Data Scientist || Machine Learning Researcher

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JOHN EZEMBU

Professional Summary

A results-driven and detail-oriented Data Science and Machine Learning Researcher with a First-Class Honors in Computer Science, complemented by hands-on experience in AI-driven solutions, data integration, and research. Skilled in translating complex machine learning concepts into actionable insights, I have successfully applied AI to enhance efficiency and deliver measurable business outcomes. With a strong foundation in Python, SQL, and Machine learning, and expertise in generative AI and workflow optimization, I bring a proven track record in solution selling and communicating data-driven value to non-technical stakeholders. Passionate about leveraging IoT, sensor data fusion, and personalized interventions to design innovative systems, I am eager to contribute to high-impact research, particularly in improving workplace health and productivity through persuasive technology in hybrid environments.

Education

BACHELOR OF SCIENCE IN COMPUTER SCIENCE – Bowen University – Iwo, Osun State.   July 2024
Majors: Data Management, Software Engineering, Machine Learning, Project Management.   CGPA: 4.61/5.0

Skills

Research Design and Methodology
Qualitative Research, Statistical Analysis, Data Collection and Sensor Integration, Prototyping and System Development.

Python
Libraries: pandas, matplotlib, ggplot2, BeautifulSoup4, django, numpy.

AI & Automation
Agentic AI, Generative AI, RAG, workflow automation (n8n, Google AI Studio).

Data Integration
API integration, SQL manipulation, event-driven data flows, embeddings, and data quality/governance.

Technical Communication
Translating technical AI concepts to business stakeholders in plain language.

Machine Learning
Tools: Scikit-learn, PyTorch, Jupyter Notebooks, Google Colab

Projects

MULTI-MODAL DATA FUSION WITH FEDERATED MULTI-HEAD ATTENTION FOR DIABETIC RETINOPATHY SEVERITY CLASSIFICATION – Personal Research Paper | Paper in-view on IEEE   July 2025

- Developed a **multi-modal deep learning model** for diabetic retinopathy (DR) severity classification by fusing **retinal fundus images** with **electronic health records (EHR)** using a **multi-head attention mechanism**.
- Implemented **federated learning** to ensure privacy-preserving decentralized training across multiple clinical sites using **FedML**, allowing model training without sharing sensitive data.
- Visualized **attention heatmaps** to showcase how patient health factors influence the focus on specific retinal features, offering clinically relevant insights for medical practitioners.

CREDITWORTHINESS PREDICTION MODEL (Python, Scikit-Learn, Power BI)   January 2025

- Built a classification model (**CatBoost, XGBoost, Logistic Regression, and Random Forest**) to assess individual creditworthiness using customer financial and demographic data.
- Applied **SMOTE** for class imbalance handling and achieved 87% F1-score on test data.
- Interpreted model using **SHAP** values and presented insights via a **Power BI** dashboard.

REAL ESTATE PRICE PREDICTION (Python, Scikit-Learn)   July 2024

- Developed a **linear regression** model to predict housing prices using historical real estate data.
- Engineered features from numerical and categorical attributes, achieving an **R²** of **0.89**.
- Visualized results using **matplotlib** and **seaborn** to explain pricing trends and regional disparities.

COVID-19 DATA EXPLORATION – Personal Project   September 2023

- Utilized **SQL** to analyze **336000** rows of data based on the amount of COVID-19 cases and the total number of deaths recorded.
- Implemented the **CTE** concept to indicate the percentage of the population that received at least one COVID-19 vaccine.
- Executed the creating **VIEWS** concept to store data for later visualizations.
- Applied regression and machine learning to produce a final model with an accuracy of **88%** and a lift of **34%**.
- Aggregated and visualized the data by using **pandas, matplotlib,** and **word cloud** to compile a professional report.

Work Experience

RETAIL BUSINESS ANALYST – MERISTEM SECURITIES LTD **–** Ikoyi, Lagos State, Nigeria.   February 2025 - Present

- Utilized **Python** and **SQL** to analyze customer transaction data, leading to the development of targeted **marketing** strategies that increased product uptake by **15%**.
- Collaborated with the finance team to create dynamic dashboards using **Power BI**, streamlining monthly reporting processes and reducing report generation time by **30%**.
- Identified inefficiencies in the account opening process and implemented automated solutions, resulting in a **20%** reduction in processing time.

DATA-SCIENTIST – VERBUM NETWORKS LTD **–** Oyo State, Nigeria.   January 2023 - July 2024

- Implemented a new reporting style using **MS Excel** Pivot and VBA, which helped reduce processing time by **50%**.
- Generated three process reports weekly for continuous accounts for financial and developmental analysis.
- Generated a comprehensive data visualization dashboard, which led to actionable insights for the company.

DATA-ANALYST – BOVAS & COMPANY LTD – VI, Lagos State, Nigeria.   January 2022 - October 2022

- Facilitated Real-Time truck tracking by utilizing the FLEETRAK web application and an IOT tracking device.
- Facilitated the migration of the company's computer systems to the company's domain through the use of a scripting language.
- Organized general maintenance of the company's computer systems and generated visualizable reports.

Volunteering

FOUNDER, BOWEN TECH WEEK – BOWEN UNIVERSITY   January 2024 - May 2024

- At Bowen University, I served as the convener of our largest-ever tech event, where I orchestrated a collaboration involving debate participants from six other universities and secured sponsorships from major telecommunication brands, including MTN and Nexascale. Additionally, I leveraged my industry connections to invite some of Nigeria's most influential tech content creators as keynote speakers. This experience not only underscored my ability to manage large-scale initiatives but also reinforced my skills in cross-functional communication, resource management, and strategic planning.

GENERAL SECRETARY, NACOS BOWEN – BOWEN UNIVERSITY   January 2023 - November 2024

- At Bowen University, I served as a key administrative and organizational leader, responsible for coordinating meetings, maintaining official records, and managing communication for the Nigeria Association of Computing Students (NACOS) Bowen University Chapter. Additionally, I managed membership databases, addressed member concerns, facilitated stakeholder engagement, and ensured the smooth execution of organizational activities and goals.