Abdullahi Ahmad

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Professional Summary

Innovative Computer Engineer with a Second Class Upper degree from Ahmadu Bello University, Zaria, Nigeria, and 4+ years of experience in Machine Learning and Generative AI. Passionate about advancing artificial intelligence research and development, with expertise in building Retrieval-Augmented Generation (RAG) applications, Langchain, and LangGraph for workflow automation. Winner of the 2023 Global Huawei ICT Competition.Gained hands-on experience in configuring CCTV, biometric systems, and enterprise networking equipment during a Network Engineering Internship Highly motivated to contribute to cutting-edge research in AI and Computer Vision.

RESEARCH INTERESTS

Machine Learning,Retrieval Augmented Generation, and Large Language Models

EDUCATION

Ahmadu Bello University **Oct. 2018 - Nov. 2024**
BEng Computer Engineering - ***CGPA**: 3.69/5.00 (Upper Second Class)* *Zaria, Nigeria*
Supervisor: **Prof. Muhammad Bashir Muazu**

Institute of coputing and ICT Ahmadu Bello University **Aug. 2016 - Nov. 2018**
Diploma in Computer Engineering - ***CGPA**: 3.52/4.00* *Zaria, Nigeria*
Supervisor: **Mal. Nura Dari**

Science Secondary School Lautai Gumel, Jigawa **Sept. 2013 - July 2016**
West African Secondary School Certificate (W.A.S.S.C.E) *Jigawa, Nigeria*

MINOR EDUCATION

ASOM AI Machine Learning Summer School (Online), Saudi Arabia **May 2023**
Master Class on Artificial Intelligence (Online), Pantech Solution (India) **Aug. 2022**
Deep Learning Specialisation by Prof Adrew NG. (Online), Coursera **Jul 2018**
Machine Learning And Data Science A-Z Hands-on Python (Online), Udemy **Jul 2018**

Certifications

- Huawei Certified Academy Instructor
- Huawei Certified ICT Professional - Artificial Intelligence
- Huawei Certified ICT Associate - Artificial Intelligence
- Huawei Certified ICT Associate - Cloud Services
- Coursera TensorFlow Developer Certificate

INDUSTRY EXPERIENCE

INCEIF University **Sept. 2025 - Present**
Research Assistant *Kuala Lumpur, Malaysia*

- Developed a Python automation script to download, rename, and organize annual reports for publicly listed companies in Malaysia.
- Utilized the **Google Drive API** via the PyDrive library to programmatically upload and manage financial documents in a structured cloud environment.
- Engineered a system to automatically parse URLs and file metadata to standardize naming conventions, significantly improving data retrieval and organization for research purposes.
- Developed an AI-driven data extraction system using LangChain (RAG) and Gemini Pro to parse and structure the OIC Digital Economy Index from a large document into a SQLite database.
- Built a multi-functional analytics dashboard using Streamlit and Metabase, featuring a natural language (Text-to-SQL) query agent and comparative visualizations.

- Enabled data-driven insights through interactive charts (Plotly, Metabase) for country profiling, leaderboards, and geographic analysis across 57 nations.
- Built an end-to-end AI system to automate the extraction and analysis of financial and qualitative data from multiple corporate annual reports.
- Utilized a **RAG** architecture with **Gemini** to populate a structured database, enabling comparative analysis via a **Metabase** dashboard.

Huawei Technologies **NYSC Intern**
Network Security and Data Centre Configuration *Nigeria*

- Contributed as a team member in the setup and configuration of a data centre for the Nigerian Customs Service, ensuring robust network infrastructure.
- Configured **Huawei Firewall**, **AntiDDoS**, and **FireHunter** systems to enhance security and performance of critical data centre operations.
- Performed regular troubleshooting and maintenance checkups for data centres of UBEC, NERC, CBN, and FIRS, ensuring operational reliability and uptime.
- Conducted network security training for selected staff of the Federal Ministry of Finance, enhancing their capabilities in managing and securing network systems.

Nafabat.AI **Jan. 2023 - July 2025**
Machine Engineer Intern *California, U.S.A*

- Finetuned a large video dataset using **LlamaVID** to recognized shoplipting using **CCTV** Camera.
- Developed a RAG application to query influxdb data
- Developed a End to End Retrieval Augmented Generation Application and Deploy using Gradio

Cosmopolitan University, Abuja **Nov. 2024 – Apr. 2025**
Network Engineer Intern *Abuja, Nigeria*

- Installed and configured **Dahua CCTV** surveillance systems for key locations including the library, main gate, and school auditorium.
- Took inventory of equipment in the Computer Engineering Lab and the School **Maker Space.**
- Configured **network infrastructure** for boys' and girls' student hostels.
- Set up **ZKTeco biometric systems** for staff and student attendance management.
- Configured **Huawei AirEngine 5761R-11** for extended wireless coverage.
- Assisted the Head of IT in delivering technical support and maintenance for the school and hostel infrastructure.

PUBLICATIONS & RESEARCH

- **Published**

[1] Muazu, M. B., Bayero, A., Ahmad, A., Ibrahim, S., & Dahir, D. I. (2025). *A Performance–Efficiency Benchmark of Transformer Models for Code-Mixed Hausa Sentiment Analysis.* International Journal of Information Management Data Insights.

- **Unpublished**

[1] Abdullahi, A. (2024). *An Artificial Intelligence Smart Waste Robot.* [Poster Presentation]. Department of Computer Engineering, Ahmadu Bello University, Nigeria.

[2] Abdullahi, A. (2024). *Software Development Agent: An AI-Driven Framework for Automating the Software Development Lifecycle.*

[3] Abdullahi, A. (2024). *NeuroScan: AI-Powered Brain Tumor Classification Using Deep Learning*

[4] Abdullahi, A. (2024). *Developing an LLM-Powered Coding Agent with LangGraph: A Multi-Agent Workflow for Code Generation and Analysis*

[5] Abdullahi, A. (2024). *Developing an AI-Driven Educational Tool for Personalized Learning Paths: A Large Language Model-Based Workflow for Adaptive Content Delivery*

[6] Abdullahi, A. (2024). *Heart Disease Classification Using Random Forest and Support Vector Machine Algorithms*

AWARDS & ACCOLADES

- **Grand Prize Winner, Huawei ICT Competition Global Final - Innovation/AI Track** - May 2023
- **Grand Prize, Huawei ICT Competition Regional Final (Southern Africa) - Innovation/AI Track** - March 2020

TALKS

Nigeria Computer Society AI Submit - Project Presentation of an AI Assistive Glass for visually impaired

PROJECTS

Medical Knowledge Graph RAG System with Qdrant and Neo4j **Nov. 2025 – Dec. 2025**

- Architected a production-ready hybrid RAG system combining Qdrant vector database and Neo4j graph database to answer complex medical queries using 39,000+ UMLS concepts enriched with PubMed literature and evidence-based citations.
- Engineered a multi-modal retrieval pipeline integrating OpenAI embeddings (text-embedding-3-small) for semantic search with Neo4j graph traversal algorithms, achieving sub-second query response times and 0.996 answer relevancy score (RAGAS evaluation).
- Designed an intelligent LLM-powered tool calling framework where GPT-4 dynamically selects and orchestrates graph enrichment operations (relationship discovery, path finding, concept details) for context-aware medical information retrieval.
- Built comprehensive data pipeline to extract, transform, and load UMLS Metathesaurus files (MRCONSO, MRREL, MRSTY, MRDEF) into Neo4j, establishing a structured knowledge graph with typed relationships, semantic properties, and literature-derived triples.
- Implemented automated evaluation framework using RAGAS metrics (faithfulness, answer relevancy, context precision, context recall) to validate system reliability and ensure accurate medical information delivery.
- Developed and deployed full-stack solution with interactive Gradio web interface, Docker containerization for Qdrant, and comprehensive documentation, resulting in a production-ready medical AI system.

End-to-End Customer Segmentation Strategy Platform **Aug. 2025 – Sep. 2025**

- Developed a complete customer analytics platform in Python to segment customers and drive targeted marketing strategies.
- Engineered an unsupervised clustering model (K-Means) to identify 5 distinct customer personas from behavioral data.
- Built and deployed a predictive model (Random Forest) with 95%+ accuracy to automatically classify new customers.
- Created a multi-page interactive dashboard using Streamlit for strategic analysis, including profitability modeling and a new customer prediction tool.

AI-Powered Phishing Email Detector **Sep. 2025**

- Developed a complete machine learning pipeline to classify emails as "Phishing" or "Safe" using Python, scikit-learn, and Pandas.
- Engineered advanced text and metadata features (e.g., keyword analysis, text statistics) and progressively improved model performance by implementing and comparing Naive Bayes, Linear SVC, and XGBoost, achieving over 99% accuracy.
- Built and deployed an interactive web application using Streamlit to serve the trained XGBoost model, allowing for real-time email analysis.

SmartFin Analytics: Multi-Agent Financial Analysis System **September 2025**

- Designed and implemented a multi-agent system using LangGraph for risk analysis, fraud detection, and financial planning, processing CSV, JSON, and API-based financial data.
- Developed machine learning models, including Isolation Forest for anomaly detection and Prophet for time-series forecasting, achieving robust fraud detection and accurate financial projections.
- Built a responsive Flask web interface with Tailwind CSS and Plotly visualizations, enabling real-time risk scoring, fraud flagging, and downloadable PDF reports.

Network Failure Prediction on CNFs 5GC with eBPF **July 2022 to Aug. 2022**

- Collaborated to propose a machine Learning Model to predict Network failure on CNFs 5G C
- Developed a model using Long short term memory(LSTM)
- Collaborated to derive an optimised model architecture achieving an improved accuracy of 88.3%.

SmartWaste **March 2023 - July. 2023**

- An AI robot that use deep learning model to detect non-biodegradable waste and use robotic arm to dispose the waste inside a bin.
- Spearheaded the development of SmartWaste prototype.

Intelligent PDF Summarizer Web Application **Aug. 2025 – Present**

- Engineered a full-stack web application to automatically summarize PDF documents using a custom-built AI agent.
- Developed the backend logic using Python, LangChain for AI workflow orchestration, and PyPDF for text extraction.
- Built an interactive and user-friendly front-end with Streamlit, allowing users to upload files, select AI models (GPT-3.5/GPT-4), customize summary length, and download the results as a PDF.
- Integrated the OpenAI API for advanced text generation and implemented features like PDF creation for summaries using FPDF2.

AI-Powered Personal Calendar Assistant **Sep. 2025**

- Developed a full-stack personal assistant application using Python to manage Google Calendar events.
- Integrated the Google Calendar API for event fetching/management and the Gmail API for sending automated email notifications for upcoming events.
- Engineered a natural language processing (NLP) feature using LangChain and Google's Gemini Pro model, enabling users to create and edit calendar events with conversational commands.
- Built an interactive web interface with Streamlit, featuring a weekly timeline visualization using Plotly for a clear overview of the user's schedule.

Breast Cancer Classification using Machine Learning **2025**

- Developed a machine learning pipeline to classify tumors as malignant or benign using the Breast Cancer Wisconsin dataset.
- Implemented and evaluated Logistic Regression, Random Forest, and SVM models, achieving high accuracy and ROC-AUC scores.
- Conducted exploratory data analysis and visualized feature importance, identifying key predictors like worst perimeter and mean concave points.
- Project repository available at GitHub.

VOLUNTEERING

National Association of Jigawa State Student ICT Bootcamp **Feb. 2024**
ICT Instructor *Nigeria*

Ahmadu Bello University **Feb. 2024 –**
Tutor - ML Fundamentals (COEN417) *Zaria, Nigeria*

Computer Engineering, Ahmadu Bello University **Dec. 2019**
Instructor - Python Bootcamp for Kids *Zaria, Nigeria*

TECHNICAL SKILLS

Programming Languages: Python, MATLAB, LaTeX, ROS
ML Frameworks: MindSpore, PyTorch, Tensorflow, Keras, Apache-Spark, Scikit-Learn, XGBoost
Cloud Services: GCP, AWS, Microsoft Azure, Huawei Cloud Platform
Operating System: Linux (Ubuntu), Windows
Big Data Tools: Hadoop, Apache Spark, Apache Hive, Hbase, MySQL, Huawei MapReduce Service
Microprocessors: Raspberry pi (zero, 4), Arduino, ESP32
Soft Skills: Leadership, Problem solving, Team Player, Time Management, Interpersonal Skills

PROFESSIONAL MEMBERSHIPS

- Nigerian Computer Society (NCS), member
- Data Science Nigeria, member
- Nigerian Society of Engineers (NSE), Graduate Member

Leadership and Community Involvement

- Organized workshops on AI technologies for youth empowerment in Babura LGA.
- Mentored aspiring engineers on building projects using AI and robotics.
- Actively shared knowledge on Langchain and Generative AI applications with local and global communities.

HOBBIES

Watching anime; playing football; talks about AI and the future

REFERENCES

- **Prof. Muhammad Bashir Muazu**
  Professor of Computer Engineering, Ahmadu Bello University, Zaria
  Email: mbmuazu@abu.edu.ng
  Phone: +234-803-727-2365

- **Dr. Bashir Muhammad**
  Senior Generative AI Architect
  Amazon Web Services
  Email: bashirm8000@gmail.com
  Phone: +1 (501) 356-7983

- **Dr. Zaharuddeen Haruna**
  Lecturer and Researcher, AI Robotics
  Department of Computer Engineering, Ahmadu Bello University
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