

Mustapha Unubi Momoh

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Interests

Machine Learning, Data Science, Generative AI, and Data Visualization

Education

- **University of Waterloo, Kitchener Ontario** **Sept 2022 – Aug 2024**
Master of Applied Science, Systems Design Engineering
 - **Thesis:** Remote Medical Diagnosis in Virtual Reality: A Mixed-methods Approach to Understanding Patients and Physicians' Perceptions through Thematic Analysis and Regression Discontinuity Design.
 - Tools:** Causal inference, Thematic analysis, Data Science
 - **Relevant Coursework:**
 - * Advanced Topics in Pattern Recognition (SYDE 770)
 - 🧩 Project Paper: Comparative Analysis: Real-World Weighted Cross-Entropy Loss Functions Across Various Activation Functions
 - * InfoViz for AI Explainability (CS 889)
 - 🧩 Project Paper: Interactive Dashboard for Text Label Exploration
 - * Data Structure in Health Informatics (CS 792)
 - 🧩 Depression Detection System with Decision Trees and LIME
 - * Time Series Analysis (SYDE 631)
 - 🧩 Understanding Impact of Greenhouse Gas Emissions on Global Warming with Structural Time Series
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Work Experience

- **Amazon.com** **Waterloo, On**
AWS Community Builder in Machine Learning and GenAI *February 2024 – present*
 - Fostering a learning community around AWS services and Machine Learning.
- **Stealth startup (Contract)** **New York, NY (Remote)**
Machine Learning Engineer (Data Science Team lead) *March 2024 - May 2024*
 - Trained, packaged, deployed deeplearning models for spoofing verification for credit card and spend management companies.
 - Worked with VP of Engineering to set up webhooks, API gateway, and other lambda layers, and to write the API specification and technical report detailing the benchmarking results.
 - Led the Data Science team in pitching to two corporate credit card and spend management companies with positive feedback.
 - Tools:** AWS Lambda, Deeplearning, Amazon Sagemaker, API gateway, SQS, TensorFlow serving.
- **Capgemini, Checkcare, Stealth Startups, Upwork** **Remote**
Data Scientist and Generative AI Engineer *April 2023 – present*
 - Worked as a Generative AI consultant for Copilot development for a Visual programming language.
 - Wrote AWS architected solutions for startups and companies including Medical GenAI, Injury Claims LLM-based processing, and AI-assisted compliance check for Finance Explainer videos.

- Designed AWS architecture for efficient image processing for a bank check processing company.
- Worked as the AI engineer for a proof of concept (POC) of an AI shopping Assistant similar to Shopify's assistant but tailored to the client's inventory.
- Built a Beauty Retail Generative AI POC using PaLM-2, Stable Diffusion, and Vertex AI.
- Developed a Generative AI POC that generates new tutorial articles and slides based on Atlassian Confluence articles.
- Worked on a project for Causal understanding of REM sleep, Deep sleep, and Sleep latency for a company.

Tools: Knowledge graphs, Amazon Neptune, neo4j, Amazon Kendra, Named Entity extraction (NER), Intent recognition (with finetuned BERT), AWS Bedrock, Large Language Models (Titan), Text embedding, Vector DBs, Amazon Kendra, Streamlit, AWS EC2, Explainable AI with SHAP, Bayesian Causal Inference, and Machine Learning.

- *Founder and Data Analytics Trainer, Karaam Analytics, Lagos, Nigeria* June 2021 – Dec. 2022
- *Data Science & STEM instructor, Data Scientists Network and Tuteria Limited* April 2018 – Dec. 2021

Teaching, Leadership, and Outreach

- *Teaching Assistant for Linear Algebra (SYDE 114, UWaterloo)* 2023 - 2024
- *Teaching Assistant for 3D visualization in Autocad (SYDE 101L, UWaterloo)* Fall 2023
- *Code of Conduct Volunteer (Django 2022 Conference, Porto)* July 2022 – Sept 2022
- *Coding Instructor (Code Tenderloin, San Francisco, US)* Feb 2022 – March 2022
- *Teaching Assistant for 2021 Code in Place, Stanford University* April 2021 – May 2021

Projects and Hackathons

Interactive Visualizations of Les Miserables Character Relationships with D3.js

- Skills: Dimensionality Reduction (t-SNE, MDS, PCA), D3.js, CSS

2024 Nvidia's Generative AI on RTX PCs Contest

- Project: Simplifying Documentation review on Atlassian Confluence with TensorRT-LLM and LLAMA2
- Skills: Quantization, Compiling LLMs to TensorRT-LLM, Docker, Streamlit

2022 Microsoft Responsible AI Hackathon

- Project: Primary Open Angle Glaucoma - Deep Learning Assisted Diagnosis
- Skills: Deep learning, Azure, Fine-tuning

2022 SAS Hackathon

- Project: End-to-End Marketing Analytics to facilitate the development of customer retention programs
- Skills: SAS Viya, SAS Analytics Studio, Microsoft SQL Server, Python

2022 AWS Data Exchange for APIs Challenge: Security Vulnerability Check and Web Traffic Forecasting

2022 Amazon Sustainability Data Initiative (ASDI) Global Hackathon: Predicting Air Quality

2021 Blackathon (1st place)

- Project: AI Assistive Technology for the Visually Impaired and Blind

Technical Competencies

- **Software and Languages:** Python, SAS, D3.js, R, SQL, Excel, MATLAB
- **Frameworks:** keras, pytorch, OpenCV, pandas, numpy, scikit learn, PyTorch, fastai, TensorFlow, Django
- **Visualization:** D3.js, matplotlib, seaborn, Tableau, Power BI, SAS Visual Analytics Studio
- **Cloud:** AWS, Google Cloud Platform, Heroku, Microsoft Azure