SYLVIA IMANIRAKIZA

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EDUCATION

University of Massachusetts Amherst August 2028 (Expected)
MS/PhD in Computer Science (advised by Dr Jay Taneja)
CGPA: 3.8/4.0
Relevant PhD-level courses: Neural Networks, Computer Vision, Advanced Algorithms

Makerere University, Uganda February 2023
BSc in Electrical Engineering (First Class Honors)
CGPA: 4.77/5.0
Relevant courses: Digital Signal Processing, Analogue and Digital Electronics, Electronic Circuits, Power Systems Engineering.

Kafue Gorge Regional Training Center Zambia October 2022
Certificate Course in Power Quality and System Stability

RESEARCH AND TECHNICAL EXPERIENCE

Graduate Research Assistant September 2023- Present
University of Massachusetts Amherst

· Working on techniques for non-intrusively measuring the electric power quality of grids in developing economies i.e Uganda and Kenya.

Undergraduate Student Researcher August 2020–April 2023
Marconi Research and Innovations Laboratory, Uganda

· Developed and implemented ConvLSTM-based machine learning model for the classification of severity of prostate cancer from low-resolution multiparametric MRI image sequences achieving a selectivity score of 80%, using Python.
· Applied and evaluated state-of-the-art object localization models (YOLO-r) for needle tip localization in minimally invasive procedures achieving a mean average precision AP of 0.9520.
· Collected and annotated a new in-house in-vivo ultrasound video dataset from an animal specimen study using a portable ultrasound system.
· Conducted experiments to evaluate the performance of a novel time-aware deep neural network model for needle localization in 2D ultrasound to guide minimally invasive procedures, achieving a 30% improvement in tip localization accuracy from the prior art.

Junior Data Scientist February 2023 - July 2023
Innovex, Uganda *Contract*

· Supported in the analysis of multiple time series sensor data sets to explore energy consumption and efficiency rates for productive uses of energy.
· Applied value proposition methodologies to design end-user surveys and research to understand the relevance of data analytics to solar companies and solar system users. This allowed the company to community co-design requirements for the development of the energy analytics platform with input from 5 smallholder farmers, 8 solar companies and 3 development partners.
· Planned monthly and Quarterly reporting for project progress, participating and tracking stakeholder engagement.

Research Executive September 2022 - February 2023
Center of Research in Energy and Energy Conservation, Uganda

- Contributed to a research project assessing the implementation of Agrivoltaics (APVs) in East Africa.
- Organized webinars for community users, policy makers and project implementation partners for awareness creation, knowledge creation and multistakeholder engagement.

SKILLS

Programming	Python, Pandas, Matplotlib, Numpy, Scikit-learn, Pytorch, OpenCV, Pytorch-Geometric
Soft skills	Research Writing, Public Speaking, Teamwork, Time management, Mentorship
Miscellaneous	Anaconda distribution, DIgSILENT Power System Simulation, QGIS

PUBLICATIONS AND CONFERENCE PRESENTATIONS

1. *Development of an Electricity Distribution Expansion Plan: A Case Study of Mbarara City.* **Sylvia Imanirakiza**, Hilda Evelyn Nakyondwa.(Undergraduate thesis dissertation, Makerere University, 2022).[Link]
2. *Needle Segmentation For Real-time Guidance of Minimally Invasive Procedures Using Handheld 2D Ultrasound Systems.* Paul Mugume Okwija , Joanitta Nabacwa, **Sylvia Imanirakiza**, Alvin Kimbowa, Cosmas Mwikirize, and Andrew Katumba. TechRxiv, October 5, 2022. (preprint)[Link]
3. *A Smart Portable Ultrasound System for the guidance of minimally invasive procedures.*, **Sylvia Imanirakiza**, Paul Mugume Okwija, Joanitta Nabacwa, Alvin Kimbowa, Cosmas Mwikirize, Andrew Katumba.Makerere University National Communications Conference, 2022.[Link]
4. *Time-aware deep neural networks for needle tip localization in 2D ultrasound.* Cosmas Mwikirize, Alvin B.Kimbowa, **Sylvia Imanirakiza**, Andrew Katumba, John L. Nosher, and Ilker Hacihaliloglu. International Journal of Computer-Assisted Radiology and Surgery, 2021.[Link]
5. *Development of an e-Health System for Improving Health-Care Access in Developing Countries.* Arnold, K., Mugisha, G.A., Uzoka, FM., **Imanirakiza, S.**, Muhumuza, C., Bukenya, J.N. Proceedings of the Future Technologies Conference (FTC) 2021.[Link]

HONORS AND AWARDS

Grace Hopper Celebration 2024 UMass Amherst CICS Scholarship	*October 2024*
CIFAR AI Inclusive Scholarship	*July 2024*
UMass Amherst CICS PhD Scholarship	*Spring 2024 - Present*
Spaulding Smith Fellowship Recipient	*Fall 2023 - Present*
Outstanding Graduating Student Award from the Makerere School of Engineering	*February 2023*
UNESCO India Africa Hackathon Finalist	*November 2022*
Full Scholarship Recipient under the Skills for Energy in Southern Africa project	*October 2022*
Uganda Representative Delegate to the ITU Generation Connect Youth Summit	*June 2022*
1st Runner's Up in Uganda in the Invent for the Planet Global Hackathon	*2020*
Government of Uganda Merit Undergraduate Scholarship	*2018*

ACTIVITIES AND SERVICE

Communications Lead November 2024 - Present
Voices of Data Science 2025

Graduate Student Mentor September 2024 - Present
UMass Amherst Institute of Diversity Sciences

Graduate Student Mentor September 2024 - Present
UMass Amherst Early Research Scholars Program 24-25

Volunteer Mentor August 2023 - August 2024
Uganda Scholarship Mentorship Platforms

Youth Coordinator September 2022 - September 2023
Women In Renewable Energy Association Uganda

Executive Advisor October 2021 - August 2022
Makerere Engineering Society

Organizing Lead March 2022
Women in Engineering Career Workshop at Makerere University