

Leyard Bokola Kamanga

Petroleum Geoscientist & Geospatial Data Engineer

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Profile Summary

Dynamic Petroleum Geoscientist with hands-on field geology experience and a passion for geospatial data analysis. Skilled in leveraging GIS and Python to transform complex datasets into actionable insights for energy, mining, and environmental projects. A highly adaptable problem-solver with a proven ability to deliver high-quality technical reports and cartographic products in challenging field environments.

Core Competencies

- **Geospatial & Remote Sensing:** GIS, QGIS, ArcGIS, PCI Geomatica, Multi-spectral Data Processing, Geohazard Assessment, Cartography.
- **Geophysical Data Processing:** Geosoft Oasis Montaj (Magnetic, Radiometric), Stereonet 9, Rockworks, Tilt Derivative, Euler 3D Deconvolution.
- **Programming & Automation:** Python (GIS Automation, Data Visualization, Matplotlib, PyVista), Web Mapping (Leaflet, Mapbox).
- **Field & Data Management:** PostGIS Geological Field Mapping, Dip & Strike Measurements, GPS, Compasses (Suunto, Brunton), Rock & Mineral Identification, Data Validation.

Professional Experience

Geoscience & GIS Intern — Geological Survey Department (North) | Feb 2024 – June 2024

- Pioneered the update of geological maps by integrating and analyzing diverse datasets, including geophysical and remote sensing data, to enhance structural interpretation.
- Executed comprehensive lineament extraction and analysis to identify and map critical geological structures.
- Processed advanced geophysical data (Magnetic, Radiometric) using techniques like Reduced to Pole (RTP) and Vertical Derivatives to pinpoint exploration targets.
- Contributed to landslide susceptibility mapping using ArcGIS raster analysis, integrating geological and terrain data from Digital Elevation Models (DEMs).
- Performed field-based structural measurements and analyzed findings with Stereonet 9 to deliver comprehensive structural interpretations.

Coal Exploration Assistant — Karonga District (Field Volunteer) | July 2024

- Led detailed pit mapping and geological logging of coal deposits, precisely identifying seam characteristics and stratigraphy for resource assessment.
- Conducted rigorous ground-truthing and data validation for coal seams and structural features, ensuring the integrity and reliability of geological data.

Projects & Portfolio

For full details, code, and visualizations, visit my online portfolio: leyardkamanga.github.io

- **Final Year Project:** Applied Remote Sensing and GIS for petroleum exploration in the Lower Shire

Basin, resulting in detailed lithological and structural maps.

- **Karonga Coal Exploration Project:** Engineered 3D models and cross-sectional views of coal pits to deliver clear visualization of seam continuity for resource assessment.
- **Smart Njira App (Personal Project):** Developed a geospatial web application for efficient field route planning and measurement.

Education & Certifications

Bachelor of Science in Petroleum Geoscience (Oil and Gas)

Malawi University of Science and Technology (MUST) — 2018 – 2024

AI Career Essentials — *Microsoft*