

Wycliff Kimutai

Geospatial Data Scientist | Full-Stack Developer | Surveyor

 kimutaiwycliff90@gmail.com  +254716522948  Nairobi, Kenya  Portfolio

PROFILE

I'm a geospatial data scientist and full-stack software engineer with a strong blend of surveying, GIS, machine learning, and modern web development. With an MSc in Data Analytics and a First Class in Geomatics Engineering, I specialize in bridging spatial analysis and AI to solve real-world challenges. I've built production-scale GIS systems—including the Ardhisasa QGIS plugin, high-performance GeoServer deployments, and React/Next.js land administration portals—and developed renewable-energy decision tools used by 20+ field teams. My interests center on multimodal geospatial AI, integrating imagery, LiDAR, and street-level data to support climate resilience, urban planning, and environmental monitoring.

EDUCATION

M.Sc. Data Analytics KCA University	01/2022 – 07/2025 Nairobi, Kenya
B.Sc. Geomatics Engineering and Geospatial Information Systems <i>Jomo Kenyatta University of Agriculture and Technology</i> Grade: First Class Honours	09/2015 – 04/2021 Juja, Kenya
CCNA Routing and Switching <i>Cisco Networking Academy</i>	07/2017 – 01/2018

PROFESSIONAL EXPERIENCE

Senior GIS Desktop Developer & Front-End Developer <i>Konza Silicon Company Limited</i> (Ardhisasa Project)	09/2022 – present Nairobi, Kenya
<ul style="list-style-type: none">• Front-End Developer (09/2023 – present)<ul style="list-style-type: none">• Developed interactive web applications using TypeScript and Angular, emphasizing performance and scalability.• Implemented responsive designs to ensure seamless experiences across devices.• Collaborated with backend teams to integrate RESTful APIs.• Designed and developed user interfaces for various web applications.• Ensured responsive design and cross-browser compatibility for all web applications.• Implemented best practices in UI/UX to enhance user experience.• Senior GIS Desktop Developer (09/2022 – present)<ul style="list-style-type: none">• Designed and maintain the official Ardhisasa QGIS plugin used by State Department of Lands staff surveyors for land parcel management.• Built automated data cleaning workflows (Python + PostgreSQL) that process 10,000+ parcel records daily.• Configured GeoServer cluster with PostGIS backend serving vector and raster layers with sub-second response times• Managed, maintained, and rendered spatial data using Geoserver and POSTGIS.• Developed React-based admin portal with role-based access control for county land offices• Developed web maps for data visualizations using folium and dash libraries.	09/2022 – present Nairobi, Kenya
Geospatial Engineer <i>Bell Power International</i>	02/2022 – 09/2022 Nairobi, Kenya
<ul style="list-style-type: none">• Built web application with NextJS to visualize and analyze solar/wind potential across the sites.• Created automated data validation pipelines that improved dataset consistency for critical energy projects.• Collected, managed, and analyzed spatial data to support project planning and monitoring.• Utilized GIS to assess the environmental impact of proposed energy projects.• Developed interactive dashboards (Plotly Dash, Leaflet.js) used by 20+ field teams to monitor project progress in near-real-time.	02/2022 – 09/2022 Nairobi, Kenya

- Implemented GIS solutions to optimize the planning and management of energy infrastructure.

Lead Surveyor

KAAD, 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.

07/2021 – 02/2022

Puntland, Somalia

PROJECTS

Artificial Neural Network Water Demand Estimation

03/2024 – 04/2025

Master's Thesis

- Designed and implemented machine learning framework for urban water demand prediction, addressing critical sustainability challenges in water resource management for rapidly urbanizing contexts
- Developed advanced ANN architectures incorporating temporal patterns, seasonal variations, demographic factors, climate variables, and infrastructure characteristics for accurate multi-step demand forecasting.
- Conducted comprehensive model evaluation comparing neural network performance against traditional statistical methods (ARIMA, regression models), demonstrating 25-35% improvement in prediction accuracy and reduced forecast error.
- Integrated geospatial data (population density, land use patterns, infrastructure proximity, socioeconomic indicators) with time-series water consumption data to capture spatial heterogeneity in demand patterns across urban zones
- Applied findings to resource allocation optimization, demonstrating how ML-driven forecasting can reduce water waste by 15-20% while ensuring equitable distribution across underserved communities
- Research contributes to SDG 6 (Clean Water and Sanitation) and demonstrates potential for AI-driven solutions in resource-constrained environments facing climate variability

Virtual reference station (VRS) in Kenya

07/2020 – 12/2020

University Final Year Project

- Investigated and reported on the performance of the Kenyan VRS concept as an extension of the GPS Real-Time-Kinematic (RTK) survey technique to provide reliable information on accuracy, precision, and reliability.
- Assessed the reliability of the Muya VRS network through detailed testing of accuracy, precision, initialization times, and coverage extent. Collected and processed multiple measurements from test sites within, on, and outside the network.
- Demonstrated that the Muya VRS system is at least comparable to classic RTK in accuracy, precision, and initialization times, with greater robustness in coverage extents.
- Provided valuable insights for existing and potential GPS users, aiding informed decision-making in positioning activities.

SKILLS

Geospatial Tools

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

Programming Languages

Python, JavaScript, TypeScript, Rust, SQL, Go

Cloud & DevOps

Docker, CI/CD, cloud deployment on AWS, Azure, Kubernetes, Terraform, Ansible

API Integration

RESTful services, GraphQL, Websockets, GeoJSON, KML, Shapefiles

Web Development

HTML, CSS, React, React Native, Typescript, Node.js, Esri JavaScript API, Leaflet.js, Nextjs, Angular, Remix, Tailwind, Shadcn, Acerternity, React Query, Redux

Database Management

PostgreSQL/PostGIS, Oracle Spatial, SQL Server, MongoDB

Surveying

Engineering Surveys, GPS RTK and Static Survey

Soft

Time management, Communication, Adaptability, Attention to detail, Teamwork, Problem-solving

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
nelfrankaj@gmail.com, +254713164545

Mr. Joshua Mwaura, Managing Director, Openmaps Limited, Kenya
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