

Maxwell Simiyu

Data Analyst

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PROFILE

I am a detail-oriented Statistician with expertise in sampling, validation, and data analysis using standard statistical practices. I am adept in statistical modeling, forecasting, data mining, trend analysis, and data interpretation. With a strong background in software programming, particularly in R and Python, I excel in developing software applications for statistical modeling and graphic analysis.

PROFESSIONAL EXPERIENCE

Assistant Statistician

Kenya National Highways Authority 🌐

09/2023 – present

Nairobi, Kenya

I am tasked with various organizational activities, such as report generation and data analysis. My work at the organization has involved the following activities.

- Impact Evaluation on the Mau Summit—Kisiani World Bank Road Project, constructed in the 2010s. I was tasked with post-survey analysis, such as data visualizations with R, and statistical testing, such as the T-Test, where I determined the road's impact on the regional economy before and after ten years of road construction.
- I was involved with the monitoring and evaluation practice on the roads in the central and eastern parts of Kenya. This practice aimed to check the progress status of regional projects and track their finances.
- I am also tasked with data cleaning and wrangling as part of the post-survey analysis. This process involves working with string and numeric data, and I have to prepare the data for further analysis, such as frequency distributions and text analysis.
- Creating the Roads Project Dashboard for the organization. I have also been tasked with creating a road dashboard for all the road projects conducted by the organization. I report on the key metrics such as total km laid, cost per km for each project, start date, progress status and contract sum

Field Statistical Researcher and Analyst

University of Nairobi 🌐

01/2023 – 06/2023

Nairobi, Kenya

My work was to understand how field surveys and data collection are conducted. As depicted by these activities, my work became all-encompassing at the end of the exercise.

- I was tasked with developing survey and interview questions for the personnel involved with the study.
- Conducting a demographic survey in areas within Nairobi, such as the count of people in hospitals who are victims of crime and the count of people behind police station bars in Nairobi.
- Creating a database and arranging specified IDs to ensure data inferential integrity and reduce redundancy in the data collected.
- I distributed the respective cases collected in the field, which helped identify demographic patterns within Nairobi.
- I was tasked with the creation of visualization dashboards for the reports and distributions of the demographic data.

EDUCATION

Data Analysis


Jomo Kenyatta University Enterprise School 🌐

10/2021 – 01/2022

Nairobi, Kenya

I enrolled for data analysis classes using R at JKUATES. The training took three months and I achieved a certificate of distinction for the course. I became knowledgeable on how I could apply statistical theories into techniques that could be applied in survey/research.

Bachelor's of Science in Statistics

University of Nairobi 

09/2019 – 06/2023

Nairobi, Kenya

I pursued my Bachelor of Science in Statistics at the University of Nairobi from September 2019 to October 2023. This four-year program was instrumental in shaping my career as a statistician and data analyst.

While at UON, I immersed myself in a rigorous curriculum covering various statistical concepts and applications. I excelled in Social Statistics Concepts and Parameter Estimation, which gave me a strong foundation for applying statistical methods to social sciences and economic settings.

Kenya Certificate of Secondary Education


St. Peters' Boys Mumias High School

02/2015 – 11/2018

Kakamega, Kenya

I completed my Kenya Certificate of Secondary Education (KCSE) at St. Peters Boys Mumias High School, where I studied from 2015 to 2018. During these four crucial years, I dedicated myself to my studies and extracurricular activities, culminating in an impressive overall grade of B+.

Kenya Certificate of Primary Education

Gateway Junio Academy 

01/2008 – 12/2014

Bungoma, Kenya

I completed my primary education at Gateway Junior Academy in Bungoma, graduating in December 2014. During my time there, I was awarded a Certificate of Merit, which reflects my strong academic performance and dedication to my studies at the primary level.

SKILLS

Data Analysis

I am highly knowledgeable in data analysis techniques such as Exploratory Data Analysis, visualization, and inferential testing. Moreover, I have a good background in data wrangling using the tidyverse framework, an R package wrapper for SQL.

Data Mining

I have gained much experience while working with web drivers for data mining. Moreover, working with her for R has taught me about POST and GET requests while configuring and working with data from APIs.

Statistical Modelling

My skill in statistical modeling is excellent. I have a strong foundation in this area, which I developed through my bachelor's degree in statistics from the University of Nairobi and further enhanced by my practical experience. As a Statistics researcher at UON, I developed software applications specifically for statistical modeling and graphic analysis.

UI Development

After working with Shiny for R, developing dashboards required frontend skills that I have sharpened down the years. With R for web development and production, I learned the different frameworks within and outside Shiny - such as Ambiorix for R, while engaging HTMX in both cases. With the demand for better applications, I upped my skills, and I have involved NextJS in my UI development

Advanced Excel

I'm highly proficient in advanced Excel functionalities such as the creation of nested functions, data analysis using pivot tables and Power Query, data visualization, VBA programming, and macro development, and lastly, Power BI integration for enhanced reporting

SPSS Analysis

After using it for more than five years, I am extensively knowledgeable about the social sciences package SPSS. The various statistical analyses I have learned include designing and analyzing experiments and blocking techniques for controlled surveys. Conducting and interpreting Analysis of Variance (ANOVA) for various research designs. Lastly, the Application of advanced statistical methods such as factor analysis and cluster analysis.

LANGUAGES

English



Kiswahili



PROJECTS

Kenya National Highways Authority Road Projects Dashboard [🔗](#)

09/2023 – present

Status of Road Projects (Completed, Ongoing & Upcoming)

I developed a comprehensive dashboard for monitoring road projects across Kenya.

This project involved:

- Collecting and integrating road construction and maintenance project data from various sources, such as monthly reports and work plans.
- Designing and implementing an interactive dashboard with various filters using R shiny and implementing server functionalities like collecting modules and caching.
- Creating visualizations to display key metrics such as project progress, budget utilization, and geographic distribution of the projects using leaflet maps.
- Implementing features for real-time updates and user-friendly interfaces for the stakeholders to access information.

Performance Based Budgeting

01/2024 – present

Quarterly Based Budgeting Determinant on Performance

I am currently leading a project to develop a sophisticated Performance Based Budgeting system. This project aims to optimize budget allocation based on activity performance and budget data. Key components of this project include:

- Implementing Activity-Based Costing (ABC) to accurately allocate costs to specific activities.
- Utilizing percentile rankings to categorize activities based on budget position and cumulative achievement.
- Developing a decision-making framework for budget allocation based on these categorizations.
- Applying anomaly detection techniques to identify unusual patterns in historical budget data for specific activities.
- Incorporating Time Series analysis for activities with historical budget data to forecast future budget needs and performance trends.
- Creating visualizations, including Heatmaps to illustrate the relationship between performance and budget allocation, Pivot tables for exploring the two variables, Grouped column charts, and pie charts to present budget and performance distributions.

Crime Trends and Patterns Dashboard [🔗](#)

01/2023 – 08/2023

Time Series in Predicting Yearly Crime Pattern in Nairobi - Kasarani

I developed a Crime Trends and Patterns Dashboard, leveraging my statistical and data visualization skills to shed light on criminal activities within Nairobi. Key aspects of this project included:

- Collected and cleaned crime data from various sources (police stations and hospitals), ensuring data integrity and consistency.
- I Utilized R and the Shiny framework to create an interactive, web-based dashboard.
- Implemented statistical techniques, such as SARIMA modeling, to identify crime data trends and correlations.
- I also designed visualizations, including time series plots and interactive charts, to represent crime data in an understandable format.
- Integrated geospatial analysis to highlight crime hotspots and their evolution over time.
- Developed predictive models to forecast potential crime trends.

CERTIFICATES

R for Data Analysis

Distinction

Interacted with EDA libraries in R, such as dplyr and gt packages. I learned data visualization with ggplot2 and later on to interactive plots with high charter and Plotly. I became more self-trained later on and learned about parsnip and tidy models for modeling. I'm well advanced in the R ecosystem, and I can handle any related work in this area.

Computer Science Academy Star

I was awarded a certificate in Computer Science for outstanding performance in a competition hosted by Moi Girls High School. My performance demonstrated the fundamentals of computer science concepts and problem-solving skills.

Advanced Excel Certification

This course was conducted at the Datanova training camp at the University of Nairobi. I Mastered advanced Excel functions, data analysis tools, and visualization techniques. I learned to create complex formulas, pivot tables, and visual basic applications

INTERESTS

Music — Music Producer and Sound Designer/Mixer by profession | **Rugby** — Rugby Enthusiast, both as a player and pitch-side technician

REFERENCES

Mr. Isaya Okeyo, *Snr. Statistician*, KeNHA
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Ronald Odhiambo, *Asst. Director*, KeNHA