ROGERS MUKIIBI

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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 — **Kampala, Uganda**
BSc Electrical Engineering (CGPA 4.34/5.0) — *January 2022 – Expected Jan 2026*

WorldQuant University — **Online**
Data Science Certificate — *December 2023 - January 2024*

Crested Secondary School — **Kampala, Uganda**
UACE - Physics, Chemistry, Mathematics (AAA) — *February 2019 – April 2021*

Projects

Power Systems Course Project
Makerere University — *Sept 2024 – Dec 2024*

- Conducted power flow analysis on a modeled 11kV distribution feeder using **DIgSILENT PowerFactory**, evaluating voltage profiles, transformer loading, and fault levels.
- Simulated radial and ring network configurations to assess system resilience, voltage regulation, and switching impacts.
- Prepared a technical report with actionable insights on improving voltage stability and reducing losses in low voltage networks.

Experience

Research Assistant
Marconi Machine Learning Laboratory — *April 2024 - Present*

- 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 & Distribution Analysis Tools: DIgSILENT PowerFactory, MATLAB Simulink
System Design: Load Flow Analysis, Protection Coordination, Voltage Drop Calculations
Focus Areas: Low Voltage Networks, Distribution Automation, Grid Reliability
Computer-Aided Design Circuit Design: Multisim, LTSpice, Quartus (AHDL)
PCB Design: KiCad, Altium, EasyEDA
Electrical Design: AutoCAD Electrical
Embedded Systems Engineering Hardware: PCB Design, Hardware Prototyping, Embedded Systems
Microcontrollers: Arduino, Raspberry Pi, Pycom LoRa
Signal Processing: Fast Fourier Transform

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

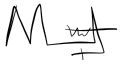
2024	**Project Proposal Reviewer**	*EPICS in IEEE*
2024	**Webmaster AEE Makerere Chapter**	*Association of Energy Engineers*
2023	**Student Ambassador IEEE IES Region 8**	*IEEE Industrial Electronics Society*
2022	**Secretary IEEE CAS Makerere Chapter**	*IEEE Circuits and Systems Young Professionals*

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: July 5, 2025