

Curriculum Vitae

Role	AI Engineer / Consultant
First names:	Ricky Sambo
Family name:	Macharm
Nationality:	Nigerian
Place of residence:	Germany

Education:

INSTITUTION [FROM – TO]	DEGREE(S) OR DIPLOMA(S) OBTAINED
WorldQuant University, 2018 – 2021	Master of Science in Financial Engineering
Abubakar Tafawa Balewa University, 1995 – 2000	Bachelor of Engineering in Electrical & Electronics Engineering

Language skills: Indicate competence from A1 (beginner) to C2 (proficient)

LANGUAGE	READING	SPEAKING	WRITING
English	C2	C2	C2
German	A2	A2	A2
Hausa	B2	B2	B2

Other skills: (e.g. computer literacy, etc.):	Programming Languages & Version Control: Python, Git; Databases: MongoDB, MySQL, DuckDB, Pinecone; Data Analysis & Machine Learning Libraries: Pandas, Matplotlib, Scikit-Learn, XGBoost, FastAI, Langchain, DSPy, Numba, PyTorch; Web Development Frameworks: Dash, Streamlit, FastAPI; Operating Systems: Windows, Windows Subsystem for Linux 2 (WSL2); Virtualization & Containers: Docker; Version Control & Collaboration Tools: Git, GitHub; Integrated Development Environments (IDEs): Visual Studio Code, RStudio, NeoVim; Documentation & Publishing Tools: Quarto; Web Servers & API Tools: Uvicorn, FastAPI.
Present position:	Data Science Teaching Assistant, WorldQuant University
Years within the firm	3+

Key qualifications

- **Overall Experience:** 20+ years of experience leading teams and managing projects, alongside 7+ years of hands-on teaching and developing algorithms in Python, specializing in Machine Learning (ML) and Deep Learning (DL); Demonstrated expertise in guiding students and teams through end-to-end project development, focusing on cutting-edge technologies such as Retrieval-Augmented Generation (RAG), LangChain, Pinecone, GPT-3, Llama 2 and DeepSeek - R1.
- **Specific Experience in RAG:**
 - *Teaching & Mentorship:* Guided students for 3+ years in building projects involving machine learning, web applications, RAG, LangChain, Pinecone, GPT-4, DeepSeek and Llama 2; Designed and delivered comprehensive training materials and videos on ML/AI topics; Provided practical guidance to students, enabling them to successfully implement AI solutions in real-world applications.
 - *Project Development:* Question-and-Answer Chatbot: Developed a chatbot integrating retrieval-augmented generation, improving response accuracy and contextual relevance. CV Parser: Built an intelligent CV parsing tool leveraging ML and NLP techniques to extract and organize information efficiently. End-to-End RAG Systems: Worked on end-to-end projects combining ML models, RAG pipelines, and deployment using modern web frameworks.
- **Technical Skills:**
 - *Programming & Development:* Proficient in Python for algorithm development, ML, and DL projects. Experienced in building and deploying web applications and AI-powered solutions.
 - *ML/AI Expertise:* Skilled in designing and training machine learning models, including supervised, unsupervised, and deep learning approaches.
 - *Retrieval-Augmented Generation (RAG):* Extensive experience in developing RAG pipelines for intelligent applications.
 - *Technical Training:* Proven ability to teach and mentor students on ML/AI concepts, develop training materials, and create instructional videos.
 - *Version Control:* Advanced proficiency in Git and GitHub, including workflow management, collaboration, and CI/CD integration.
- **Development Cooperation Experience:**
 - End-user Finance and Payment System to Improve Access of Refugee and Host Community Households to Sustainable Energy Products in Ethiopia: Done with the Energy Solutions in Displacement Settings (ESDS) project of Deutsche Gesellschaft für Internationale Zusammenarbeit (or GIZ, the German Development Cooperation) in Ethiopia.
 - This project focuses on assessing the implementation of a Result-Based Financing (RBF) mechanism for promoting and disseminating improved cook stoves (ICS) in Ethiopia. The project is undertaken for GIZ EnDev Ethiopia, a multi-donor partnership that promotes access to modern energy services in developing countries.

COUNTRY	DATE FROM – DATE TO	COUNTRY	DATE FROM – DATE TO
Nigeria	2019 – 2020	Ethiopia	2021-2022

Professional experience

DATE	Days	LOCATION	COMPANY	POSITION	DESCRIPTION
03/2022-today		Online	WorldQuant University	Teaching Assistant / Data Science	I guided learners through eight projects using tools like Pandas, Matplotlib, and Scikit-learn to build machine learning models such as XGBoost, random forests, and ARMA/GARCH for real-world problems. Students developed skills in data pipelines, imbalanced data handling, and visualization while exploring ethical considerations like bias and fairness in modeling. I taught core concepts of AI and deep learning, focusing on PyTorch, Transformers, CNNs, and generative AI for tasks like image classification and object detection. Projects emphasized hands-on learning, data preparation, debugging, and the ethical and environmental impacts of AI models. Emphasized practical skills such as dashboard development with Plotly Dash and API deployment, equipping learners to implement end-to-end solutions in machine learning and computer vision. Worked on developing training materials and shooting videos Developing course materials on NLP and building large language models to assist students in querying the materials they are studying

DATE	Days	LOCATION	COMPANY	POSITION	DESCRIPTION
01/2018 - today		online, Ethiopia, Nigeria	Freelance as Sisen-gAI	Data Scientist Researcher	I have contributed to low-resourced machine translation through participatory research. My work includes a paper on African languages' resource challenges, published on ResearchGate, and research on AfriMTE and AfriCOMET, empowering COMET for African languages to enhance inclusivity in machine translation. I am also developing the Berom-English Corpus to preserve and expand this under-resourced language. Committed to language preservation and accessibility, I have mentored students for over 3 years on ML and AI projects, including web apps, RAG, LangChain, and Pinecone, using GPT-3 and Llama 2, and created training materials to support real-world AI applications.
06/2021	36	Ethiopia	Energy Solutions in Displacement Settings (ESDS), Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)	External Consultant	developing End-user Finance and Payment System to Improve Access of Refugee and Host Community Households to Sustainable Energy Products in Ethiopia.
06/2022.	80	Ethiopia	Green World Energy Saving Technology Device Manufacturing PLC	Team Lead	This project evaluates the implementation of a Result-Based Financing (RBF) mechanism to promote and distribute improved cook stoves (ICS) in Ethiopia, in collaboration with GIZ EnDev Ethiopia, a multi-donor initiative advancing modern energy access in developing countries.

Publications

1. **Participatory Research for Low-resourced Machine Translation: A Case Study in African Languages** *A paper we co-authored on Low-resourced Machine Translation*
2. **AfriMTE and AfriCOMET: Empowering COMET to Embrace Under-resourced African Languages**