

CURRICULUM VITAE

AYEBARE VICKY

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PROFILE

I am a fourth-year student at Mbarara University of Science and Technology in Mbarara, Uganda. My research interests center around optimizing ultra-low-field MRI for dementia imaging by integrating AI-driven diagnostic pipelines, with the primary goal of scaling affordable dementia diagnosis in low-resource clinical settings. My work spans Halbach-array magnet design, RF coil and PCB prototyping, electromagnetic field simulation, and deep learning for medical image analysis.

EDUCATION

B.S., Biomedical Sciences and Engineering | Mbarara University of Science and Technology
(Sept 2023 – Present)

Uganda Advanced Certificate of Education | Uganda Martyrs' Secondary School, Namugongo
(2020 – 2022)

Uganda Certificate of Education | Uganda Martyrs' Secondary School, Namugongo (2016 – 2019)

PUBLICATIONS & CONFERENCE PAPERS

- A Reproducible Diffusion MRI Processing Pipeline for Microstructure and Glymphatic Analysis Using Neurodesk Containers v1. (<https://doi.org/10.17504/protocols.io.3byl48eezvo5/v1>)
- "Prevention-oriented cervical precancer triage using self-supervised learning on a Nigerian AI screening dataset." Accepted for presentation at MIRASOL 2026 Workshop, MICCAI
- 'Testing the Long-Term Stability of Halbach-Based Educational MRI scanners', a registered report accepted for oral presentation at ESMRB 2026.

RESEARCH EXPERIENCE

Research Fellow, CONNExIN | CAMERA MRI Africa Aug 2025 – Feb 2026

- Co-authored an abstract on a reproducible neuroimaging pipeline for low-resource settings, accepted for oral presentation at ISMRM 2026.

Trainee, SPARK Academy | CAMERA MRI Africa Feb 2026 – June 2026

- Collaborated to build self-supervised deep learning models for cervical precancer screening to support clinical diagnosis in low-resource settings, resulting in a co-authored paper accepted for oral presentation at the MIRASOL 2026 Workshop, MICCAI.

Trainee, IMAGINE Summer School | CAMERA MRI Africa

June 2026 – Aug 2026

- Participated in training for MRI physics, signal processing, and electromagnetic coil design.
- Collaborated on the hands-on assembly, tuning, and field-mapping of an ultra-low-field MRI system (ERNIE educational kit), including scanner software and hardware components.
- Co-authored a registered report to be presented at ESMRMB 2026.

Student Intern, Low-Field MRI Project | MRI Uganda

June 2025 – Aug 2025

- Collaborated on magnetic field simulation and optimization for Halbach-array low-field MRI magnets using COMSOL Multiphysics.
- Contributed to designing and testing coil printed circuit boards (PCBs) using KiCAD, and produced 3D-printed hardware prototypes and mechanical enclosures using SolidWorks and Autodesk Fusion 360.
- Utilized CST Studio Suite for electromagnetic simulation and MATLAB for signal/data analysis to support system optimization and safety evaluation.

Ambassador 2026/2027 | ISTAART, Alzheimer's Association

Mar 2026 – Present

- Represent Uganda in the International Society to Advance Alzheimer's Research and Treatment (ISTAART). My primary role involves connecting underprivileged researchers with ISTAART to provide them with opportunities for professional growth.

Volunteer Research Assistant Trainee, Low-Field MRI Project | MRI Uganda Aug 2026 - Present

- Characterized and documented the system architecture, component specifications, and software configurations of a custom 48 mT Halbach MRI system.
- Supported magnetic field mapping and subsystem assessments, evaluating gradient performance, radiofrequency shielding, and interference sources.
- Executed phantom imaging experiments to evaluate image quality, geometric accuracy, and system repeatability.
- Collaborated on safety protocols and contributed to the first draft of the system's technical operation and maintenance manual.

TECHNICAL SKILLS

CAD & Hardware: SolidWorks, Autodesk Fusion 360 (expert-level 3D CAD); KiCAD (PCB design); 3D printing, electronics build and testing.

Simulation: Comsol Multiphysics, CST Suite (expert-level electromagnetic and field simulation).

Programming: Python (expert-level), C, MATLAB.

Research Practice: scientific writing, reproducible pipelines

CERTIFICATIONS

- Diploma, Machine Learning with Python
- Diploma, Convolutional Neural Networks
- Certificate, Data Analysis with Python and Pandas
- Certificate of Participation, 2025 Designathon by Autodesk
- Certificate, Innovation and Intellectual Property Management

PROFESSIONAL PROFILES

LinkedIn: [linkedin.com/in/ayebare-vicky-41892b337](https://www.linkedin.com/in/ayebare-vicky-41892b337)

Google Scholar: [Ayebare Vicky - Google Scholar](#)

GitHub: <https://github.com/vvayebare>

ORCID: <https://orcid.org/0009-0000-4230-203X>

ResearchGate: [Ayebare Vicky](#)

LANGUAGES

English (fluent) · Rukiga (native) · Luganda (native)