

Emerald Henry

Artificial Intelligence Engineer

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[Github](#), [Portfolio Page](#)

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RELEVANT WORK EXPERIENCE ([link](#))

LCA | Remote

Data Science & ML Tutor

OCT 2023 - Present

- Designing and implementing End-To-End machine learning applications focused on computer vision and Natural Language Processing (NLP).
- 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.
- Implemented additional techniques such as Federated Learning, Contrastive Learning, and Knowledge Distillation, leveraging Vision Transformers, culminating in a published

SKILLS & TOOLS

- Python
- C/C++
- R
- Pytorch
- Tensorflow
- Langchain
- OpenCV
- Docker
- Linux
- AWS
- Azure
- FastAPI for backend engineering
- HuggingFace
- Deep Learning Research
- Natural Language Processing
- Computer Vision
- AWS sagemaker
- Github Actions
- HTML/CSS

SOFT SKILLS

- Leadership
- Communication
- Teamwork
- Presentation

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 ([link](#))

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](#))