SATYAMKUMAR JHA

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SUMMARY

Spatial data scientist with 3+ years of cross-domain experience in GIS, remote sensing, geospatial ML, and infrastructure. Eager to contribute to large-scale, data-driven geospatial platforms that turn satellite and sensor data into actionable insight.

EDUCATION

M.Tech, Geomatics | *CEPT University, Ahmedabad* *2024 – 2026*
GPA: Sem 1: 4.00 / 5.00 | Sem 2: 4.20 / 5.00 | Sem 3: 5.00 / 5.00

B.E., Civil Engineering | *ITM Universe, GTU* *2016 – 2020*
CGPA: 9.46 / 10.00

EXPERIENCE

Research Intern (Clean Air Programme) | *CEEW, New Delhi* *May 2025 – Jul 2025*

- Contributed to published CEEW Issue Brief on satellite-based crop residue burning (CRB) monitoring in Punjab's IGP region.
- Digitised 400+ field-level polygons across 10 villages (Jalandhar & Hoshiarpur) in GEE and ArcGIS Pro.
- Applied BAIS2 and TBI spectral indices on Sentinel-2; computed district-wise burnt area 2019–2023 using ISRO cropland masks and FINNv2.5 fire point data. [link]

Civil/GIS Engineer | *Nirman Group, Halol* *Feb 2022 – May 2024*

- Georeferenced and digitized 30+ CAD layouts (infrastructure, agricultural, and cadastral) for project development and select permission submissions, improving processing efficiency by ~40%.
- Supported construction activities across 5+ sites through surveying, satellite measurements, and site monitoring, ensuring alignment with design and geospatial data.

Trainee Engineer (Water Works Department) | *Junagadh Municipal Corporation* *Jul 2021 – Jan 2022*

- Conducted GIS field surveys and created geotagged KML maps for water utility networks; digitised 500+ assets into spatial datasets for municipal monitoring.
- Performed data analysis of ongoing projects and cost estimation to support departmental infrastructure planning decisions.

PROJECTS

Crop Disease Detection via Sentinel Imagery | *Ongoing*

- Extracting NDRE, CIre, and SAR backscatter from Sentinel-1/2; training RF, XGBoost, and CNN models for early biotic stress detection in crops.

3D GIS Property Tax System (Paldi, Ahmedabad) | *Sem 3* *2024 – 25*

- Built LOD-1 3D city model of 0.26 sq km Transit-Oriented Zone (400+ buildings) via drone survey and NodeODM photogrammetry; benchmarked 3 AI footprint tools — Mapflow.AI best performer (F1: 0.84, Recall: 0.93).
- Developed custom ArcGIS Python Toolbox (.pyt) orchestrating NodeODM, ArcPy, and CesiumJS; dashboard linked 1,500+ units to AMC tax records tracking paid and unpaid properties. [link]

PM2.5 Forecasting using Deep Learning Models (Mumbai) | *Sem 2* *2024 – 25*

- Trained Random Forest (R^2: 0.70) and LSTM (R^2: 0.88, 90-day sequence, 30 epochs) on ground monitoring data (2021–2024) for daily PM2.5 forecasting across Mumbai wards.
- Ward-level impact analysis: 379/803 hospitals and 56/147 schools in 'Unhealthy' zones; 739,836 residents (of 4M) exposed scenario testing simulated 3 policy interventions. [link]

Desertification Vulnerability Mapping (Giridih, Jharkhand) | *Sem 1* *2023 – 24*

- Computed 5 spectral indices (MSAVI, BSI, TCI, TGSI, Slope) from Landsat-8 and CartoDEM over 4,962 sq km; derived weighted DVI classifying 4 vulnerability levels across 2013–2023.
- Change detection: moderate-risk area expanded by 1,044 sq km (~21%); 1,337 sq km showed intensified desertification validated against ISRO's Desertification and Land Degradation Atlas. [link]

TECHNICAL SKILLS

GIS & RS: ArcGIS Pro, QGIS, Google Earth Engine, SNAP, OpenDroneMap/NodeODM, CesiumJS, Mapflow.AI
Programming: Python (GeoPandas, Rasterio, Scikit-learn, Pandas, NumPy, Plotly, Seaborn), R, JavaScript, SQL
ML & DL: Random Forest, XGBoost, LSTM, SVM, SAM, ArcGIS DLPK
DB & Dev: PostgreSQL, PostGIS, ArcPy, Git, Docker, Geoserver

ACHIEVEMENTS

Esri India Master Scholar 2025 | 2 x Best Performance Award (Master's) | Merit Scholarship 2017–18 & 2018–19