SYLVIA IMANIRAKIZA

LinkedIn: LinkedIn.com/Sylvia Imanirakiza ◇
413-472-7023 ◇ simanirakiza@umass.edu

EDUCATION

University of Massachusetts Amherst 2023- Present
MS/PhD in Computer Science (advised by Dr Jay Taneja)
Relevant courses: Research Methods in Empirical Computer science, Machine Learning

Makerere University, Uganda August 2018-February 2023
BSc in Electrical Engineering (First Class Honors)
CGPA: 4.77/5.0
Vice Chancellor's Merit list and Class Valedictorian

SKILLS

Programming Languages	Python
Frameworks	Pandas, Matplotlib, Numpy, Scikit-learn, Tensorflow, OpenCV
Software & Tools	MATLAB, Anaconda distribution, DIgSILENT Power System Simulation

RESEARCH EXPERIENCE

Graduate Research Assistant September 2023- Present
University of Massachusetts Amherst

- *Advised by Prof Jay Taneja*
- Working on non-intrusive sensing methods for monitoring electric power quality in real-world scenarios.

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

- *Advised by Dr. Cosmas Mwikirize & Dr. Andrew Katumba*
- Implemented and evaluated ConvLSTM-based deep learning model for the classification of severity of prostate cancer from low-resolution multiparametric MRI sequences achieving a selectivity score of 80%
- Implemented and evaluated two machine learning models that were integrated into a low-cost portable 2D ultrasound system, the Clarius L7, for both needle localization and segmentation in minimally invasive procedures.
- Collaboratively curated and pre-processed an in-vivo ultrasound video dataset from an animal specimen study.

Item: Co-design and evaluation of time-aware deep neural network models for needle localization in 2D ultrasound for the guidance of minimally invasive procedures.

WORK EXPERIENCE

Graduate Training 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.

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.[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

CIFAR AI Inclusive Scholarship	*July 2024*
UMass Amherst CICS PhD Scholarship	*Fall 2023 - 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*

ACTIVITIES AND SERVICES

Volunteer Mentor August 2023 - August 2024
Uganda Scholarship Mentorship Platforms

Executive Advisor October 2021 - August 2022
Makerere Engineering Society

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

Social Media Communications Lead October 2021 - August 2022
National Communications Conference 2022, Uganda

RELEVANT COURSES AND WORKSHOPS

MITx-edX *Issued May 27th 2022*
Introduction to Computational Thinking and Data Science

Kafue Gorge Regional Training Centre Namalundu, Zambia *October 2022*
Electric Power Quality and System Stability Course

Paderborn University, Germany *June 2021 - July 2021*
Graduate Training for Sustainable Energy Development (Virtual)