

ROGERS MUKIIBI

+256 755 685537 | +256 770 892853 | mukiibirogerz@gmail.com | [LinkedIn: rogersmukiibi](#) | <https://mukiibi.me> | [GitHub: rogerzmukiibi](#)

PERSONAL PROFILE

Electrical Engineering student at Makerere University with hands-on experience in electrical distribution networks, AI models, IoT systems, and electronics. Completed coursework in low voltage and distribution systems using DIgSILENT PowerFactory to model and analyse radial and ring network configurations. Designed a smart beehive monitor, moving from prototype to custom PCB. Repurposed e-waste into computing systems for low-resource areas. Comfortable with Python, C++, SQL, and data science tools. Eager to contribute to sustainable tech and impactful solutions.

EDUCATION

Makerere University

BSc Electrical Engineering (CGPA 4.37/5.0)

Kampala, Uganda

January 2022 – Feb 2026

WorldQuant University

Data Science Certificate

Online

December 2023 - January 2024

Crested Secondary School

UACE - Physics, Chemistry, Mathematics (AAA)

Kampala, Uganda

February 2019 – April 2021

WORK EXPERIENCE

Associate R & D Power Systems Engineer.

Auri Energy

July 2025 – present

- Developed and validated power system models to simulate distribution network behavior under varying load and fault conditions.
- Analyzed power quality metrics including voltage sags/swells, harmonic distortion (up to 40th order), and voltage unbalance in line with IEC standards.
- Contributed to the design and implementation of SCADA-based monitoring systems for real-time grid visibility and performance tracking.
- Supported digital twin development of distribution networks, integrating simulation insights with operational data for improved system reliability.

EXPERIENCE

AI Software Development Intern

Xeno Investments

Jul 2025 - Aug 2025

- Built a RAG-based chatbot to handle customer queries on Xeno services, integrating ChromaDB vector search with LLM response generation.
- Implemented intent classification to route simple queries efficiently, reducing unnecessary LLM usage.
- Designed a flexible embedding pipeline supporting both Google (*gemini-embedding-001*) and local (*BAAI/bge-m3*) models.
- Developed session-based memory and performance logging (latency tracking) to improve response quality and system reliability.

Research Assistant

Marconi Machine Learning Laboratory

April 2024 - Aug 2025

- Developed and deployed AI-based models to estimate solar irradiation for Uganda, directly addressing the 3-20% positive bias in existing satellite-derived data (CAMS RAD, NASA Power) that introduces significant financial and operational risks in PV project planning.
- Collaborating with GIZ and the Ministry of Energy to develop and disseminate a free and open-source solar irradiation dataset, specifically fine-tuned for Uganda to enhance regional solar energy planning and investment decisions.

Undergraduate Intern

Internet of Things - Research & Applications Laboratory (IoT-RA)

Nov 2023 – March 2024

- Designed and fabricated a **2-layer PCB** for a smart beehive monitoring system, optimizing a wire-based prototype into a robust, field-ready design that reduced assembly time by 83% (from 2 hours to 20 minutes).
- Integrated an ADXL345 accelerometer on the beehive sensor unit controlled by a Raspberry Pi to capture bee vibrations and monitor bee behaviour.
- Developed signal processing pipeline implementing **Fast Fourier Transform** (FFT) analysis of beehive vibrations, achieving real-time data acquisition at 10kHz sampling rate.

Undergraduate Intern

netLabs!UG

Jun 2023 – Aug 2023

- Designed and implemented **Proxmox-based server clusters** from electronic waste, extending hardware lifespan and promoting sustainable IT practices.
- Deployed **Docker containerized application** for resource-intensive engineering software (e.g., Blender), providing cloud-based access for students lacking sufficient local computational power.
- Awarded Second Place at the Makerere Engineering Society Open Day for innovative solution leveraging e-waste into robust server infrastructure, enhancing access to critical design software for the student body.

SKILLS

Power Systems & Grid Engineering

Analysis & Simulation: DIgSILENT PowerFactory, MATLAB/Simulink, Power System Modeling

Grid Studies: Load Flow, Voltage Profiles, Harmonic Analysis (up to 40th order), Voltage Unbalance (VUF)

Focus Areas: Distribution Systems, SCADA Integration, Grid Reliability, Power Quality

Software & Simulation Engineering

Programming: Python, Rust, C/C++

Modeling: Numerical Simulation, System Modeling, Digital Twin Concepts

Data & Signal Processing: FFT, Time-Series Analysis, Power Quality Metrics

AI Systems: Domain-Specific Chatbots, Knowledge-Based AI Systems

Embedded & Hardware Systems

Hardware Design: PCB Design, Circuit Design, Hardware Prototyping

Tools: KiCad, Altium, LTSpice, Multisim, Quartus (AHDL), Lattice Radiant (VHDL)

Microcontrollers: Arduino, Raspberry Pi, LoRa (Pycom)

Systems Integration: Sensor Interfacing, Data Acquisition Systems

Engineering Tools & Platforms

Design: AutoCAD Electrical

Workflow: Technical Documentation, System Specification, Engineering Collaboration

PROFESSIONAL MEMBERSHIPS

👤 **IEEE Member** (98532782) Member of the Institute of Electrical and Electronics Engineers (IEEE), including the IEEE Power & Energy Society and Industrial Electronics Society.

👤 **Makerere Engineering Society** Actively involved in events like Makerere Engineering Society Open Day.

VOLUNTEERING

2024	Project Proposal Reviewer	<i>EPICS in IEEE</i>
2024	Webmaster AEE Makerere Chapter	<i>Association of Energy Engineers</i>
2023	Student Ambassador IEEE IES Region 8	<i>IEEE Industrial Electronics Society</i>
2022	Secretary IEEE CAS Makerere Chapter	<i>IEEE Circuits and Systems Young Professionals</i>

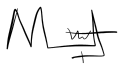
AWARDS

2025	DataCamp Data Scientist Certification	DS0026002460117
2024	Makerere Engineering Society Open Day	First Runners Up
2022	IEEE Xtreme Coding Competition	Ranked 1st in Uganda

DECLARATION

I, the undersigned, certify that to the best of my knowledge and belief, this data correctly describes me, my qualifications, and my experience.

Name: Rogers Mukiibi

Signature: 

Date: March 23, 2026