

Uwidia Osalodion Emmanuel

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PROFESSIONAL SUMMARY

Machine-learning practitioner and M.Sc. Bioinformatics candidate with a foundation in Medical Biochemistry. Skilled in Python, PyTorch, TypeScript, and Docker, with hands-on experience developing deep-learning models, conducting controlled experiments, building REST-based inference workflows, and deploying GPU-enabled applications. Brings a research-oriented approach to model evaluation, reproducibility, and the delivery of usable end-to-end ML systems.

TECHNICAL SKILLS

Programming: Python; SQL

Machine Learning: PyTorch; deep learning; transformer embeddings; neural gating; multilabel classification; class-imbalanced learning; hyperparameter optimisation

Evaluation & Experimentation: Controlled benchmarking; baseline comparison; ablation studies; external evaluation;

ML Systems & Deployment: Docker; REST APIs; CUDA/GPU inference; Vercel Serverless Functions; RunPod Serverless; asynchronous inference workflows

Domain Methods: Protein function prediction; protein language model embeddings; DIAMOND-based homology search; reliability-guided modality fusion; multilabel Gene Ontology term prediction

RESEARCH EXPERIENCE

EIHR-PROT | End-to-End Multilabel Prediction System

[Live Application](#)

Graduate Researcher | Covenant University | 2025-2026

Python | PyTorch | ESM-2 | DIAMOND | TypeScript | Docker | REST APIs | CUDA |

- Built a PyTorch multilabel prediction system that combines frozen ESM-2 embeddings with DIAMOND-derived similarity features through a protein-specific neural gating network.
- Designed a controlled evaluation across 3,416 benchmark proteins and 567 external low-homology proteins, including hyperparameter search, four reference baselines, component ablations, and threshold- and ranking-based performance metrics.
- Produced the highest observed Fmax and AUPR across all three Gene Ontology aspects on both test sets; improved low-homology Molecular Function Fmax by 0.0953 and AUPR by 0.1239 over the nearest corresponding baseline.
- Containerised the CUDA-enabled inference pipeline with Docker and deployed it on RunPod Serverless; built TypeScript REST endpoints on Vercel for input validation, job submission, progress polling, and results handling.
- Delivered a browser-based application and evaluated the completed workflow with 30 users, achieving a mean System Usability Scale score of 86.8 ± 6.4 .

EDUCATION

M.Sc. Bioinformatics | Covenant University, Nigeria

Expected Sep 2026

B.Sc. Medical Biochemistry | University of Benin, Nigeria

Dec 2019