Kiprono Elijah Koech

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Summary

Highly analytical, results-oriented data scientist and statistician with a strong foundation in Data Science, Python programming and SQL database management. Grounded researcher dedicated to solving real-world challenges through advanced data analysis and predictive modeling.

Key Skills

Machine Learning and Deep Learning
- Regression, Classification, Clustering, Neural Networks, PyTorch

Data Analytics
- Data Wrangling, Data Mining, ETL processes

Data Visualization
- Tableau, Looker and LooKML, Matplotlib, Seaborn

Cloud Computing
- AWS Redshift, S3, SageMaker AI, Lambda, EC2, AirFlow

Database Management
- MySQL, PostgreSQL, MongoDB

Programming and Spreadsheets
- Python, R, SQL, Advanced Excel, Google Sheets

Statistics
- Descriptive, Inferential, Bayesian

Other Tools
- Git, Linux

Education

Stellenbosch University — Cape Town, South Africa
Master's Degree in Applied Mathematics (Data Science) — Feb 2020 – Jan 2022

Stellenbosch University — Cape Town, South Africa
Master's Degree in Mathematical Sciences, Cum Laude — Jan 2019 – Nov 2019

Jomo Kenyatta University of Agriculture and Technology — Nairobi, Kenya
Bachelor's Degree in Science (Statistics), First Class Honors (GPA: 3.9/4) — Sep 2013 – Nov 2017

Experience

Sun King Limited — Nairobi, Kenya
Data Scientist — Jan 2023 – Present

- Led the design, execution, and analysis of key data-driven pilot programs to increase product sales and improve loan repayment for our loan-based products.
- Spearheaded deep-dive fraud detection analyses, identifying fraudulent patterns that led to the design of effective mitigation strategies.
- Automated the generation of risk reports, reducing the report creation time by 75%, from 2 days to 3 hours, and increasing report accuracy by 30% through the implementation of advanced data validation and error-checking procedures.
- Provided support to cross-functional teams, namely, Risk, Leadership, Data, Marketing, New Product, and Development Teams.
- Pioneered advanced predictive analytics techniques, utilizing regression models to forecast and refine sales goals, along with using clustering algorithms to segment areas for pilot experiments. Also worked on deploying a video classification model for prospecting, which reduced prospecting time by 63%.
- Awarded the prestigious Dedicated Service Award after 8 months into the role for outstanding performance in pilot design and fraud analysis, reflecting exceptional contribution to organizational success.
- Worked 2 years as Senior Analyst then transitioned to Data Science team.

Kenya Meteorological Department — Nairobi, Kenya
Data Scientist — Jan 2022 – Nov 2022

- Improved weather forecasting using recurrent neural network models as an ensemble to Weather Research and Forecasting (WRF) models. Also, optimized data assimilation procedures WRF model initialization
- Developed and tested new parametrization schemes, which reduced model initialization errors by 20%, and,
- Automated model initialization and execution through bash scripting leading to a reduction in the amount of intervention needed by 2 man hours per day.

Science of Intelligence at Technische Universität Berlin. — Berlin, Germany
Research Fellow - Computer Vision — Feb 2021 – Aug 2021

- Conducted research on action recognition models for wildlife monitoring, focusing on improving the automated identification of animal behaviors in challenging environments using computer vision and AI.
- Contributed to the development of state-of-the-art algorithms for wildlife tracking and conservation, helping improve biodiversity monitoring efforts.
- Collaborated with an interdisciplinary team of scientists to publish findings on intelligent systems, bridging the gap between AI research and real-world applications in ecology and conservation.

PACT-Timiza (USAID-Funded Program)   Migori, Kenya
Data Assistant   Jan 2018 – Dec 2018

- Managed HIV patients data for over 10,000 clients. This involved entering information on the paper into the I.Q care database, analyzing the data to identify and locate clients with poor antiretroviral adherence and recommend follow-up, and data quality checks.
- Follow-up reduced the cases of poor adherence to antiretroviral therapy by over 70% and was able to close cases as required. Rectified an event that almost led to the loss of 2300 data points due to system failure. The by-product of this was setting up a robust backup pipeline that did not exist before.
- Worked as a Data Clerk for the first 2 months, then promoted to Data Assistant.

Selected Projects

Property Price Prediction for Cape Town Listings | *Skills: Scrapy, Sklearn, Random Forest, XGBoost, Regression, Regularization*
- Scraped property listings of a South African suburb using Scrapy, and applied regression and ensemble models to predict prices. Achieved a Mean Absolute Error (MAE) of 159,000 ZAR (which is just 5% of mean price) with Random Forest and XGBoost as top-performing models. Implemented other model evaluation metrics (R^2, MSE, RMSE) to validate accuracy, showing 90%+ variance explained by the models (GitHub).

Reviews Classification | *Skills: Web scraping, Sklearn, Machine learning algorithms*
- This project involves scraping over $200k$ reviews using Scrapy and classifying them as positive or negative using different Sklearn models. Also, dealing with the issue of data imbalance. SVM classifier was the best in this application achieving an F1 score of 89% (GitHub repo).

Awards and Honors

- Dedicated Service Award by Sun King recognition from CEO for stellar performance as Analyst.   *Nov 2023*
- Golden Key Award by Stellenbosch University - for being among the top 15% performers in the 2019 cohort.   *(2020-2022)*
- Award for Excellence by African Institute for Mathematical Sciences(AIMS), for being top of the class   *2019*
- Scholarship by African Institute for Mathematical Sciences(AIMS)   *(2019-2020 & (2020-2021))*
- 3x Winner of Vice-Chancellor's Academic Award at Jomo Kenyatta University of Agriculture and Technology   *(2015, 2016, 2017))*

Groups and Societies

- Computer Vision and Remote Sensing Group at Technische Universität Berlin, Germany [1]
- Data Science Research Group at African Institute for Mathematical Sciences, South Africa [1]
- Golden Key International Honour Society
- Kenya National Society of Statisticians

Hobbies and Interests

- Volunteering - currently volunteering as a mentor at Phoenix Analytics KE.
- Reading books - currently reading "The 12 Week Year" by Brian Maron and Michael Lennington.
- Playing puzzle games such as the Rubik's Cube and Sudoku.