

# Samuel Wainaina

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## Experience

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### Nuru Solutions – IoT Software Engineer Intern

Nov 2024 – Present

- Designed and developed an end-to-end IoT-based environmental sensing system for smart farming.
- Programmed Arduino microcontrollers in C++ to interface with temperature, humidity, and soil sensors.
- Enabled real-time sensor data transmission using GSM/GPRS modules from remote farm locations.
- Built and deployed a scalable cloud infrastructure using AWS services for secure data storage and processing.
- Developed a cross-platform mobile application in Flutter to visualize real-time farm data.
- Built a Django-based backend to support mobile app functionality, including user authentication, data access APIs, and farm profile management.

### JHUB Africa (The Hut Project) – Software Engineer Intern

May 2024 – Aug 2024

- Led the technical implementation of a property management system, guiding a team of 5 developers.
- Architected and implemented core microservices using Node.js, Express.js, and MongoDB.
- Integrated Daraja API for payments and ensured seamless system interoperability.
- Deployed and integrated the recommendation and issue classification model.
- Deployed the application using a CI/CD pipeline through GitHub Actions to Azure App Services, Render and Kubernetes.

## Education

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### Jomo Kenyatta University of Agriculture and Technology, Kenya

Sep 2021 – Dec 2025 (Expected)

BSc. Computer Science

### Moringa School, Kenya

May 2021 – July 2021

Software Programming

## Projects

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### Customer Clustering for Targeted Marketing

Feb 2025 – April 2025

- Implemented an unsupervised learning model using Self-Organizing Maps (SOM) to cluster customers based on behavioral and transactional data.
- Processed multi-dimensional data using Pandas and NumPy.
- Trained SOM with TensorFlow to uncover latent customer segments and visualize cluster boundaries.
- Enabled targeted marketing strategies by identifying actionable customer clusters.

### Stock Price Prediction Model

Sept 2024 – Jan 2025

- Developed a machine learning model to predict the stock price of ARM (Athi River Mining) in the Nairobi Stock Exchange (NSE) using historical data from 2018-2023.
- Implemented data preprocessing, feature engineering and model training using Scikit-learn, Pandas and NumPy.
- Evaluated the model using regression techniques and fine-tuned hyperparameters for better accuracy.

### Traffic Road Safety Classifier

Sept 2024 – Jan 2025

- Developed a machine learning model to classify road risk levels in Kenya based on past accidents, time of day, weather conditions and casualty types.
- Collected and processed road accident datasets from government sources and open data platforms.
- Used Scikit-learn to train and evaluate multiple classification models for risk assessment.

### Iam Verified

Feb 2024 – Apr 2024

- Developed an Admin Portal in React and integrated it with the microservices created using Node Js & Express Js.
- Developed a CI/CD pipeline using GitHub Actions for automated deployments.

### AppSecOps

May 2023 – June 2023

- Collaborated on a web app for secure mobile development with downloadable security code snippets.
- Developed the frontend in Nuxt Js and the backend in Node Js with MongoDB.

### E-Cart

July 2022 – Dec 2022

- Developed an e-commerce platform with a full-stack implementation and database design using Vue Js, Node Js and Firebase.

## Hospital Management System

*Feb 2022 – Mar 2022*

- Designed and developed a system for managing patient records, including admission and discharge details.
- Implemented features for tracking patient history and generating reports.

## Dooh-Mtaani

*June 2021 – July 2021*

- Collaborated with a team of 4 front-end engineers to develop the UI/UX for a financial management system.
- Built using HTML, CSS, JavaScript, JQuery, and Bootstrap.

## Technical Skills

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**Programming:** Java, C, C++, Python, Dart, JavaScript, TypeScript, PHP

**Frontend:** Angular, Vue.js, React, Flutter

**Backend:** Node.js, Express.js, FastApi, Laravel

**Databases:** MongoDB, MySQL, PostgreSQL, Firestore

**DevOps:** Docker, Kubernetes, CI/CD, GitHub Actions

**Cloud Platforms:** Azure, AWS, Google Cloud Platform

**Machine Learning:** Scikit-learn, TensorFlow, Azure ML Studio, Seaborn, SciPy, Pandas, Numpy

**Other:** Data Structures and Algorithms, Tailwind, Bootstrap, Material UI

## Certifications

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- **Azure Fundamentals (AZ-900)** – Microsoft (June 2023)
- **Alteryx Data Science and Machine Learning** (June 2023)
- **Software Development – PLP** (Dec 2022)
- **IBM Data Science Professional Certificate** (Aug 2022)

## Languages

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English (Fluent) — Kiswahili (Fluent)