

# BRANDONE FONYA

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## EDUCATION

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<b>Carnegie Mellon University</b> <i>M.Sc. in Engineering Artificial Intelligence</i> CGPA: 3.71/4	Aug 2024 – Present
<b>ICT University</b> <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
<b>Siantou University Institute</b> <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

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<b>Research Assistant</b> <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
<b>Summer Research Intern</b> <i>Autonomous Intelligence Lab, Westlake University, Hangzhou, China</i> Developed <b>MedBLIPNet3D</b> , 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
<b>Graduate Research Assistant</b> <i>CMU &amp; 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

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<b>Graduate Teaching Assistant (18-661 Introduction to Machine Learning)</b> <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
<b>Graduate Teaching Assistant (18-751 Applied Stochastic Processes)</b> <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

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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 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

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**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

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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.