

Wycliff Kimutai

Geospatial Software Engineer | Machine Learning & Data Science

✉ kimutaiwycliff90@gmail.com ☎ +254716522948 📍 Nairobi, Kenya 🌐 Portfolio

PROFILE

Software engineer with an MSc in Data Analytics and four years building and deploying production data and geospatial systems used daily by government agencies and field teams. Core strengths in Python, spatial and time-series data pipelines, and API design. MSc thesis built and validated an artificial neural network for urban water demand forecasting, improving prediction accuracy 25–35% over conventional methods. Maintains a public climate-risk dashboard aggregating live weather, hazard, and displacement data from multiple open sources (NASA FIRMS, Open-Meteo, UNHCR, USGS). Comfortable working in regulated, low-tolerance-for-error environments where systems must be auditable and reliable, and experienced liaising with government and institutional stakeholders on data standards.

EDUCATION

M.Sc. Data Analytics

KCA University

01/2022 – 07/2025

Nairobi, Kenya

- Specialized in machine learning, statistical modeling, and data-driven application development
- Thesis: "Artificial Neural Network Water Demand Estimation" - Developed ML framework achieving 25-35% improvement in prediction accuracy over traditional methods
- Integrated geospatial data with time-series analysis for urban resource management
- Research contributes to SDG 6 (Clean Water and Sanitation)

B.Sc. Geomatics Engineering and Geospatial Information Systems

Jomo Kenyatta University of Agriculture and Technology

09/2015 – 04/2021

Juja, Kenya

Grade: First Class Honours

- Comprehensive training in GIS, remote sensing, spatial database design, and programming
- Final Year Project: "Virtual Reference Station (VRS) in Kenya" - Assessed reliability of Muya VRS network, demonstrating comparable performance to classic RTK positioning
- Coursework included software engineering, algorithms, database management, and web development

CCNA Routing and Switching

Cisco Networking Academy

07/2017 – 01/2018

- Network infrastructure, protocols, and security fundamentals

PROFESSIONAL EXPERIENCE

Geospatial Software Engineer (Senior)

Konza Silicon Company Limited (Ardhisasa Project)

09/2022 – present

Nairobi, Kenya

Ardhisasa is Kenya's national land administration platform (State Department of Lands), digitising cadastral records, parcel transactions, and survey workflows for the entire country.

- Architected and deployed a multi-instance GeoServer cluster backed by a PostGIS spatial database, serving both WMS layers to the Angular web front-end and WFS endpoints consumed by the QGIS survey plugin — supporting real-time parcel rendering across all 47 Kenyan counties.
- Lead developer and maintainer of the Ardhisasa QGIS Plugin used daily by State Department of Lands surveyors to process and certify parcel jobs — capabilities include: automated overlap/underlap detection, parcel centroid verification against gazetted boundaries, Cassini-to-UTM coordinate transformation, generation of publication-ready survey plans, and automated compliance report export.

- Built a dedicated QGIS plugin for cadastre data ingestion and quality control — automates validation of incoming parcel datasets by checking field completeness, geometry integrity (overlaps, gaps, topology breaks), and coordinate system consistency, then pushes clean, compliant records directly to the PostGIS production database.
- Authored PyQGIS scripts to automate repetitive geospatial workflows — including bulk layer styling, attribute table transformations, geometry corrections, and batch spatial joins — significantly reducing manual processing time for the survey team.
- Built interactive React + MapLibre GL JS dashboards used by the Ministry of Lands analytics team to track parcel distribution, transaction volumes, and processing backlogs nationally.

Software Developer

Bell Power International Ltd

02/2022 – 09/2022
Nairobi, Kenya

- Engineered a React Native mobile application for field teams to survey and log potential solar/wind installation sites — featuring interactive map interfaces, GPS-based site pinning, and structured data capture that fed directly into investor pitch decks and feasibility reports.
- Designed and built the company's client-facing marketing website using Next.js and React — serving as the primary digital touchpoint for investor and client acquisition in the renewable energy sector.
- Collected, managed, and analyzed spatial data to support project planning and monitoring.
- Built interactive geospatial dashboards visualising solar/wind potential across surveyed sites, enabling data-driven project prioritisation for energy infrastructure planning.

Lead Surveyor

KAAD, Somalia

07/2021 – 02/2022
Puntland, Somalia

Project: Garaad-Galkayo-Tuurdibi road project. (309Kms)

- Successfully conducted topographic surveys and design reviews for highway construction.
- Established control points and benchmarks for accurate road construction using static survey techniques.
- Successfully mapped and analyzed terrain to identify potential challenges and opportunities.
- Ensured alignment with project timelines and milestones through efficient survey planning and execution.
- Implemented precise land surveys to establish boundaries and right-of-way considerations.
- Developed comprehensive survey reports to guide decision-making in the early stages of the road project.

SKILLS

Languages

Python, TypeScript/JavaScript, SQL, Go, Rust

Generative AI

LLM API integration, prompt design, retrieval-augmented generation (RAG), embeddings and vector search, document chunking and extraction pipelines, output evaluation

Frontend

React, Next.js, Angular, React Native, Tailwind, React Query, Redux

Infrastructure

Docker, Docker Compose/Swarm, CI/CD, Kubernetes, Terraform, Ansible, AWS, Azure

Practices

Agile delivery, code review, automated testing, technical documentation

ML & Data

PyTorch/TensorFlow (ANN modelling), scikit-learn, pandas, NumPy, time-series forecasting, statistical modelling, feature engineering, model evaluation

Backend & APIs

Node.js, NestJS, FastAPI-style REST design, GraphQL, WebSockets, authentication and role-based access control

Data Stores

PostgreSQL (incl. PostGIS), MongoDB, Oracle, SQL Server, DuckDB

Geospatial Tools

Esri ArcGIS, ArcGIS Pro, QGIS, Mapbox, GDAL, GeoServer, Google Earth Engine, MapServer

CERTIFICATES

- Foundations of Project Management [↗](#)
- Spatial Data Science: The New Frontier in Analytics [↗](#)
- Tools for Data Science [↗](#)
- Going Places with Spatial Analysis [↗](#)
- Introduction to Data Science in Python [↗](#)
- Cartography [↗](#)
- Python for Data Science, AI & Development [↗](#)
- Project Initiation: Starting a Successful Project [↗](#)

LANGUAGES

English	●●●●●	Swahili	●●●●●
French	●●●●●		

REFERENCES

Dr. Victor K. Boiyo, *Deputy Vice Chancellor*, USIU
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Mr. Abdul Junior Nelfrank, *Technical Lead*, Konza Silicon Company Limited
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Mr. Joshua Mwaura, *Managing Director*, Openmaps Limited, Kenya
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