

DUNCAN KYALO

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 - GitHub: github.com/duncankyalo
 - Portfolio: portfoli-1-4aqj.onrender.com
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PROFESSIONAL SUMMARY

Machine Learning Engineer, Data Scientist, and Backend Software Developer with over 3 years of experience building data-driven and research-based systems. Proficient in Python, R, SQL, and GIS with expertise in climate data analysis, predictive modeling, and backend application design. Skilled in developing scalable APIs, integrating machine learning models, and automating data pipelines for environmental, business, and scientific use. Combines research, data engineering, and software development to create measurable impact across multiple domains.

TECHNICAL SKILLS

Programming & Tools: Python, R, SQL, Dart (Flutter), Git, GitHub, Matlab, Excel, PowerPoint.

Frameworks: Django, FastAPI, Flask Python Libraries: NumPy, Pandas, Scikit-learn, TensorFlow, Requests.

Visualization: Matplotlib, Seaborn, Power BI.

Machine Learning: Regression, Classification, Forecasting, Feature Engineering, Model Evaluation.

Databases: PostgreSQL, MySQL, SQLite

APIs & Deployment: REST APIs, API Integration, Docker, Render, GitHub Actions.

Data Science: Data Cleaning, Predictive Analytics, Statistical Modeling, Data Visualization.

Climate & GIS Tools: WRF Model, ArcGIS, Remote Sensing, Geospatial Analysis, Spatial Database Management, Hydrometeorological Modeling.

Research: Climate Data Analysis, Environmental Impact Research, Research Writing, Stakeholder Engagement, Proposal Development.

PROFESSIONAL EXPERIENCE

Research Assistant

Research Assistant REACH Program (University of Nairobi / Oxford University)

Feb 2024 – Present.

- Developed and optimized ML models for rainfall forecasting, improving predictive accuracy by 25%.
- Automated data pipelines for climate data ingestion, preprocessing, and GIS visualization.
- Applied hydrometeorological modeling and remote sensing to assess climate risk and environmental impact.

- Integrated WRF and satellite data into Python workflows for spatial and temporal analysis.
- Contributed to publications and funding proposals supporting data-driven climate adaptation research.

Business Analyst

EK STORE'S

Dec 2021 – Jan 2024

- Designed and deployed a business intelligence dashboard using Python, SQL, Power BI.
- Built backend automation scripts that reduced manual reporting by 60%.
- Conducted data-driven analysis to identify inefficiencies and optimize performance metrics.
- Collaborated on system testing, data validation, and integration of analytics features into business workflows.

Data Clerk

Kenya Meteorological Department, Makindu

Sep 2021 – Dec 2021

- Processed and managed national meteorological datasets for analysis and archiving.
- Supported climate data validation, coding, and visualization for operational forecasting.
- Assisted in GIS-based disaster preparedness and early warning data modeling.
- Conducted farmer outreach on climate-smart agriculture practices

EDUCATION

MSc Data Science-Meteorology

University of Nairobi • Sep 2022 – Present

BSc Data Science-Meteorology

University of Nairobi, Chiromo Campus • Sep 2017 – Jun 2021

Software Engineering

Power Learn Project • May 2024 – Jan 2025

CERTIFICATIONS & MEMBERSHIPS

Member, Kenya Meteorological Society

LANGUAGES

- **Swahili**: Fluent (Written & Spoken)

- **English:** Fluent (Written & Spoken)
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PROJECTS

Smart Agriculture API

Technologies: Django, FastAPI, PostgreSQL, Docker, Render

- Designed a backend system automating farm weather alerts using real-time meteorological data.
- Integrated machine learning models and REST APIs for predictive soil and rainfall analytics.
- Deployed API on Render using Docker.

Disaster Forecasting System

Technologies: Python, TensorFlow, GIS, WRF Model, Satellite Data, PostgreSQL

- Built ML models for flood and drought prediction using WRF and satellite datasets.
- Implemented spatial data visualization and environmental risk analytics.

Business Analyst Dashboard

Technologies: Python, SQL, Power BI, Excel

- Created an automated data visualization dashboard tracking revenue and performance.
 - Enhanced business decision-making efficiency through interactive analytics.
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REFERENCES

Bonface Wanguba • Manager, REACH Program Kenya • +254 716 674 340 •

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