

BRANDONE FONYA

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EDUCATION

Carnegie Mellon University

Aug 2024 – Present

M.Sc. in Engineering Artificial Intelligence

CGPA: 3.71/4

ICT University

Oct 2022 – May 2024

B.Sc. in Software Engineering (Honors)

CGPA: 3.65/4 – Ranked 1st out of 70 students in the Computer Engineering Department.

Siantou University Institute

Sep 2020 – Jul 2022

Higher National Diploma in Software Engineering

Grade: Distinction – Ranked 3rd out of 536 students in Cameroon (2022 National Exams).

RESEARCH EXPERIENCE

Research Assistant

Sep 2025 – Present

The Upanzi Network, Digital Public Infrastructure Research Lab, Rwanda

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.

Summer Research Intern

Jul 2025 – Sep 2025

Autonomous Intelligence Lab, Westlake University, Hangzhou, China

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.

Graduate Research Assistant

Jun 2025 – Dec 2025

CMU & Makerere University CHS (Joint Research)

Conducted research on low-cost tuberculosis screening using deep learning on solicited cough sounds for early TB detection in low-resource settings.

TEACHING

Graduate Teaching Assistant (18-661 Introduction to Machine Learning) Jan 2026 – Present

Carnegie Mellon University

Leading recitations and weekly office hours for graduate students. Assisting with the mathematical foundations of ML, grading exams, and designing assignment rubrics.

Graduate Teaching Assistant (18-751 Applied Stochastic Processes) Aug 2025 – Dec 2025

Carnegie Mellon University

Supported students in mastering core stochastic concepts. Responsibilities included grading, leading review sessions, and facilitating technical discussions.

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 in Medical Imaging

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 medical diagnostics.

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 ICLR 2026).

Geospatial Optimization of Healthcare

Spring 2025

Accepted for poster presentation at EPH 2025. Used ML-based geospatial analysis to optimize resource allocation for malaria, TB, and HIV care in sub-Saharan Africa.

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.