

Emerald Henry

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EDUCATION

Covenant University

B.S. in Mechanical Engineering—GPA: 3.87/4.0 (in top 2%)

Background: Mathematics and computational methods | Interests: Production ML, ML on Relational Databases, Knowledge graphs

Courses

Stanford: Machine Learning with graphs (CS224W), Reinforcement Learning (CS234), NLP (CS224N)

Lagos, Nigeria

September 2017 - July 2022

Remote/Online

EXPERIENCE

Data Science and ML tutor

Local Christian Assembly (plus)

Lagos, Nigeria

Sept 2023 – Present

- Created training notebooks and files for Data Analysis with R, Databases (MySQL) and MLOps (Docker, FastAPI, CLI scripts, CI/CD and deployment).
- Created End-To-End machine learning applications for computer vision and Natural Language processing.

Data Support

Clinton Health Access Initiative

Lagos, Nigeria

Jan 2023 – Nov 2023

- Developed Databases, Dashboards and Data collection tools for the Malaria and Essential Medicines Program.
- Supported the implementation of Randomized Control Trials, field research and grant proposal development.

Machine Learning Researcher

Molecular Biology & Computations Lab (Covenant University)

Lagos, Nigeria

Aug 2022 – Jan 2023

- Conducted research on the application of Vision Transformers, CNNs, Knowledge Distillation, Contrastive Learning and Federated Learning Strategies.

Machine Learning Student Researcher

The Energy and Environment Research Group

Lagos, Nigeria

Oct 2021 - Aug 2022

- Created a novel filtering technique and developed multiple wind turbine power curve models.
- Created a novel statistical technique for detecting faulty wind turbines in wind farms. It utilizes multiple statistical techniques and Machine Learning.

PUBLICATIONS

- Vision Transformers in Medical Imaging: A review**, published 2022
Emerald Henry*, Onyeka Emebo, Conrad A. Omonhinmin
- Conditional Monitoring and Fault Detection of Wind Turbines Based on Kolmogorov-Smirnov Non-Parametric Test**, published 2023
Olayinka S. Oluwakin, Emerald Henry*, Ezekiel Victor
- A Neural Network-Based Wind Turbine Power Curve Model Using Several Wind Farms' Influencing Parameters and Topography**, (A Book Chapter) 2022
Olayinka S. Oluwakin, Emerald Henry*, Ezekiel Victor
- Techno-economic assessment of offshore wind energy potential at selected sites in the Gulf of Guinea**, published 2022
Olayinka S. Oluwakin, Olaniran J. Matthew, Windmanagda Sawadogo, Emerald U. Henry
- Design and Implementation of the electrical system of a mini-racecar**, preprint 2022
Emerald Henry

COMPUTATION PROJECTS

Food Classification App (CV)

- Deployed a Vision Transformer model for classifying food types to Hugging Face using the Gradio web Interface.

Sentiment Analysis App (NLP)

- Developed an app for sentiment analysis based on the RoBERTa model and using the Flask framework as API.

SQL FastAPI Integration App

- Developed an application for collecting data and storing within a database using the FastAPI framework as API.

ML, MLOps and Data Science Tutorial

- Developed a repository containing training notebooks and scripts for ML, MLOps and Data Science.

Quantile Filtering Algorithm

- Created a novel wind turbine SCADA data filtration algorithm for cleaning out outlier or faulty wind turbine data.

LEADERSHIP & VOLUNTEERING

Hebron Motorsports

Oversaw the manufacture of the first semi-professional racecar in West Africa, Designed the Electrical system.

Enactus

Contributed to the various social entrepreneurship initiative the Covenant University Enactus club carried out.

Skills & Achievements

Languages: Python, C/C++, R, Rust, SQL, CLI(shell, bash), YAML

Tools & Frameworks: Pytorch, OpenCV, Tensorflow, Keras, Git, LATEX, Docker, FastAPI

Achievements: Best Project Award: CU 2022, Winner: Covenant University Covid-19 challenge (Top 5), Top 3, National University Entrance Examination.