Shawal Mbalire

ITU GCYE, Intern IoT-ra, Electrical Engineering Junior
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Summary

Aspiring electrical engineer passionate about automation, IoT, and software engineering. Hands-on experience with Python development, embedded systems, and web development. Proven leadership in organizing technical events and driving innovative projects.

Experience

Africa Developer Group
Backend Developer <div align="right">Dec 2024 – Jan 2025</div>
- Developing and demoing system architecture for a compliant cloud using docker compose and google cloud

International Telecommunication Union
Generation Connect Youth Envoy <div align="right">May 2024 – Present</div>
- Engaging youth in technology initiatives and promoting innovation through advocacy and events.
- Collaborating with international teams to organize seminars and global youth dialogues.

IoT-ra (Internet of Things - Research & Applications) Lab
Embedded System Intern <div align="right">March 2024 – Present</div>
- Developing IoT-based cloud solutions for agricultural automation.
- Designing low-cost systems to monitor environmental factors using sensors.
- Writing Python scripts for sensor data collection and analysis.
- Contributed to the bee hive project, focusing on sensor integration and data analysis.

netLabs!UG
Engineering Intern, E-waste Recycling Project <div align="right">February 2023 – Present</div>
- Refurbishing e-waste to build functional computers for underprivileged communities.
- Conducting hardware diagnostics and installing dual-boot systems (Windows 11, Ubuntu 22).
- Building automated scripts for system diagnostics and repair.
- Tutored students in computer repair and operating system installations.

Green Hub East Africa Ltd
Engineering, Software Development, Data Analysis Intern <div align="right">Jan 2024 – Sep 2024</div>
- Developed Python scripts for data analysis and database creation.
- Contributed to automation solutions for e-mobility and battery swapping systems.
- Created web pages to support internal projects and streamline internal workflows.

Makerere AI Lab
Communication and Participation Lead <div align="right">Feb 2024 – May 2024</div>
- Led hackathon communication, coordinating student participation across universities.
- Built the event website and managed online engagement.
- Automated participant data collection and feedback analysis using Python.

The Marconi Research and Innovations Laboratory
Undergraduate Researcher <div align="right">Feb 2024 – Aug 2024</div>
- Trained a natural voice language model on a Runyankore dataset.
- Focused on dataset preparation, model training, and performance evaluation.

Dojo Hub (SMC) Ltd
Internship Coordinator <div align="right">Jun 2023 – Aug 2023</div>
- Managed intern schedules, organized training spaces, and ensured program logistics.
- Monitored intern progress and facilitated hardware/software learning.
- Created Python-based tools to automate attendance tracking and session evaluations.

Education

Makerere University
Bachelor of Engineering, Electrical and Electronics Engineering <div align="right">2022 – 2026</div>

Mengo Senior School
UACE, Physics, Chemistry, Mathematics   2019 – 2021
UCE, General   2015 – 2018
Nabweru Parents Primary School
PLE   2010 – 2014

Skills and Certifications

Top Skills: Python Development, Web Development, Computer Repair, PostgreSQL, Automation
Certifications: Machine Learning with Python, ChatGPT API, Introduction to Cybersecurity, AI Capstone Project, IoT Development

Publications

A Low-Cost IoT Cloud-Based Solution for Intelligent Rearing of the Black Soldier Fly
- Co-authored and accepted for publication in IEEE Xplore, focusing on sustainable IoT applications.
- Developed Python code for data visualization and analysis.