

BRANDONE FONYA

 fonyabrandone.github.io  bfonya@andrew.cmu.edu

EDUCATION

Carnegie Mellon University <i>M.Sc. in Engineering Artificial Intelligence</i> CGPA: 3.71/4	Aug 2024 – Present
ICT University <i>B.Sc. in Software Engineering (Honors)</i> CGPA: 3.65/4 – Ranked 1st out of 70 students in the Computer Engineering Department.	Oct 2022 – May 2024
Siantou University Institute <i>Higher National Diploma in Software Engineering</i> Grade: Distinction – Ranked 3rd out of 536 students in Cameroon (2022 National Exams).	Sep 2020 – Jul 2022

RESEARCH EXPERIENCE

Research Assistant <i>The Upanzi Network, Digital Public Infrastructure Research Lab, Rwanda</i> Developing a generative precision oncology pipeline for Africa. Integrating multi-omics, clinical, and environmental data to generate high-fidelity synthetic datasets using VAEs, Bayesian networks, and diffusion models.	Sep 2025 – Present
Summer Research Intern <i>Autonomous Intelligence Lab, Westlake University, Hangzhou, China</i> Developed MedBLIPNet3D, a text-prompted 3D prostate MRI segmentation framework using MedicalNet ResNet-18 and PubMedBERT, utilizing cross-attention fusion (MedQFormer) for prompt-conditioned segmentation.	Jul 2025 – Sep 2025
Graduate Research Assistant <i>CMU & Makerere University CHS (Joint Research)</i> Conducted research on low-cost tuberculosis screening using deep learning on solicited cough sounds for early TB detection in low resource settings.	Jun 2025 – Dec 2025

TEACHING

Graduate Teaching Assistant (18-661 Introduction to Machine Learning) <i>Carnegie Mellon University</i> Leading recitations and weekly office hours for graduate students. Assisting with the mathematical foundations of ML, grading exams, and designing assignment rubrics.	Jan 2026 – Present
Graduate Teaching Assistant (18-751 Applied Stochastic Processes) <i>Carnegie Mellon University</i> Supported students in mastering core stochastic concepts. Responsibilities included grading, leading review sessions, and facilitating technical discussions.	Aug 2025 – Dec 2025

PROFESSIONAL EXPERIENCE

Graduate IT Associate – Full Stack Developer

Aug 2024 – May 2025

Carnegie Mellon University

Architected and scaled the CMU-Africa job board using the MERN stack. Migrated legacy Java systems to Node/Express.js and implemented data visualization dashboards for administrative tracking.

Founder, ESchools LMS

Dec 2022 – Jun 2024

Yaoundé, Cameroon

Launched an AI-powered learning management system with integrated chatbots to support virtual education. Scaled the platform to serve students and teachers across Cameroon.

PUBLICATIONS

Fonya, B., Tagha, N., Rugumbira, M., Busah, I., Aiken, E. "Optimizing healthcare facility distribution in Rwanda: a data-driven approach." *European Journal of Public Health*, Vol 35, Issue 4, 2025. IF: 4.  doi.org/10.1093/eurpub/ckaf161.1554

SELECTED PROJECTS

CAM-FD: Improving Adversarial Robustness without Sacrificing Generalization

MSc

Research Capstone

Developed a Curriculum Adversarial Mixup framework with Feature Denoising. Integrated TRADES KL divergence and adversarial weight perturbation to improve domain generalization in vision.

Zero-Shot Neural Priors for EEG Decoding

Fall 2025

Designed a framework to learn subject-invariant neural priors from large scale HBN data. Achieved robust zero-shot task transfer for EEG-based biomarkers. (In consideration for MIDL 2026).

Robust Non-Invasive Tuberculosis Triage Using Audio Embeddings from Solicited Cough Sounds

Summer 2025

A robust Tuberculosis triage pipeline to diagnose TB positive coughs from solicited cough sounds only, in low resource settings with high prediction confidence.

SKILLS & CERTIFICATIONS

Technologies Python, C/C++, JavaScript, Java, Git, MATLAB, LaTeX, Wandb, SQL

Frameworks PyTorch, TensorFlow, NumPy, Flask, Scikit-learn, GeoPandas, MERN Stack

Certifications AWS Cloud Foundations, Secure Full Stack Developer (EC-Council), Google Project Mgmt

Languages English (Native), French (Advanced)

ACHIEVEMENTS & INTERESTS

- Achievements:** AMLD Africa 2026 Reviewer; B.Sc. Department Valedictorian; Cameroon PremierDev Tech Award Winner (2023); ICT University Fellowship of Excellence; Member, IEEE.
- Interests:** Deep Learning, Computer Vision, Medical Imaging, Generative AI.