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Top Skills

Mobile Application Development
Application Programming Interfaces (API)
3D Printing

Certifications

Certificate of Completion- Safety Management Systems
Machine Learning with Python
Certificate of Completion - Introduction to Cybersecurity Bootcamp
ChatGPT API
AI Capstone Project with Deep Learning

Publications

A Low-Cost Internet of things cloud based solution for the intelligent rearing of the black soldier fly

Shawal Mbalire

Embedded Systems Engineer Hardware and Software
Kampala, Central Region, Uganda

Summary

As an aspiring engineer, I am passionate about automation and electronics engineering, and I am eager to learn from the best in the field. That is why I am pursuing my Bachelor of Engineering degree in Electrical and Electronics Engineering at Makerere University, where I have acquired multiple certifications in Python, AWS, and Blockchain Software Engineering.

I am also actively involved in various research and innovation projects, both as an intern and a leader. At IoT-ra Lab, I am working on a low-cost IoT-based cloud solution for the intelligent rearing of Black Soldier Fly, which has potential applications in organic waste management and livestock feed production. I have co-authored a paper on this project, which has been accepted for publication in IEEE Xplore. At Marconi Lab, I am exploring the use of machine learning and computer vision techniques for smart agriculture and environmental monitoring. And at Makerere AI Lab, I am leading the communication and participation efforts for the hackathon, where I have created a network of volunteers, a website, and a social media campaign to engage and inspire Ugandan students from different universities.

Through these experiences, I have developed skills in overleaf, product ideation, cloud firestore, and chatGPT API, as well as teamwork, communication, and problem-solving abilities. My goal is to become one of the best engineers in the world, and I am always looking for new opportunities and challenges to grow and contribute to the advancement of science and technology.

Experience

Kamitek Solar SMC LTD
Hardware and Software Engineer
July 2025 - Present (3 months)
Kampala, Central Region, Uganda

Events Gallery Uganda
Mobile Application Developer
July 2025 - Present (3 months)
Kampala, Central Region, Uganda

International Telecommunication Union
Generation Connect Youth Envoy
May 2024 - July 2025 (1 year 3 months)
Kampala, Central Region, Uganda

netLabs!UG
2 years 6 months
Engineering Intern, E waste Recycling Project
February 2023 - July 2025 (2 years 6 months)
Kampala, Central Region, Uganda

As a student pilot in the e-waste recycling project at Makerere University , I am part off a team working on repurposing e-waste to create functional computers for underprivileged communities. Our project involves collecting donated e-waste, dismantling and sorting the components, refurbishing and rebuilding computers, and distributing them to those in need. As a team member, I am responsible for woodworking and operating systems .I am proud to be part of an initiative that promotes environmental sustainability and social impact.

Computer Trainer
February 2024 - February 2024 (1 month)
Kampala, Central Region, Uganda

Tutored a feww students at netlabs through computer repair, from tools used in hardware repair to the software used to diagonise the hardware.I further on ensured the installation of windows 11 alongside ubuntu 22 on a few of the E-waste computers to ensure practical learning regards installing operating systems.

IoT-ra (Internet of Things - Research & Applications) Lab
Embedded System Intern
March 2024 - April 2025 (1 year 2 months)
Kampala, Central Region, Uganda

Wworked on the bee hive project

ADG
Back End Developer

December 2024 - February 2025 (3 months)

Kampala, Central Region, Uganda

Developed a docker compose environment that connected to GCP

Green Hub East Africa Ltd

Engineering, Software Development and Data analysis intern

January 2024 - September 2024 (9 months)

Kampala, Central Region, Uganda

- Support in Data Analysis and Database Creation
- Support in Development of Battery Swapping Infrastructure
- Support in Analysis and Development of innovative Automation Solutions to support
the E-mobility Ecosystem
- Web Page Development

IEEE

Chairperson Makerere University Student Branch

September 2022 - September 2024 (2 years 1 month)

Kampala, Central Region, Uganda

As the Chair of the IEEE Makerere University Student Branch, I led a team of 9 students in organizing various activities and initiatives aimed at promoting technology and engineering education among students. Some of the initiatives we undertook during my tenure include Arduino training, solar training, programming competition, leadership training among others. As the Chair, I was responsible for leading meetings, managing budgets, or liaising with other organizations. Through this experience, I have developed skills in leadership, project management, or communication. I am proud to have been part of an organization that promotes innovation and technology among students.

Access2innovation

Project Assistant “Green Hub Kampala – e-mobility”

June 2024 - August 2024 (3 months)

Aalborg, North Denmark Region, Denmark

The Marconi Research and Innovations Laboratory

Undergraduate Researcher

February 2024 - August 2024 (7 months)

Kampala, Central Region, Uganda

Worked to train a natural voice language model on Runyankore dataset for a period of 3 months

Makerere AI Lab

Communication and Participation Lead

February 2024 - May 2024 (4 months)

Kampala, Central Region, Uganda

Lead for Makerere AI lab Hackathon.

In charge of forwarding communication to Ugandan students from different Universities and Ensure participation.

Created a network of volunteers across the universities

Created the hackathon website.

Uganda Red Cross Society

1 year 8 months

Vice Chairperson, Makerere University Redcross Chapter

October 2022 - September 2023 (1 year)

Kampala, Central Region, Uganda

As the Vice Chairperson of the Red Cross Volunteer Team, I worked alongside the Chairperson and other team members in organizing various initiatives aimed at providing relief to communities affected by disasters and emergencies. Some of the initiatives we undertook during my tenure include giving back to Katanga.. Through this experience, I have developed skills such as leadership, teamwork, or crisis management. I am proud to have been part of an organization that helps vulnerable communities in times of need.

CEDAT Coordinator

February 2022 - October 2022 (9 months)

Kampala, Central Region, Uganda

Awarded most active coordinator during the guild health week for having the largest call out for blood donation, roughly 1.5 times the average other coordinator.

Responsible for publicising and encouraging students to attend Redcross events.

Dojo Hub (SMC) Ltd

Internship Coordinator

June 2023 - August 2023 (3 months)

Kampala, Central Region, Uganda

An internship coordinator is an intern who ensures that the internship program is successful for both

Dojo Hub and the interns by coordinating activities and resources on behalf of the internship supervisor

List of roles and responsibilities

1. Ensuring that activities have all necessary resources. For example, setting up the projector and screen for lectures.
2. Management of spaces to ensure that interns have access to them when needed. For example, ensuring that the lecture rooms and labs are fit for use.
3. Monitoring the progress of interns. For example, keeping tabs on which competence each intern is currently on and what challenges or hinderances they may be facing.
4. Reporting challenges and communications from the interns to the supervisor.
5. Suggesting possible improvements to the internship program.
6. Collection of logbooks and assessment forms

Self-employed

Research Team Member, Low-cost Cloud-based Solution for Black Soldier Fly Rearing

January 2023 - July 2023 (7 months)

Kampala, Central Region, Uganda

Our research paper was accepted to IEEE AFRICON 2023 to be presented in October 2023. As a member of a research team of four authors, we have been conducting research on developing a low-cost cloud-based solution for black soldier fly rearing, which has potential applications in sustainable agriculture and animal feed production. Our research involves using IoT sensors to detect the humidity, temperature and light values then remotely displaying them to study their effect on bsf growth. Through this research, I have developed skills in research, data analysis, or critical thinking. I am passionate about promoting sustainable practices in agriculture and am excited to continue exploring innovative solutions in this field.

IEEE PES DAY 2023

IEEE PES Day Ambassador

April 2023 - May 2023 (2 months)

Kampala, Central Region, Uganda

As an IEEE PES Day Ambassador, I participated in a global campaign to promote awareness and engagement around the importance of sustainable energy. We organised a panel session about the drivers, future and opportunities of power and energy in Uganda. Through this experience, I have

developed skills such as communication, leadership, or event planning. I am proud to have been part of a global initiative that seeks to promote sustainable energy and contribute to a better world.

Reach Platform

Bount Hack Attendee

September 2022 - October 2022 (2 months)

Participated in the Decentralized Umoja Bount Hack organized by The Reach Foundation, a virtual event focused on decentralized technology and its potential to improve financial inclusion. During the hackathon, worked with a team to develop a blockchain-based solution for micropayments in a simple game and gained experience in reach programming and smart contract development. Presented the final project to a panel of judges and received valuable feedback on our approach.

Overall, it was a fantastic learning opportunity and an excellent way to connect with other like-minded individuals in the decentralized technology space across Africa.

Zenith Auto Spare Parts Limited

Retail Salesworker

August 2018 - February 2022 (3 years 7 months)

Uganda

As an apprentice at a retail shop selling car spare parts. I was in charge of increasing sales, handling customers, giving advise upon which spare parts to purchase. Inventory management ensuring optimal use of capital money. It was a nice way to earn a daily stipend of 10,000ugx while in high school .

Education

Makerere University

Bachelor of Engineering - BE, Electrical and Electronics
Engineering · (2022 - 2026)

Mengo Senior School

UACE, Physics Chemistry Mathematics · (February 2019 - December 2021)

Mengo Senior School

Uganda Certificate of Education UCE, General · (February 2015 - November 2018)

Nabweru Parents Primary School
Primary Leaving Exams PLE · (January 2010 - November 2014)