

BRANDONE FONYA

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Education

Carnegie Mellon University

Aug 2024 – Present

M.Sc. in Engineering Artificial Intelligence

CGPA: 3.7/4

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 for Software Engineering 2022 higher national diploma exams

Professional Experience

Research Assistant

Sep 2025 – Present

The Upanzi Network, Digital Public Infrastructure Research Lab, Rwanda

Working on a generative precision oncology pipeline for Africa, integrating multi-omics, clinical, and environmental data to generate synthetic datasets using VAEs, Bayesian networks, and diffusion models.

Graduate Teaching Assistant (18-751 Applied Stochastic Processes)

Aug 2025 – Present

Carnegie Mellon University

Grading exams and assignments, hosting weekly office hours, leading recitations, and assisting students with core stochastic processes concepts.

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, PubMedBERT, cross-attention fusion (MedQFormer), and a prompt-conditioned segmentation head.

Graduate Research Assistant

Jun 2025 – Sep 2025

Carnegie Mellon University – 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.

Graduate IT Associate – Full Stack Developer

Aug 2024 – May 2025

Carnegie Mellon University

Developed and scaled CMU-Africa's job board using the MERN stack, migrating legacy Java backend systems to Node/Express.js and integrating actionable data visualizations.

Founder, ESchools LMS

Dec 2022 – Jun 2024

Yaoundé, Cameroon

Built an AI-powered learning management system integrating chatbots and automation to support virtual education for students, teachers, and administrators across Cameroon.

Publications

Fonya, B., Tagha, N., Rugumbira, M., Busah, I., Aiken, E. *Optimizing healthcare facility distribution in Rwanda: a data-driven approach (conference proceeding)*. *European Journal of Public Health* 35, 4 (2025). <https://doi.org/10.1093/eurpub/ckaf161.1554>

Selected Research Projects

CAM-FD: Improving Adversarial Robustness in Medical Imaging *CMU, MSc Research Capstone*

Supervisor: Prof. Prasenjit Mitra

CAM-FD is a Curriculum Adversarial Mixup with Feature Denoising framework integrating cross-entropy mixup, TRADES KL divergence, feature denoising, and adversarial weight perturbation to jointly improve robustness, accuracy, and domain generalization.

Optimizing healthcare facility distribution in Rwanda: a data-driven approach *CMU, Spring 2025*

Supervisor: Prof. Emily Aiken

Accepted for poster presentation at the European Public Health Conference (EPH) 2025. Conducted geospatial and ML-based analysis to optimize healthcare resource allocation and address disparities in malaria, TB, and HIV care across sub-Saharan Africa.

Zero-Shot Neural Priors for Generalizable Cross-Subject and Cross-Task EEG Decoding *CMU, Fall 2025*

Supervisor: Prof. Bhiksha Raj Ramakrishnan

Zero-shot EEG decoding framework that learns subject and task-invariant neural priors from large-scale HBN data, achieving robust cross-subject generalization and zero-shot task transfer toward scalable EEG-based biomarkers, in consideration for ICLR 2026.

Skills & Certifications

Skills: Problem solving, communication, collaboration

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

Libraries/Frameworks: PyTorch, TensorFlow, NumPy, Pandas, OpenCV, CMake, Flask, Scikit-learn, GeoPandas, Node.js, Express.js, React, React Native, Angular

Languages: English (Native), French (Advanced)

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

Interests & Achievements

Interests: Deep Learning, Computer Vision, Medical Imaging, Generative AI

Achievements: AMLD Africa 2026 Reviewer, B.Sc. Department Valedictorian, Cameroon PremierDev Tech Award Winner (2023), ICT University Fellowship of Excellence, IEEE member