligence.

Education

M.Sc. Data Science and Spatial Analytics — Geointelligence 2025 – 2027 (Pursuing)
Symbiosis Institute of Geoinformatics (SIU), Pune CGPA: 8.52 (Semester I)

M.Sc. Applied Geology 2022 – 2024
Sambalpur University, Jyoti Vihar, Burla, Odisha CGPA: 8.22

B.Sc. Geology 2017 – 2020
Sambalpur University, Jyoti Vihar, Burla, Odisha CGPA: 8.86

Technical Skills

Programming Languages: Python, R, SQL

Python Libraries: NumPy, Pandas, GeoPandas, Geoplot, Matplotlib, Scikit-learn, pySAL, OGR-GDAL, rasterio, xarray

GIS & Remote Sensing: ArcGIS Pro, QGIS, Google Earth Engine (GEE), GeoServer

Databases & Spatial SQL: PostgreSQL, PostGIS, PL/pgSQL, DuckDB

Big Data Technologies: Hadoop, MongoDB

Developer Tools: Jupyter Notebook, Google Colab, Visual Studio Code, Git, GitHub, Microsoft Azure, Docker

Projects

M.Sc. Thesis – Assessment of Active Channel Belt Extent in Mahanadi River using Google Earth Engine 2024
Tools: Google Earth Engine, Landsat 5/7/8, ArcGIS Pro, Python, Microsoft Excel

- Processed 30 years (1992–2022) of Landsat surface reflectance imagery in GEE using cloud masking (CFmask), median compositing, and multispectral indices (MNDWI, NDVI, EVI) to extract binary active channel belt masks at decadal intervals — demonstrating end-to-end large-scale geospatial data processing pipelines applicable to quantitative financial data workflows.
- Quantified a 13% reduction in active channel belt area (354 sq. km in 1992 to 308 sq. km in 2022) and identified channel fragmentation and connectivity loss in the Kuakhai distributary; corroborated findings with Copernicus ESA Land Cover data and field validation — producing structured thematic maps and an analytical report mirroring data-to-insight workflows in research and reporting roles.

Experience

Research Intern — Groundwater Division (EHG Group) May – Jun 2023
CSIR – NGRI, Hyderabad

- Interpreted electrical resistivity and airborne geophysical datasets to delineate subsurface fracture zones; developed multi-parameter data integration skills directly applicable to multi-source data analytics.
- Correlated geological, structural, and geophysical data for aquifer behaviour assessment; contributed to a structured evaluation report, reinforcing scientific documentation and data-driven reporting practices.

Certifications

- Advanced QGIS Certification — Spatial Thoughts** April 2026
[\[Verify\]](#)
- Basics of Remote Sensing, GIS and GNSS — IIRS, Indian Institute of Remote Sensing** Dec 2025
Enrolment No.: 20251642773371 | UID: 2bf672c9da987c031bd66bb819497d39 | [\[Verify\]](#)
- Working with Earth Engine Data in QGIS — Spatial Thoughts** Dec 2025
ID: ST-GEE-882 | [\[Verify\]](#)
- Mapping and Data Visualization with Python — Spatial Thoughts** July 2025
ID: ST-PYTHON-847 | [\[Verify\]](#)

Training

Skill Development Program: Groundwater Quality Monitoring and Assessment Dec 7–16, 2023
CSIR-NGRI, Hyderabad | Hands-on training in field data collection, quality parameter analysis, and structured reporting for multi-variable datasets in hard rock and alluvial aquifer systems.

Skill Development Program: Geophysical Techniques for Groundwater Exploration Dec 18–23, 2023
CSIR-NGRI, Hyderabad | Applied electrical and geophysical methods for subsurface investigation and aquifer characterisation; reinforced multi-parameter data interpretation skills.