

Machine Learning Engineer with over three years of freelancing experience in developing and deploying compact computer vision and NLP models for agricultural, medical, and industrial applications. Optimized models to achieve 20% efficiency gains through compression and hyperparameter tuning. Proficient in Python, TensorFlow, PyTorch, Kotlin, Flutter/Dart, Streamlit and Flask, with expertise in edge and mobile deployment.

EDUCATION

B.Eng (Hons) Electrical and Electronics Engineering, *Federal University of Technology Akure, Nigeria.*
CGPA: 4.39/5.0
Thesis: *Design and Evaluation of Single-lead ECG Acquisition System with Machine Learning Algorithm for Atrial Fibrillation Detection.*

NOV 2024

SKILLS

Programming	Python, C++, C#, MATLAB
Model Efficiency	Pruning, Quantization, ONNX Runtime, Edge ML, TFLite
Frameworks & Libraries	TensorFlow, PyTorch, Keras, Flask, Scikit-learn, OpenCV, Hugging Face
Deployment & Tools	Git, GitHub, Docker, ONNX, Google Suite, Microsoft Office
Domains	Computer Vision, NLP, Fault Detection, Medical Imaging, Signal Processing, Experiment Design

TECHNICAL EXPERIENCE

Freelance Machine Learning Engineer
Freelance

Oct 2020 — Present

- Collected and annotated 15,000+ images for segmentation and detection tasks using VGG Image Annotator, building robust datasets for agricultural and medical applications.
- Developed tiny computer vision models (e.g., 350 kB classification model) and deployed on Android, web, ESP32, and Raspberry Pi, achieving 99.25% accuracy in crop disease classification.
- Optimized U-Net models using differential evolution, reducing model size by 3x (13.6 MB to 4.5 MB) and improving IoU by 10% for cassava leaf disease segmentation.
- Integrated machine learning models into Arduino hardware for real-time applications like ECG monitoring for AFib detection and transformer fault detection.
- Leveraged Gemini 2.0-flash and Sentence Transformers to build a RAG-based Yoruba Proverbs Service that suggests proverbs and generates quizzes.

Multimodal Agric Hotspot Forecast
Personal Project (Presented at 18th Unilag Research Conference)

Aug 2025 — Present

- Collected datasets (ASAP_HOTSPOT, ACLED_CONFLICT, FAPAR_VIIRS) via APIs; processed to handle missing values, engineer features, and merge sources.
- Implemented UNet (raster forecast), LSTM (tabular forecast), and MLP (fusion/classification), achieving 93% 2-step-ahead forecast accuracy.
- Added explainability with SHAP and Grad-CAM.
- Currently refining data collection and training pipelines for potential performance improvement.

Yoruba Proverb Quiz App
Personal Project

Jan 2025 — Sep 2025

- Extracted proverb data from PDF using PyPDF and Gemini LM.
- Built NLP-based web and Android app with Flask, ChromaDB, Sentence Transformers, and Gemini 2.0-flash; processed 5,000+ proverbs with 95% scenario-matching accuracy for quiz generation.
- Deployed backend on AWS; integrated with Flutter-built Android app.

ECG Arrhythmia Detection System
Personal Project (University Thesis-Related)

Jan 2024 — Jan 2025

- Collected and processed ECG signals from PhysioNet and Shelab (resampling, filtering, windowing, feature extraction).
- Designed and built Arduino-based ECG acquisition hardware with ± 1 BPM precision.
- Integrated RandomForestClassifier, achieving 97% accuracy in atrial fibrillation detection.

Transformer Fault Detection System
Freelance/Industrial Project

Mar 2024 — Aug 2024

- Collected and filtered sensor data from 100+ transformers.
- Developed real-time ML models achieving 98% fault detection accuracy.
- Deployed on edge devices by porting algorithms to C++ using MicroMLGen library.

- Annotated plant leaf images using VGG Image Annotator.
- Designed novel U-Net-based segmentation model (<3 MB) outperforming 20+ architectures in IoU and Dice metrics.
- Built 500 KB classification model with 99.25% accuracy; deployed on Android/web (Flutter/Flask) and ESP32 (TFLite) with <1% performance drop.

ACTIVITIES & CERTIFICATIONS

Graduate Member, Nigeria Society of Engineers	Nov 2024 — Present
Member, International Association of Engineers	Nov 2025 — Present
Member, Data Scientist Network (DSN)	Jul 2019 — Present
Presenter, 18th Unilag Research Conference (Multimodal Agric Hotspot Forecast Project)	2025