Emerald Henry

A.I Engineer | MLOps Engineer

emeraldhenry3@gmail.com
LinkedIn
Github , Portfolio Page
(+234)70-3991-8524

RELEVANT WORK EXPERIENCE (link)

LCA | Remote
Data Science & ML Tutor **OCT 2023 - Present**

- Creating and executing end-to-end machine learning applications with a specialization in Natural Language Processing (NLP). Proficient in leveraging Language Models (LLMs) from HuggingFace, Google, and OpenAI. Experienced in utilizing frameworks like Langchain and deploying solutions in both AWS and Azure production environments .
- Developing comprehensive training materials, including notebooks and files, for Data Analysis using R, Database Management (MySQL), and MLOps practices (Docker, FastAPI, CLI scripts, CI/CD, and deployment with Azure and AWS technologies).

Clinton Health | Hybrid
Data Scientist **JAN 2023 - OCT 2023**

- Spearheaded the development and management of Healthcare Databases tailored for the Nigerian National Healthcare Sector.
- Conducted exploratory data analysis (EDA) to extract meaningful insights and designed Dashboards to facilitate data-driven decision-making within the Nigerian National Healthcare Sector.
- Innovatively crafted HTML-based tools to streamline the collection of healthcare data from both patients and healthcare facilities.

Covenant University | Onsite
A.I Researcher **AUG 2022 - JAN 2023**

- Investigated Fine-tuning Foundation CNN Models for automated diagnosis of lesions and cancer from various medical images (MRI, CT, Ultrasound, WSI).
- Explored the application of State-of-the-Art Hybrid Vision Transformers for efficient classification, segmentation, registration, and reconstruction in medical imaging.

SKILLS & TOOLS

- Python
- C/C++
- R
- SQL
- Pytorch
- Tensorflow
- Langchain
- OpenCV
- Docker
- Linux
- AWS
- Azure
- BigQuery
- Vector Database
- FastAPI for backend engineering
- HuggingFace
- Deep Learning Research
- Natural Language Processing
- Computer Vision
- LLM Operations
- Github Actions
- HTML/CSS
- Tableau

SOFT SKILLS

- Leadership
- Communication
- Teamwork
- Presentation

- Implemented additional techniques such as Federated Learning, Contrastive Learning, and Knowledge Distillation, leveraging Vision Transformers, culminating in a published work on their application in Medical Imaging.

TEE Research Group | Onsite
A.I Research Intern **OCT 2021 - AUG 2022**

- Conducted Exploratory Data Analysis (EDA) on extensive wind turbine operational data, laying the groundwork for model development.
- Engineered multiple Machine Learning and Deep Learning Models for wind turbines, focusing on energy forecasting, prediction, performance monitoring, and fault detection.
- Innovatively devised a filtering technique based on quantile range to enhance the accuracy of wind turbine data by removing faulty entries.
- Developed a comprehensive statistical technique for detecting faulty wind turbines, integrating Kolmogorov-Smirnov's test with three deep learning models, contributing to improved fault detection accuracy.

EDUCATION

Covenant University, Nigeria
B.S. Mechanical Engineering **2017 - 2022**

- For my final year project, I worked on exploring multiple approaches to modeling the power curve of a wind turbine. This work yielded the development of a state-of-the-art deep learning model that achieved remarkable performance and resulted in a published work. (link)

COMPUTATIONAL PROJECTS (more)

Food Classification App (CV)

- Independently constructed a Vision Transformer (ViT) model from scratch for accurate food type classification.
- Deployed the ViT model on Hugging Face via the Gradio web interface to create an efficient and user-friendly food classification application.

Sentiment Analysis App (NLP)

- Engineered a sentiment analysis application using the RoBERTa model and implemented it as an API with the Flask framework.

SQL FastAPI Integration App

- Developed a data collection application with FastAPI, enabling seamless integration with SQL databases for efficient data storage.

FastAPI-ML microservice

- It involves the containerization of a Machine Learning API and deployment using Amazon Elastic Container Repository (ECR) and Amazon Elastic Container Service (ECS) respectively

RELEVANT PUBLICATIONS

1. Vision Transformers in Medical Imaging: A Review. (link)
2. Conditional Monitoring and Fault Detection of Wind Turbines Based on Kolmogorov-Smirnov's nonparametric test and Machine Learning. (link)
3. A Neural Network-Based Wind Turbine Power Curve Model Using Several Wind Farms' Influencing Parameters and Topography. (link)