

O. B. Zamir

Geoinformatics & Remote Sensing — Spatial Data Science

Portfolio: obzamir.me

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Professional Summary

Master's student in Geoinformatics and Spatial Data Science with a background in Computer Engineering. I work with remote sensing and GIS data (optical, SAR, and LiDAR) using Python and R (sf, terra), QGIS, and Google Earth Engine. I build reproducible geospatial workflows, spatial data pipelines with Docker, and GeoAI and dashboard tools. Comfortable working independently and in international teams.

Skills

- **GIS & Remote Sensing:** QGIS (advanced), ArcGIS, Google Earth Engine, object-based image analysis, Landsat 8, Sentinel-2, SAR data
- **Programming:** Python, R, JavaScript (Google Earth Engine), SQL, Go, C++
- **Geospatial libraries:** sf, terra, raster, geopandas, rasterio, shapely, geemap, folium
- **Data & Machine Learning:** pandas, NumPy, scikit-learn, data cleaning, statistics, machine learning, deep learning for Earth observation, LLM based tooling
- **Databases & DevOps:** PostgreSQL / PostGIS, Docker, Git
- **Web & Tools:** Flask, dashboard/web-app development, LaTeX, MS Office, Linux

Education

MSc Geoinformatics and Spatial Data Science

University of Münster (IFGI), Germany — Oct 2024 to Present

- Relevant coursework: remote sensing, analysis of optical high-resolution satellite imagery, spatial data science, GeoAI, geostatistics.

BEng Computer Engineering

University of Jammu, India — Aug 2019 to Aug 2023

- Final grade: 8.3 / 10.

Projects

Phoenix Urban Heat Vulnerability Mapping (independent)

Python, R (sf, terra), Google Earth Engine

- Mapped a Heat Vulnerability Index across 382 census tracts using summer 2020 data.
- Combined Landsat 8 land surface temperature, Sentinel-2 NDVI (via Google Earth Engine), and US Census ACS demographics.
- Processed data with geemap, geopandas, R sf and terra; produced final maps with ggplot2.
- Repository: [TRON-151/Phoenix_Urban_Heat_Analysis](#)

GeoGenie — QGIS plugin (team project)

Python, QGIS API, LLMs, ONNX

- Built a QGIS plugin that turns plain-English prompts into geospatial operations such as buffer, clip, reproject, and spatial joins.
- Integrated multiple LLM providers (OpenAI GPT-4, Anthropic Claude, Google Gemini, local Ollama) for intent parsing and parameter validation.
- Added AI road detection from satellite imagery using an ONNX model and OpenCV.
- Repository: [TRON-151/GeoAgent](#)

Agricultural Field Boundary Detection — FTW model (team project)

Python, deep learning, GeoAI, STAC

- Delineated farm field boundaries in South Tyrol, Italy using the Fields of the World model (U-Net + EfficientNet-B3).
- Used Sentinel-2 bi-temporal composites across four years (2020 to 2023), accessed through EOPF STAC.
- Ran pixel-level and boundary-level validation against cadastral parcels.
- Repository: [A2-CUBE/Pheno_boundary_detection_FTW](#)

Glacier-Collapse Building Damage Detection — Blatten (team project)

QGIS, Orfeo ToolBox, R, SVM

- Detected buildings damaged by the 2025 Blatten glacier collapse using pre- and post-event high-resolution imagery.
- Applied Laplacian and GLCM texture filters, OTB segmentation, and zonal statistics.
- Trained an SVM classifier and automated the full workflow with QGIS Model Designer.
- Repository: [DamageDetectionBlatten](#)

Other projects

- **SportSpotter Backend** (contribution): containerised APIs and a PostgreSQL database with Docker for a local sports-facility finder app in Münster. Python, Docker, PostgreSQL. [TRON-151/sportspotter-backend](#)
- **Solar Potential Region Mapping**: an interactive web app to explore solar potential by region. Python, Flask. github.com/TRON-151/Solar-Potential-Region-mapping

Experience

Research Intern

Indian Institute of Technology (IIT) Jammu, India — Mar 2023 to Aug 2023

- Worked on detecting underwater ROVs (remotely operated vehicles) under varying conditions.
- Processed audio signals and images; performed data preprocessing, augmentation, and feature engineering.
- Built binary and multi-class classification models.

Private Tutor (part-time) - Nov 2021 to Jan 2024 - Jammu, India

- Taught mathematics, science, and Python to school students (grades 6-10)
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Certifications and Training

- Cloud Computing — NPTEL, India (2022)
 - Data Science with Python — Simplilearn (2023)
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Languages

- English — Fluent
- German — B1
- Urdu — Native

Hobbies

- Bouldering, Badminton, Volleyball, Sketching