

Akoto-Nimoh Christine Serwaa

AI/ML Engineer

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PROFILE

AI/ML engineer with direct experience building and deploying deep learning systems for medical imaging. Lead AI Developer on Idoni, a clinical decision-support platform for adolescent idiopathic scoliosis. Strong in PyTorch, computer vision, and the full ML lifecycle from data curation through deployment. ALA alumna (African Leadership University, Kigali).

EDUCATION

Bachelor of Engineering, Software Engineering (AI/ML Specialization) | African Leadership University, Kigali

- Relevant coursework: Machine Learning, Artificial Intelligence, Data Analysis, Algorithms, Software Engineering, Mathematics

Carnegie Mellon University — Bridge Program | CMU

- Hands-on coursework in data science, machine learning, and applied AI through projects and mentorship

Generative AI — Coursera |

Jan 2025 – Present

- Prompt engineering, fine-tuning large language models, ethical AI development, and deployment of generative models

FEATURED PROJECT — MEDICAL IMAGING

Lead AI Developer — Idoni (Clinical Validation, King Faisal Hospital, Rwanda) | idoni.vercel.app2025 – Present

AI + IoT platform for early detection and monitoring of adolescent idiopathic scoliosis. Currently in clinical validation with King Faisal Hospital, Rwanda.

- Designed and trained a DenseNet121 + SVM hybrid classifier for scoliosis screening from spinal images, achieving 95% accuracy on validation data
- Built a ResNet50 backbone with a regression head for Cobb angle measurement, reaching 3.4° mean absolute error — within the clinically accepted inter-rater margin
- Curated and preprocessed the imaging dataset end-to-end: labelling, augmentation, normalization, train/val/test splits, and quality checks
- Integrated an ESP32 + MPU-6050 IoT wearable that streams accelerometer and gyroscope data to track spinal progression between clinical visits
- Deployed the full stack on Vercel with a MongoDB Atlas backend; images are processed in memory.
- Documented experiments, failure modes, and limitations in the Chapter 4–6 technical report used for clinical validation discussions

WORK EXPERIENCE

AI Developer | Eleka Inc., Rwanda

Jun 2024 – Oct 2024

- Designed and implemented AI models to optimize business processes and enhance decision-making
- Collaborated with cross-functional teams to integrate AI solutions into scalable applications

Data Scientist Intern | Only Quality Data, Ghana

Jan 2025 – Apr 2025

- Developed a Heart Disease Prediction model using classical ML, improving diagnostic signal extraction from tabular clinical features
- Refined models iteratively with mentors, tuning hyperparameters and evaluating with stratified cross-validation

Data Scientist & ML Trainee | University of Tokyo GCI Lab

- Conducted EDA and preprocessing of structured and unstructured datasets for predictive modelling
- Built and fine-tuned deep learning architectures (CNNs, RNNs, LSTMs) for supervised and unsupervised tasks using PyTorch and TensorFlow
- Collaborated with researchers to design experiments and validate ML-driven hypotheses

Data Analyst Intern | Only Quality Data, Ghana

Sep 2024 – Dec 2024

- Analyzed customer churn and employee attrition using Power BI and DAX, producing actionable retention recommendations
- Designed interactive dashboards for budgeting and financial planning

ADDITIONAL PROJECTS

Pneumonia Detection from Chest X-rays | Python, TensorFlow, CNN

- Built a CNN classifier for pneumonia detection from chest radiographs, reaching 89% validation accuracy
- Implemented an image preprocessing pipeline with data augmentation to improve generalization

Unesis — AI Medical Translation & Diagnosis App | Winner, Meta × ALU Hackathon

- Co-developed a multilingual medical translation and diagnostic-assistance app for low-resource settings
- Integrated AI for symptom translation and preliminary diagnosis suggestions from text and medical image inputs
- Selected as winning team out of 20+ competing entries

Online Fraud Detection System | Python, Scikit-learn, Ensemble Learning

- Real-time fraud detection using ensemble methods and anomaly detection on high-volume transaction data

Recipe Recommendation Chatbot | Python, NLP, Machine Learning

- NLP-driven chatbot with semantic understanding and preference learning for personalized recommendations

TECHNICAL SKILLS

- **Languages:** Python (proficient), SQL (beginner), HTML/CSS, JavaScript
- **ML / DL:** PyTorch, TensorFlow, Scikit-learn, CNNs (DenseNet, ResNet), SVM, regression heads, data augmentation, transfer learning, LangChain
- **Computer Vision:** Medical image classification, regression on imaging data, preprocessing pipelines, image augmentation
- **Deployment & MLOps:** Vercel, MongoDB Atlas, in-memory inference, privacy-by-design deployment
- **IoT / Embedded:** ESP32, MPU-6050, Arduino, I2C sensor integration
- **Data & BI:** Pandas, NumPy, Power BI, DAX, exploratory data analysis

AWARDS & CERTIFICATIONS

- Mastercard Foundation Scholar — African Leadership University
- Winner, Meta × ALU Hackathon — Unesis team
- Data Analysis Associate — DataCamp
- Foundations of Generative AI — Udacity

LANGUAGES

- English — Fluent