Mustapha Unubi Momoh

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Interests

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

Education

University of Waterloo, Kitchener Ontario
Master of Applied Science, Systems Design Engineering

Sept 2022 – Aug 2024

Thesis: Remote Medical Diagnosis in Virtual Reality: A Mixed-methods approach to understanding Patients and Physicians' Perceptions through Thematic Analysis and Regression Discontinuity Design.
Skills: Causal inference, thematic analysis, Data Science

Courses:
SYDE 770 (Advanced Topics in Communication and Information Systems: Advanced Topics in Pattern Recognition)
Project Paper: Comparative Analysis: Real-World Weighted Cross-Entropy Loss Functions Across Various Activation Functions

CS 889 (InfoViz for AI Explainability)
Project Paper: Interactive Dashboard for Text Label Exploration

CS 792 (Data Structure in Health Informatics)
Project Demo: Depression Detection System with Decision Trees and LIME

SYDE 631 (Time Series Analysis)
Project: Understanding Impact of Greenhouse Gas Emissions on Global Warming with Structural Time Series.

Work Experience

AWS Community Builder in Machine Learning and GenAI

March 2024 - present

Machine Learning Engineer at a Stealth startup (Contract)
- Spoofing verification for credit card and spend management companies.
- Pitched the product to two corporate credit card and spend management companies.
  Skills: AWS Lambda, Deeplearning, Amazon Sagemaker, API gateway, SQS, TensorFlow serving.

March 2024 – May 2024

Data Scientist and Generative AI Developer (Upwork)
Clients: Several companies (contract).
- Generative AI consultant for Copilot development for Visual programming.
- Built AWS well-architected solutions for startups and companies including Medical GenAI, Injury Claims LLM-

April 2023 – present

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assisted processing, Image upscaling, and OCR for check management.
- Worked on a POC of an AI shopping Assistant similar to Shopify's shop.app but tailored to the client's inventory.
  Skills: AI agents, Knowledge graphs, Amazon Neptune, neo4j, Amazon kendra, Entity extraction, Intent recognition (with finetuned BERT)
- Worked on Beauty Retail Generative AI POC using PaLM-2, Stable Diffusion, and Vertex AI.
  Skills: finetuning (text-bison and stable diffusion), GCP, vertex AI
- Developed a Generative AI POC that generates new tutorial articles and slides based on Atlassian Confluence articles. ([Demo](#))
  Skills: AWS Bedrock, Large Language Models (Titan), text embedding, Vector DBs, Amazon Kendra, Streamlit, AWS EC2

- Worked on Causal understanding of REM sleep, Deep sleep, and sleep latency project with TabNet, SHAP, and PyMC
  Skills: Explainable AI with SHAP, Bayesian Causal Inference, and Machine Learning.

Founder and Analytics Trainer, *Karaam Analytics, Lagos, Nigeria.*   June 2021 – Dec. 2022

- Communicated with clients to identify their needs and goals.
- Developed course contents and delivered business analytics training to individuals and corporates including Airtel Nigeria (Telecoms).

Data Science and STEM instructor: Data Scientists Network and Tuteria Limited   April 2018 – Dec. 2021
Developed course content covering statistics for business analytics and provided training on analytics and applied machine learning.
- Provided training on SQL and Python for business intelligence.

Teaching, leadership, and Outreach	**Teaching Assistant for SYDE 114** (Matrices and Linear Systems), University of Waterloo.	Spring 2023 and 2024, and Winter 2024
	Teaching Assistant for SYDE 101L (Communications in Systems Design Engineering-Visualization), University of Waterloo	Fall 2023
	Code of Conduct Volunteer (Django 2022 Conference, Porto)	July 2022 – Sept 2022
	• *Executing the COC for the 2022 conference*	
	Coding Instructor (Code Tenderloin, San Francisco, US)	Feb 2022 – March 202
	• Coach both adult and youth cohorts (in Code Ramp) on the fundamentals of web development for job readiness.	
	Teaching Assistant for 2021 Code in Place, Stanford University	April 2021 – May 2021

Projects and Hackathons
- Simplifying Documentation review on Atlassian Confluence with TensorRT-LLM and LLAMA2 ([link](#))

- Interactive Visualization of Les Miserables Character Relationships with D3.js (link)   Winter 2023
- Visualizing 2D projections of Fashion MNIST (link)

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

2022 Microsoft Responsible AI Hackathon   June 2022
Project: Primary Open Angle Glaucoma - Deep Learning Assisted Diagnosis (link)
Skills: Deeplearning, Azure, Fine-tuning

2022 SAS Hackathon   Feb. 2022 – March 2022
Project: An End-to-End Marketing Analytics Pipeline to facilitate the development of customer retention programs. (link)
Skills: SAS Viya, SAS Analytics Studio, Microsoft SQL Server, Python

2021 Blackathon (1st place)   Feb. 2021 – March 2021
Project: AI Assistive Technology for the Visually Impaired and Blind (link)

Scholarships and Honors

International Master's Award of Excellence (University of Waterloo**)**   2022 – 2024

Section Leader Code in Place, Stanford University   May 2021
Technical Paper Presentation Award, SPE International   August 2016
Second Best Graduating Student, University of Port Harcourt   Feb. 2016
TOTAL E & P Undergraduate Scholarship, TotalEnergies   2012 - 2016

Technical Competencies

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