

# BRANDONE FONYA

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

## EDUCATION

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### 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

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### 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

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### 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

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### 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

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**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

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### 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

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<b>Technologies</b>	Python, C/C++, JavaScript, Java, Git, MATLAB, LaTeX, Wandb, SQL
<b>Frameworks</b>	PyTorch, TensorFlow, NumPy, Flask, Scikit-learn, GeoPandas, MERN Stack
<b>Certifications</b>	AWS Cloud Foundations, Secure Full Stack Developer (EC-Council), Google Project Mgmt
<b>Languages</b>	English (Native), French (Advanced)

## ACHIEVEMENTS & INTERESTS

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- **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.