

CV _ EMMANUEL WOKULIRA MIYINGO

Makerere University • CEDAT • Electrical & Electronics Engineering • Kampala, Uganda.

BIO-DATA

Name: Emmanuel Wokulira Miyingo
Sex: Male
Nationality: Ugandan
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Marital status: Married
Motto: My way of living is my message!
Mission: To extend genuine service to humanity



Profile: <https://cedat.mak.ac.ug/academic-staff/emmanuel-wokulira-miyingo/>
Research Group: <https://cedat.mak.ac.ug/epses/>

PROFESSIONAL PROFILE

Electrical engineer and renewable-energy researcher with a PhD from the University of Kassel. Research interests include renewable-energy systems, productive energy use, hybrid renewable-energy systems, energy efficiency, power systems, and energy applications in agricultural value chains. Lecturer at Makerere University with experience in teaching, research, governance, and student supervision.

EDUCATION BACKGROUND

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| April 2016 – Sept 2020 | PhD, University of Kassel, Witzenhausen, Germany, focused on the <i>Development of Energy Use Profiles, Reduction Concepts, and Implementation of Renewable Energies in the Central Ugandan Pineapple Processing Chains.</i> |
| July – Aug 2014 | Post Graduate Certificate in Project Planning and Management, College of Business and Management Sciences, Mak, P.O. Box 7062, Kampala. |
| Aug 2009 – Jun 2012 | Master of Science (Renewable Energy), Makerere University, P.O. Box 7062, Kampala, Uganda. |
| Aug 2004 – Jun 2008 | Bachelor of Science (Electrical Engineering) – Honours First Class Degree, Makerere University, Kampala, Uganda. |
| Feb 2002 - Dec 2003 | Uganda Advanced Certificate of Education, Mulusa Academy Wobulenzi. |

WORKING EXPERIENCE AND RESEARCH PROJECTS

Makerere University, P.O. Box 7062, Kampala, Uganda, Jul 2021 - Date

- Lecturer in the Department of Electrical and Computer Engineering (ECE), College of Engineering, Design, Art and Technology (CEDAT). Key tasks: Lecturing (Courses lectured: Energy Conversion and Generation, Energy Systems, Power Systems Protection and Coordination, Control Systems Engineering, Instrumentation and Control, among others), Research, Governance, and Supervision of graduate and undergraduate students.

Makerere University, P.O. Box 7062, Kampala, Uganda, Nov 2013 – Jun 2021

- Assistant Lecturer in the Department of ECE, CEDAT. Key tasks: Lecturing (Courses lectured: Energy Conversion and Generation, Energy Systems, Power Systems Protection and Coordination, Control Systems Engineering, Instrumentation and Control, among others), Research, Governance, and Supervision of undergraduate students.

Makerere University, P.O. Box 7062, Kampala, Uganda, Aug 2008 – Oct 2013

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Makerere University • CEDAT • Electrical & Electronics Engineering • Kampala, Uganda.

- Teaching Assistant in the Department of ECE, CEDAT. Key tasks: Tutoring (Courses tutored: Energy Conversion and Generation, Energy Systems, Power Systems Protection and Coordination, Control Systems Engineering, Instrumentation and Control, among others), Research, Governance, and Supervision of undergraduate students.

Technology for Tomorrow Ltd (T4T), Makerere University, Kampala Uganda, 2005 - Date

- Involved in various research activities under the mentorship of the late Dr. Musaaazi in collaboration with Prof. Roy Clarke, University of Michigan, USA. They included but not limited to design and installation of small-scale standalone solar systems (e.g. for two health centers in Fort Portal), developing low cost lighting systems, electricity generation from medical waste, to mention a few.

The then German Technical cooperation, P.O. Box 10346, Kampala, Uganda, 2007 - 2008

- Worked with the then Energy Advisory Project (EAP) to assess the new and old refrigeration equipment sold in Uganda. In this investigation, measurement of current, voltage, and power consumption of refrigeration equipment was done in order to obtain data to enable the development of standards for refrigeration equipment in Uganda.
- Energy efficiency in the building sector: energy consumption and practices in selected Kampala buildings categorized as residential, commercial, and government were established through visitation and interviews using questionnaires, and recommendations made on how to efficiently utilize energy, especially electricity.
- Data collection and Analysis; data on the first phase of the project of giving out energy savers by the government of Uganda was collected and analyzed. This was intended to assess the effect that had been created by the project.

PRESENTATIONS

College of Engineering, Design, Art & Technology, Makerere University, Kampala, Uganda (4th – 11th Aug 2025).

- Renewable Resources for Sustainable Development in Africa (ReSus-AFRICA) Summer School, on the theme “Harnessing Africa’s Potential – Advances and Applications of Renewable Materials for Sustainable Development.”
- Delivered a 2-hour interactive presentation titled: “**Trends in Renewable Energy Materials and Applications**” on 6th Aug 2025.

German Academic Exchange Service (DAAD), University of Kassel, and DITSL Witzenhausen, Germany 18th – 30th June 2024.

- DAAD SDG Alumni Project within the framework of the trade fair The Smarter E Europe 2024, Munich, Germany; Conference Participation (19th – 21st June 2024)
- Gave a talk titled: “Solar PV-Biogas Hybrid Micro-grids for Off-grid Productive Energy Use” during Training Seminar at the University of Kassel, Witzehausen Germany (24th – 30th June 2024).

Kwame Nkrumah University of Science and Technology, Ghana 3rd – 9th Sept 2023.

- TUM SEED CENTRE Annual Symposium 2023
- Participated in various workshops and group activities
- Gave a talk titled: Hybrid Renewable Energy Systems for off-grid Agricultural Communities.

German Academic Exchange Service (DAAD), University of Kassel, and DITSL Witzenhausen, Germany 17th – 28th Jan 2023.

- DAAD SDG Alumni Project in the framework of the Global Forum for Food and Agriculture and Trade Fair International Green Week 2023
- Visited the trade fair International Green Week and a training seminar
- Gave a talk titled: Hybrid Renewable Energy Systems for off-grid Agricultural Communities.

African Studies Center (ASC), University of Michigan, Ann Arbor, MI 48104, 18th – 20th Oct 2019.

- STEM-V Conference on Appropriate Technology in Africa. It was intended in part as a memorial and tribute for the late Dr. Moses Kizza Musaaazi, Makerere University and founder of Technology for Tomorrow Ltd, Uganda, who was master of the “Appropriate Technology”.

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- Gave a talk titled: "Appropriate Technology (AT) - the Genius of Dr. Moses Kizza Musaaazi", which focused on AT accomplishments related to renewable energies especially solar energy in Uganda. This was under the panel, "Gakyali Mabaga: The Legacy of Dr. Moses Musaaazi in the Domain of Sustainable Technology."

NARO-MAK Scientific Conference 2018, Speke Resort Munyonyo, Kampala, Uganda, 12th – 15th Nov 2018.

- Public Poster Presentation at the above conference on preliminary investigation of biogas generation from pineapple peels in central Uganda.

Tropentag 2017, University of Bonn, Bonn, Germany, 20th - 22nd Sept 2017.

- Public Presentation at the above international conference on a case of pineapple drying and munaanansi making in central Uganda.

African Studies Center (ASC), University of Michigan, Ann Arbor, MI 48104, Feb 2016.

- Public Presentation at one of the University of Michigan African Presidential Scholars Program (UMAPS) Colloquium Series. The presentation was on the design, development, and deployment of energy systems based on renewable energies, which is my major research field.

Ministry of Energy and Mineral development (MEMD), P.O.BOX 7270, Kampala, Uganda, 2004.

- Workshop on energy crisis in Uganda intended to develop short, medium, and long-term strategies for averting the situation that befell Uganda characterized by frequent load shedding and blackouts, which greatly affected business in Uganda.
- Participated in focus discussion groups that came up with short, medium, and long time strategies to avert the situation among which included use of efficient equipment as well emphasizing renewable energies especially solar PV plus sensitization as short-term approaches.

INTERNSHIPS/INVITED WORKSHOPS

TUM-SEED Centre at Indian Institute of Technology Bombay, India, 27th-28th Nov 2023.

- Participated in two-day workshop titled "Rural Mini-grids: Sustainability Challenges and The Way Forward". The workshop involved interactive symposiums, panel discussions, and poster presentations. It resulted into the overall understanding of the issues faced by the rural mini-grids, and exchange of ideas and learning from the experiences of mini-grid operators and policymakers across various countries.

Community Wireless Resource Centre, Makerere University, Faculty of Technology, Electrical Department, 2007.

- Carried out third year Industrial Training with the above Centre; an establishment in the then Electrical Department. During the training, I got involved in the configuration and deployment of wireless networks in Kabale, Nabweru, and Lira.

Ministry of Energy and Mineral development (MEMD), P.O.BOX 7270, Kampala, Uganda, 2006.

- Trained in energy related issues especially energy conservation and efficiency. Got involved in energy audits of both small and large facilities gaining skills on how to carry out an energy audit.

LANGUAGES

Luganda: Mother tongue

English : Spoken – fluent; written – excellent; reading – excellent

RECENT PUBLICATIONS

1. Kasedde, H., Masendi, P., **Miyingo, E. W.**, Lwanyaga, J. D., & Kirabira, J. B. (2026). Techno-Economic Analysis of a Hybrid Solar Thermal-Biogas Powered Dryer for Fruit Dehydration. Results in Engineering, 110884. <https://doi.org/10.1016/j.rineng.2026.110884>

2. Ndayishimiye, V., Bakkabulindi, G., & **Miyingo, E. W.** (2025). Cost-optimal Coordinated Generation and Transmission Expansion Planning in the Context of Overcapacity in Power Systems. 269–280. <https://doi.org/10.1049/enc2.70022>
3. Semazzi, Z. W., Lating, O. P., Kasedde, H., & **Miyingo, W. E.** (2025). Production and Experimental Characterization of Homogeneous and Composite Briquettes from Fruit Processing Waste. *East African Journal of Science, Technology and Innovation*, 6(4).
4. **Miyingo, W. E.**, Tusubira, S. D., Akol, N. R., Mugala, N. S., & Kawooya, K. D. (2025). Development of a Solar Photovoltaic-Biogas Hybrid Microgrid for Off-Grid Rural Communities in Uganda. *SAIEE Africa Research Journal*, 116(4), 150–159. <https://doi.org/10.23919/SAIEE.2025.11129186>
5. Bakkabulindi, G., Ndayishimiye, V., & **Miyingo, E.W.** (2025). Optimal Grid Expansion Planning in Power Systems With Surplus Generation Capacity and Suppressed Demand. *The Journal of Engineering*. <https://doi.org/10.1049/tje2.70070>
6. Oviroh, P. O., Austin-Breneman, J., Chien, C. C., Chakravarthula, P. N., Harikumar, V., Shiva, P., **Miyingo, E.**, ... & Papalambros, P. Y. (2023). Micro Water-Energy-Food (MicroWEF) Nexus: A system design optimization framework for Integrated Natural Resource Conservation and Development (INRCD) projects at community scale. *Applied Energy*, 333, 120583. DOI: <https://doi.org/10.1016/j.apenergy.2022.120583>
7. Ndayishimiye, V., Bakkabulindi, G., & **Miyingo, E.** (2022). Analysis of the Effects of Drought Conditions on Hydroelectric Power Generation in Uganda. In 2022 IEEE PES/IAS PowerAfrica (pp. 1-5). IEEE. DOI: 10.1109/PowerAfrica53997.2022.9905257
8. Barlow, T., Biddanda, M., Mendke, S., **Miyingo, E.**, Sicko, A., Papalambros, P. Y., ... & O'Neal, W. (2021). A System Design Optimization Model for Integrated Natural Resource Conservation and Development in an Agricultural Community. *Proceedings of the Design Society*, 1, 273-282. DOI: <https://doi.org/10.1017/pds.2021.28>