LINDA KARANI

Geospatial Data Scientist

I am a dynamic data scientist with 5 years of experience, specializing in geospatial analysis, spatial modeling, and data automation. My expertise lies in transforming complex spatial datasets into actionable insights, leveraging advanced python and R libraries like GDAL, GeoPandas, Shapely and raster. I have a deep understanding of Earth Observation data (including satellite and aerial imagery), spatial regression techniques, and the application of statistical models to solve real-world challenges.

A key strength of mine is developing innovative methodologies for spatial data analysis, uncovering patterns and correlations that inform strategic decision-making. I am proficient in automating data workflows in Python and R, allowing for efficient processing of large geographic datasets. My approach combines problem-solving with technical rigor, ensuring that my work not only meets but exceeds client expectations.

I am dedicated to making a lasting impact by applying advanced spatial models and innovative geospatial solutions to tackle real-world challenges, with a particular focus on humanitarian and development contexts.

🎓 EDUCATION

2021
|
2024

Strathmore University
Masters of Science in Data Science and Analytics 📍 Nairobi, Kenya

Relevant units: Advanced machine learning concepts, Advanced statistical analysis, Geospatial analysis, Data visualization and communication, Database management

2022

ETH Zurich
Dissertation: Importance of reproducibility in advancing Sustainable Development Goal(SDG) 6 in R : A comparison of statistical models
📍 Zurich, Switzerland

2014
|
2018

Strathmore University
Bachelor of Business Science in Financial Economics
📍 Nairobi, Kenya

✺ CERTIFICATIONS

2024

IBM
Data Engineering & Data science 📍 Remote

Relevant units: Data Managemant, ETL, Apache, Databases, Data Warehousing, Distributed computing systems, SQL. Generative AI

CONTACT INFO

✉ karanilinda@gmail.com

 github.com/KaraniLinda

in Linkedin

📞 +254 708054713

DATA TECH STACK

Database/Server : MySQL, PostgreSQL

Programming languages : Python, R programming

Frameworks/libraries : NumPy, Pandas, matplotlib, Scikit-learn, ggplot, tidyverse, dplyr, leaflet, caret

Data visualization/Reporting : R Markdown, Quarto, Power BI, Tableau , Google Data Studio, Excel

Geospatial packages: Uber-H3(Hexagon), ARCGIS, R(raster,tmap), Python (geopandas, rasterio, xarray, shapely)

Cloud computing : Google cloud platform

Git and Version Control

LANGUAGES

English : Native

French : Limited working proficiency

2024 ● **Esri**
Spatial data science   ● Remote

Relevant units: spatiotemporal clustering, suitability analysis, hotspot
analysis, object detection using deep learning, spatial regression and
interpolation

💼 PROFESSIONAL EXPERIENCE

November, ● **Data scientist**
2022
| World data lab   ● Nairobi, Kenya
Date
- Led the comprehensive data collection, analysis, and forecasting for
  multiple high- impact projects including the in-depth analysis of youth
  labor force survey data in collaboration with the Mastercard Foundation.
  Executed the project for Kenya, Rwanda, and Ghana, leading to the
  establishment of a youth unemployment clock providing real-time
  insights on jobs. Utilized advanced statistical modelling techniques
  such as linear regression and time series models to forecast future
  labour market trends
- Developed and deployed predictive models utilizing high-resolution
  satellite imagery, drone data, and thermal imagery, alongside
  demographic data, to create detailed maps of aggregate spending for
  European countries. These insights helped clients pinpoint optimal retail
  expansion sites at the grid and hexagon level (Uber H3 - Res 9).
- Leveraged machine learning algorithms, such as Random Forest and
  regularized regression, combined with geospatial covariates to
  disaggregate spending data at the grid level, achieving a prediction
  accuracy of 86%.
- Designed and automated spatial data analysis pipelines using Python
  and R, streamlining workflows and ensuring efficient handling of large
  geospatial datasets.
- Organized and executed student hackathons with participation from
  over 100 students and in collaboration with the top 3 universities in
  Kenya, resulting in the development of innovative solutions for real-world
  problems and fostering collaboration within the academic community.
- Conducting rigorous data quality assurance checks, ensuring the
  continuous enhancement of models with the latest and highest-quality
  data.
- Demonstrated expertise in the in-depth analysis of household and
  census survey data.
- Delivered high-impact, actionable insights to clients, focusing on
  providing data-driven solutions that directly informed strategic decision-
  making and drove meaningful results.

Senior associate- Data analysis and business modelling

Sanergy   📍 Nairobi, Kenya

April, 2021 | November, 2022

- Spearheaded the development of spatial models, leveraging GIS tools and satellite imagery to identify optimal locations for non-sewered sanitation services. Collaborated on data management and analysis to pinpoint high-potential urban areas for future scale-up

- Applied spatial regression and clustering techniques to assess sanitation coverage, providing critical insights that guided future infrastructure investments.

- Developed several robust quantitative and qualitative data collection tools for citywide inclusive sanitation planning to determine market share and predict an appropriate mix of sanitation products based on key indicators and metrics.

- Analyzed data collected by the Cost and Climate in Urban Sanitation (CACTUS) project led by the University of Leeds and supported by the Bill and Melinda Gates Foundation and used the findings to create a set of improved data collection tools and manuals to facilitate widespread contribution to a database of benchmark cost estimates to inform sanitation investment decisions.

- Conducted data analysis for a UNICEF implemented project to inform progress towards safely managed sanitation

- Communicated complex data-driven insights effectively to senior leadership and external stakeholders, supporting informed decision-making processes.

- Produced detailed reports and technical documentation, including manuals, ensuring sustainable handover of the tools and insights developed during the projects.

- Proactively managed stakeholder relationships, providing advisory services and capacity-building training to enhance project outcomes.

Finance/Data analyst

Sanergy.   📍 Nairobi, Kenya

September, 2019 | March, 2021

- Identified key organizational metrics, cleaned and analyzed data from all departments and presented results on Tableau improving accuracy of results by 35%.

- Aggregated data across all departments that was previously in multiple different sources to create an interactive organization wide dashboard based on key KPIs that led to increased efficiency in operations and improved decision making and that resulted in a 30% reduction in redundancy.

- Using data analytics to identify business needs and requirements and deliver data-driven recommendations and reports to executives and stakeholders.

- Supported teams to understand, monitor and control key business metrics to achieve success and base decisions on data.

- Prepared financial statements and other financial reports and reported performance to senior management and the finance board

🔖 REFERENCES

References available upon request