

Electrical Engineer
Prof. Dr. Ir. Ngalula Sandrine Mubenga, PhD, PE, SMIEEE

Website: www.drmubenga.com Twitter: @NgalulaPE

Experienced Electrical Engineer with area of expertise in regulation, renewable energy systems, photovoltaic systems design and integration, energy management, project management, distribution planning & protection, and arc flash mitigation. Over 10 year experience in electrical engineering and holds a Professional Engineer license in Ohio since 2011. Designed/approved/interconnected 50MW of solar photovoltaic systems (see Fig1). Former founder and CEO of SMIN Power Group, LLC, a solar developer. Helped manage an energy budget totaling \$65 million for the University of Toledo as Manager, Electrical Engineering in Facilities and Construction for 5 years, which resulted into saving \$5 million.

Since 2018, Assistant Professor in the department of Engineering Technology at the University of Toledo, Ohio who has taught 621 students. Research interests include battery energy storage, renewable energy systems, electric vehicles, and energy efficiency. Developed the Bilevel Equalizer and the fuel cell hybrid electric vehicle. Teaching experience at the University of Toledo includes Network Analysis, Electric Power Systems, Embedded Systems Designs, and Digital Logic Fundamentals. Holds a provisional patent.

Senior member of the Institute of Electrical and Electronic Engineers (IEEE). Named 2018 Engineer of the Year, and 2010 Young Engineer of the Year by the IEEE Toledo Section. Founder and Past-Chair of the IEEE Toledo Graduate of the Last Decade Group-now known as young professional. Served as the General Conference Chair for the 2017 IEEE PES & IAS PowerAfrica Conference in Ghana, which raised \$21,000 and attracted attendees from 33 countries. Earned multiple awards and honors including being appointed as a Member of the Board of Directors for the Societe Nationale d' Electricite (SNEL), the national electric utility company in the Democratic Republic of the Congo.

Service includes the DRC Electricity Regulatory Authority; commissioner for the State of Ohio as a member of the New African Immigrant Commission appointed by Governor Dewine from 2021 to 2023; board member of Imagination Station in Toledo, Ohio since 2022.

Education / Registration

- Philosophy Doctorate degree in Electrical Engineering, GPA:3.934/4.000, University of Toledo, Ohio – December 2017. Dissertation: “A Battery Management System for Large Li-ion Batteries with Bilevel Equalization”. Committee: Drs. Tom Stuart (Chair), Alam Mansoor, Richard Molyet, Mohsin Jamali, and Matthew Franchetti.
- Master of Science degree in Electrical Engineering with honors, GPA: 3.943/4.000, University of Toledo, Ohio, December 2008. Thesis: “ A Renewable Energy System for Fuel Cell Vehicles”. Earned the Most Outstanding Master Thesis Award in Electrical Engineering. Committee: Drs. Tom Stuart (Chair), Mohsin Jamali, Richard Molyet, and Salari.
- Bachelor of Science degree in Electrical Engineering, GPA: 3.573 /4.000, Cum Laude, University of Toledo, Ohio.
- Professional Engineer registered in Ohio, 2011.
- Speaks English, French, Swahili, Lingala, and Kikongo. Traveled to 15 countries.
- Certified as a Photovoltaic System Installer / Designer Apprentice, Owens Community College.
- Ohio Facility Construction Commission (OFCC) Higher Education Administration Certification, 2013.

Academic Experience

1. University of Toledo, Toledo, Ohio, USA (01/2018- Present)

Assistant Professor (Tenure-Track), Engineering Technology

- Teach Electrical Engineering Technology classes and labs, conducts research, advise undergraduate/graduate students, and serve on various committees.
- Has taught over 700 students.
- **Undergraduate courses** include, EET2210 Digital Logic Fundamentals + Lab, EET3250 Network Analysis, EET3350 Embedded Systems Design + Lab, EET4350 Electric Power Systems + Lab.
- **Graduate courses** include EECS5920 Project, EECS6900, Independent Research, EECS6990 Independent Study, for students from the Electrical Engineering and Computer Science (EECS) Department. Advisor to 4 EECS Master students. Technical advisor to 5 senior design teams.

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- Member of the committee in charge of developing the Masters in Mechatronics Program at the University of Toledo.
- **Areas of research include** battery energy storage, renewable energy systems, electric vehicles, energy efficiency, and electricity regulation.
- **Consulting** with the Electricity Regulatory Authority (ERA) in the Democratic Republic of the Congo.
- **Additional details about teaching can be found on page 7.**

Entrepreneurial Experience

1. SMIN Power Group, (09/2011-07/2020)

Founder and Chief Executive Officer

- Founded SMIN Power Group LLC in the state of Ohio, USA in 2011. Led efforts from the business plan development to the state registration process.
- SMIN Power Group focuses on designing and installing renewable energy systems. It also provides energy management and power management services so that people can better their life.
- Expanded presence in Africa, by opening a registered office in the Democratic Republic of the Congo, in 2013. Since then, efforts have been focused on introducing more photovoltaic systems in Africa.
- In 2017, SMIN Power Group was named Top 5 Innovators for bringing renewable energy in DRC by the Congo Na Paris magazine.
- Positioned SMIN Power Group as a leader in Science Technology Engineering and Mathematics (STEM) by creating a scholarship program to encourage students to study in the STEM fields.
- Directed global business operation, market penetration efforts and partnership strategies, which has resulted in successfully working with companies, schools, communities, media outlets, and individuals.
- Provided technical expertise in photovoltaic system design and integration, renewable energy systems, energy management, power distribution, sustainability, educational strategies and community outreach approaches.
- In order to avoid conflict of interest, she stepped down from the SMIN POWER Group when she was appointed as CEO of the DRC Electricity Sector Regulatory Authority.

Nonprofit Experience

2. STEM DRC Initiative, (2018-Present)

Founder and President

- Founded the nonprofit STEM DRC Initiative LLC in the state of Ohio, USA in 2018. Led efforts from the plan development to the state registration process and obtention of the 501C3 tax exemption status.
- Founded the nonprofit STEM DRC Initiative ASBL in Kinshasa, D.R. Congo.
- STEM DRC Initiative is a 501©3 nonprofit organization that promotes Science, Technology, Engineering and Math through research, education, and entrepreneurship for students in the D.R. Congo, the USA, and the diaspora.
- Since its creation, STEM DRC Initiative has directly impacted over 6000 people through workshops, conferences, and webinars. STEM DRC has provided close to 185 scholarships to students in the DRC, and has over 400 members from the STEM fields.
- Provides direction to the volunteer leadership team.
- Establishes strategic partnerships to advance the mission of STEM DRC and benefits members.
- Overseeing the construction efforts of the STEM DRC Initiative headquarters in Walungu, D.R. Congo.
- Initiated the Scholarship of excellence in STEM and the Excellence in STEM award to highlight the achievement of Congolese youth in STEM.
- Initiated a project to design and manufacture a ventilator in the DRC, in response to Covid19. Established strategic partnership between the members of STEM DRC Initiative, the University of Loyola- ICAM, the Marie Mutombo Hospital, the National Institute for Professional Preparation, E-SAS Com, and Xavier University of Loyola to implement the ventilateur project called "Respirateur RDC".

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- In response to the lack of oxygen during Covid19, we initiated a project of oxygen production in partnership with STEM DRC Initiative, the World Bank, and the Ministry of Health. STEM DRC Initiative conducted missions in Goma, Bukavu and Kinshasa to assess the needs of medical centers for oxygen. Then, provided technical specifications, and wrote the majority of documents for the procurement process. The project installed 8 oxygen units in 5 provinces, with a total capacity of production of 21,200 liters of oxygen per day.

Selected Professional Experience

3. Societe Nationale d' Electricite, Kinshasa, R.D.Congo (07/2017-07/2020) Board Member

- The Societe Nationale D'Electricite (SNEL) is the main electric utility company responsible for serving about 85 million in the Democratic Republic of the Congo.
- SNEL owns and operate electric facilities that provide power generation, transmission, and distribution of electric power and energy to 26 provinces. It has approximately 6,500 employees.
- Appointed by the President of the Democratic Republic of The Congo to serve as a member of the Board of Director in July 2017.
- Entrusted with the oversight of assets and resource of the Society National d'Electricite
- Reviewed strategic level plans and budget and made recommendations.

4. University of Toledo, Toledo, Ohio, USA (05/2012-06/2017) Manager, Electrical Engineering

- Assisted in managing a budget totaling \$65 million dollars for campus utility use and 8 million square feet of campus infrastructure as the only Electrical Engineer in the department of Facilities and Construction.
- Saved over \$5 million dollars in utility costs through various energy management projects.
- Generated revenue in excess of 200,000 dollars through energy efficiency rebate checks. Part of it funded the SEED scholarship to encourage student who promote sustainability on campus.
- One of three co-founders of the University of Toledo's Sustainability Energy Efficiency and Design (SEED) initiative.
- Managed the building automation team.
- Managed energy related and electrical engineering activities for University Facilities and Construction.
- Provided comprehensive electrical engineering services for the University including operations, capital improvement projects, new construction, and energy management. The focus of engineering activities were on sustainability, and energy management in current and future construction and maintenance.
- Managed the variable frequency drives program which was cited as a good example in the 2014 and 2015 State Efficiency Report for Ohio.
- Designer and Project Manager for \$ 2 million dollars Campus Energy Cost Reduction project (lighting phase) across over 30 buildings on all campuses in an effort to reduce energy consumption while keeping customer comfortable.
- Initiator for utility scale (250KW) fuel cell installation project with a potential donation worth \$1 million dollars ad partnership with the College of Engineering.
- Managed state certification and inspection program for over 112 boilers across all campuses.
- Managed university metering program (about 165 meters) which included hardware maintenance, communication network, data integration, and administration of two (2) real time websites.
- Assisted Director with community development, energy projects, student involvement and projects, energy website, and developing new and unique ways to reduce campus energy use or improve its efficiency.

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5. SSOE Group, Toledo, Ohio, USA (12/2009-05/2012)
Electrical Engineer

American Municipal Power, Columbus, Ohio

- Designed a 4.2MW DC, 12.470KV solar field in Napoleon, Ohio per Fig.1. The installation consists of (17,140) mono-crystalline photovoltaic modules, (24) inverters, and (6) medium voltage transformers.
- Total project cost of 10 million dollar.
- Evaluated options for electrical interconnection to the City of Napoleon and provide information for the PUCO Application for Certification as an eligible Ohio Resource Generating facility.
- Prepared bidding documents and evaluate bids for equipment contract and electrical installation contract.

Medical College Company, Cleveland, Ohio

- Project Engineer for the electrical installation of one (1) new 100,000 PPH natural gas-fired package boiler and auxiliary equipment. Developed power, lighting, instrumentation, control, and field wiring for new installation. Developed interconnection wiring between the boiler control panel and the burner management system.
- Project Engineer for electrical installation of a new water treatment system.

OneEnergy Renewables, Portland, Oregon

- Initially OneEnergy Renewables required engineering assistance to support the submission of an interconnection application to PJM for two(2) photovoltaic (PV) array installations. The client was so satisfied with the work done that they came back with repeat business. A total of four (4) applications.
- 20MW, 3Ph, 69KV, (81,000) Solarworld 250 mono modules, PVPowered inverters (19.5 MW max)
- 20MW, 3Ph, 69KV, (81,000) Solarworld 250 mono modules, PVPowered inverters (19.5 MW max).
- 4MW, 3Ph, 12.470KV, (16,224) Solarworld 250 mono modules, PVPowered inverters (3.38MW max).
- 2MW, 3Ph, 12.470KV, (8,064) Solarword 250 mono modules, PVPowered invereters (1.82MW max).
- Provided sealed single-line drawings for each of the PV installations depicting the installation from the inverter to the Point of Interconnection (POC) with the utility. Worked with PJM to determine appropriate forms to complete.
- Provided OneEnergy Renewables with information required to complete the Feasibility Study data online form and Attachment N form.

American Electric Power Cardinal Plant Units 1, 2 and 3, Brilliant, Ohio

- Reviewed AEP's arc flash calculations and determined the overall scope to successfully mitigate the incident energy levels greater than or equal to 37 calories / cm² mostly by using SEL 751A relays.
- Reviewed AEP's arc flash calculations and determined the overall scope to mitigate the circuit breakers that are under-rated with respect to short circuit current interrupting capacities, for those breakers where incident energy levels are greater than or equal to 37 calories / cm².
- Generated a written report containing proposed solutions to mitigate arc flash on a bus / circuit breaker basis, including proposed one-line diagram updates.
- Generated protective relay settings for (32) SEL 751A relays and programming using Easypower and AcSElerator.

City of Hamilton, Hamilton, Ohio

- Developed relay settings for (3) new substations using AcSElerator. Developed settings for approximately (66) SEL devices including SEL 351-7, 551C, 387, 311L, 351A relays and for the SEL 2032 Communication Processors. Coordinated relays and protective devices using Paladin DesignBase2.
- Developed a Microsoft Access based application called Circuit Tabs. Circuit Tabs is an application which generates various reports such as cable and termination schedule, raceway schedule, cable type list, and equipment list. Once the user has filled the data entry forms, Circuit Tabs calculates the total number of cables and the total cross-sectional area of cables for each raceway. It then selects the appropriate

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raceway size based on the National Electrical Code. Circuit Tabs also allows the user to overwrite raceway sizes. It automatically shows the circuits that share the same multi-conductor cable, all the circuits that are in a specific raceway, and the route for each circuit.

Ohio Veterans Home, Sandusky, Ohio

- Designed the electrical system for new mechanical room in HVAC System Upgrade, Veteran's Hall project. The electrical system included 480V distribution panel and feeders, variable frequency drives, motor starters, emergency lights and lighting. Performed load calculations and equipment sizing. Visited the site. Gave directions to the CAD operator for the electrical drawings.
- Developed electrical specifications using MasterSpec 2004 format. Developed cost estimate for the electrical system. Reviewed electrical contractor shop drawings and cost estimate for change orders.

City of Dover, Dover, Ohio

- Liaison between the North American Electric Reliability Corporation and customers (cities). The
- Mission of NERC is to ensure the reliability of the North American Bulk-Power System by holding entities accountable for compliance with mandatory NERC Reliability Standards and acting as a catalyst for positive change within the industry.
- Developed and maintained checklist for North American Electric Reliability Corporation (NERC) documents.
- Wrote and/or updated NERC policies/procedures for the city of Dover.
- Completed pre-audit documents for the NERC audit.
- Sized capacitor banks for power factor correction of feeders.
- Performed arc flash study for the entire city of Dover, Ohio and issued recommendations to mitigate arc flash.
- Performed protective device coordination study and issued recommendations.
- Performed relay coordination for new recloser at Dover.

Power & Energy Group Internal Auditor (ISO 9001-2008)

- Conducted quarterly audits, per the corporate audit schedule, prepared audit reports and submitted before the quarterly Quality System Steering Committee (QSSC) meeting dates.
- Assisted other staff members and answered any questions or concerns they may have about the QS policies and procedures and compliance requirements
- Supported PM's within the SBU/Branch office, helping them as needed with issues involving QS compliance
- Coordinated with SBU Quality System representative (QSR) to determine audit schedule and projects to be audited in the group.
- Conducted audit(s), prepared the audit report and discussed any concerns or observations that require attention, with the SBU QSR.
- Provided list of any issues that may require corporate wide attention to the SBU QSR for her/him to present in the quarterly QSSC meeting.

**4. Orbital Technical Solutions, LLC, Toledo, Ohio, USA, (10/2008- 12/2009 Merged with SSOE)
Electrical Engineer**

American Municipal Power, Ohio

- Supported AMP for installation of satellite-based SCADA communication system across 21 sites in the US. Documented progress and posted documents on the project FTP site.
- Conducted site surveys. Issued field trip reports and survey forms. Designed communication system integration for each site. Issued detailed scope of work including an equipment list. Co-wrote weekly update for the AMP / OTS team. Supervised electrical contractor during installation. Developed as-built

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instruction manual. Sketched drawings for each installation. Supervised the CAD operator to produce the drawings from sketches.

- Supported AMP in resolving communication issues with four meters. Investigated problem meter sites to determine cause of communication problems. Issued field trip reports and survey forms. Issued recommendations to test / replace failed equipment.

Consumers Energy, Erie, Michigan

- Supported the upgrade to a distributed control system. Compiled list of analog and digital inputs / outputs for the distributed control system.
- Maintained drawing requests and indexes. Generated loop drawings for various electrical equipment. Double-checked shop drawings.

6. FirstEnergy Corporation / Toledo Edison, Toledo, Ohio(02/2006-12/2006)
Assistant Engineer

- FirstEnergy Corp is an electric utility headquartered in Akron, Ohio. Its subsidiaries and affiliates are involved in the distribution, transmission, and generation of electricity, as well as energy management and other energy-related services. It has 15,617 (2017) employees and generated a revenue of 14.56 billion USD in 2016. FirstEnergy is made up of 10 regulated distribution companies serving 6 millions customers and operating a large infrastructure of more than 269,000 miles.
- Completed circuit analysis for local substation area and developed plan for capacity relief.
- Created circuit models and reconfigured nine feeders to relieve possible overloads on four substation transformers.
- Assisted engineer in field checking 181 transformers installations to verify AM / FM accuracy.
- Issued work request to initiate transformer change outs. Reviewed and processed distributed generation applications (solar and wind) ensuring that the new installation met First Energy protection requirements.
- Developed switch out configurations for substation transformer outages.

7. Advanced Distributed Generation, LLC, Toledo, Ohio, USA (01/2005-02/2006)
Photovoltaic Systems Designer/Integrator Apprentice

- Designed or / and installed photovoltaic (PV) systems in the Toledo area.
- Performed engineering calculations for alternative energy system on DC and AC current.
- Developed design sketches, material list and estimated cost of PV system.
- Integrated power generation system and electrical components including inverter, DC and AC disconnect and combiner box.

8. General Electric Consumer and Industrial, Fort Wayne, Indiana (09/2002-05/2004)
Cooperative Education Student

- Supported the GE Motors Sales Force (33 members) and assumed co-leadership roles for customer productivity project.
- Coordinated major customer product teardown with potential savings of \$15 million per year.
- Developed and established a customer Dashboard process for Commercial AC Business. Automated data collection process for customer inventory. Improved and simplified data collection tool to allow global plants access.
- Researched market opportunity in states that promote energy conservation for highly efficient 58mm ECM motor retrofit.
- Dynamometer tested 270 production pilot run motors for stator flux interference, which led to a design improvement and reduced the failure rate by 50%.
- Participated in a training class on regulatory agency approval process for Underwriter Laboratory (UL).

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- Performed the competitive analysis teardown of more than 17 motors.
- Improved communication skills with global teams when working on global transition project (China and Mexico).
- Maintained commercial AC motor sample flow by tracking 109 samples through design, build and test phases. Led HHJ fan cover supplier approval with productivity of \$30,000.00.
- Assisted application engineers with quality, cost out and improvement projects through completion. Supported the US (Taylor Street plant) to Mexico (Juarez, CASA plant) motor transition projects. Led meetings with the plant in Mexico and the customer to insure corrective action of oil leak issue.

Summary of Teaching Experience

1. University of Toledo, Toledo, Ohio, USA (Spring 2018- Present) Assistant Professor (Tenure Track), Engineering Technology

Teaching Load (Total: 710 students)

Fall 2018:	81 students
Spring 2018:	40 students
Fall 2019:	40 students
Spring 2019:	64 students
Fall 2020:	55 students
Spring 2020:	59 students
Fall 2021:	57 students
Spring 2021:	90 students
Fall 2022:	40 students
Spring 2022:	63 students
Fall 2022:	40 students
Spring 2023:	72 students
Fall 2023:	23 students
Spring 2024:	66 students

Course Descriptions

EET2210 Digital Logic fundamentals + Lab: This 4-hour course covers the fundamentals of digital logic circuits. Topics include number systems, logic gates, Boolean algebra, logic simplification, Karnaugh maps, adders, multipliers, multiplexers and decoders. Elementary digital circuits including flip-flops, counters, shift registers, memory devices, programmable logic devices and integrated circuits are also covered.

EET3250 Network Analysis: This 3-hour course consists of analysis of electrical waveforms and first order time domain circuits, transient analysis of reactive circuits using Laplace transforms, system transfer functions, Bode plots and the interpretations of Fourier series and transforms.

EET3350 Embedded Systems Design + Lab: This 4-hour course covers different aspects of real-time embedded systems implementation with low-level access to hardware resources of microcontrollers. Topics include but not limited to low-level and high-level microcontroller programming covering assembly and C, I/O access, interrupt-driven programming, timers, serial interfacing, analog-to-digital (ADC), and digital-to-analog (DAC). Uses system design approach, such as flow charts, finite state machines (FSM) while implementing embedded systems is emphasized.

EET4350 Electric Power Systems + Lab: This 4-hour course constitutes a study of AC-DC machines, including transformers, power transmission and the regulations governing them as specified by industry and the National Electrical Code.

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EECS5920 Project: Independent research project with intensive investigation into an area of practical interest to the student and the instructor. 1 to 6 Credit hours.

EECS6900 Independent Research: Selected topics from current EE and CSE research with intensive investigation into recent literature in an area of mutual interest to the student and the instructor. 1 to 6 Credit hours.

EEC6990 Independent Study: In depth study of a selected topic of mutual interest to the student and the instructor. 1 to 3 Credit hours.

2. Principal Advisor or Co-Advisor to graduate students

Kripa Sherma (Masters in EECS- graduated with Thesis option), Boluwatito Salami (Masters in EECS- graduated with Thesis option), Sanjaya Bhattarai (Masters in EECS-graduated with project option), Tyler Hoffman (Masters in Energy Engineering- graduated with project option).

3. Technical Advisor

Senior Technology Capstone project: "Alternative Charging Energy" **(Spring 2018)**

Design Team: Ashley Wilson, Jarrett Brayer, Luke Fournier, Josh Grzecki, Patrick Molnar, Ian Murphy.

The team design and built the alternative charging energy (ACE) which is a portable power inverter that runs off inexpensive, easily-sourced power tool batteries. ACE converts 36 volts DC to 120volt AC pure sine wave.

Senior Technology Capstone project: "Dynamo generator for charging the battery" **(Spring 2020)**

Design Team: Yu Sang Lee, Bryan Moreton, David James Collins, Hussain Almusayid, Sammy Jeon

The team designed a battery powered air purifier on the bicycle for the bicyclist.

Senior Technology Capstone project: " Raspberry Pi Based Parental Controls and Home Security" **(Fall 2021)**

Design Team: Ethan Freimark, Jabri McGee, Olalekan Mandodola, Ian Seabolt, Jacob Dominique.

The team designed a Raspberry Pi Based Parental Controls and Home Security.

Electrical Engineering and Computer Science senior design project: "Configurable Power Optimizer " **(Fall 2022)**

Design Team: Emmett Krall, John Agubosim, Emmanuel Apanah, Philip Ottinger.

The team designed a configurable power optimizer meant to convert a certain DC output from a solar module to a user-specified DC voltage level. It has an associated web app allowing for the configuration along with other features.

4. Mentoring of Teaching Assistants

Graduate students: Noor Ahmad Hazari (PhD), Zeinab Zoghi (Masters), Asish Neupane (Masters), Boluwatito Salami (Masters), Sanjayath (Masters), Narasimharao Marturi (Masters)

Noor won the Fall 2018 Outstanding Teaching Assistant Award.

Ashish won the Outstanding Teaching Assistant Award.

5. Project Initiator and Client Advisor (Fall 2013)

M.I.M.E Senior Design Project: "Fuel Cell Installation"

Faculty Advisers: Dr. Nagi Naganathan and Dr. Matthew Franchetti

Design Team: Brian Hoyt, Michael Manzagol, James McGuire, and Christopher Roloson

This team determined whether it is economically feasible to install a molten carbon fuel cell (MCFC) to supply electricity and heat to The University of Toledo campus. I initiated this project, worked the idea with the City of Westerville, and convinced them to be willing to donate their \$1,000,000 fuel cell pending results from the feasibility study. I also obtained the buy in from the COE Dean and the F&C VP (Chuck Lehnert).

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6. Teacher Assistant (01/2007-10/2008)

Supervised and graded undergraduate lab sessions and/or coursework for the following

- Energy Conversion – EECS3460
- Energy Conversion Lab- EECS3480
- Electronics 1 - EECS3400
- Electric Machines Modeling and Conversion Lab – EECS4290
- Digital Signal Processing – EECS 4380/5380 (37 graduate and undergraduate students)-2007

7. Graduate Research Assistant (01/2007-10/2008)

- Demonstrated the feasibility of integrating alternative energy technology for the hydrogen economy. The research was financed by the Ohio Office of Development.
- Designed, developed, and tested a hybrid fuel cell / battery system which increased the driving range of an electric vehicle by 183% using hydrogen.
- The sponsor, Kronosport was looking into commercializing the hybrid system.
- Developed a hydrogen generating and filling station that is powered by a solar array. Managed all the aspects of site preparation, safety considerations, emergency action plan, and implementation.

8. University of Toledo, EIT Department Ohio, USA (2001-2005)

Computer Lab Assistant

- Assisted students with various computer applications on windows and mac computers (Outlook, Word, Excel, PowerPoint, Corel, MiniTab, Mac OS X, Windows XP etc).
- Assisted students with UTAD account creations, email creation, printer issues internet web browsing using Mozilla, explorer or safari browser

9. Fort Wayne, Indiana, USA (2002)

Engineer for a day Volunteer Teacher

- As part of a group of 6 volunteers, taught a 5th grade elementary class how to make an electric motor paper clip, magnet and a battery.

10. Junior Achievement, Van Wert Elementary School, Ohio, USA (2002)

6th Grade Volunteer Teacher

- Taught a 6th grade class of about 18 students the JA Global Marketplace which provides practical information on global economy, what makes trade work and how trade affects student's lives. It was designed to align with academic content from the Partnership for 21 Century Skills in world history, geography and social studies. The JA Global Marketplace module consisted of six (6) lessons of 45min.

11. University of Toledo, Ohio, USA (2000-2001)

Volunteer School Visit Program

- Taught at various schools in the Toledo area about culture and languages from DRC.
- Individual visit to Gesu Catholic School Kindergarten class in 2003. The lesson lasted about 50min.
- Individual visit to Rossford High School class to teach French. The lesson lasted about 50min.
- Group visit to Rogers High School during International Day festival to share the culture from DRC.

Scholarships

1. NSBE General Electric Lloyd Trotter African American Forum Scholarship
2. Technical Society of Toledo Honorary Engineers Week Scholarship
3. Robert W. Heyn Engineering Scholarship
4. Harold A Wott -IEEE Toledo Section Scholarship

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5. Golden Key International Honour Society Scholarship
6. University of Toledo International Alumni Affiliate Scholarship
7. Observatory of Conflicts for Peace in Great Lakes Africa Scholarship

Honors and Awards

1. UToledo Edith Rathbun Outreach and Engagement Excellence Award, “Your selection was based your work to bring STEM education, entrepreneurship and research to the Democratic Republic of the Congo, the United States and the world through your STEM DRC initiative are contributing factors in your selection. The impact of your work is demonstrated by the number of scholarships awarded by your program over the past three years”, *Mar.25 2022*
2. Won the Outstanding African Achiever Award as part of the African Genius Award. The African Genius Awards is one of the biggest Awards in Africa that takes place annually. The awards event is to recognize, appreciate, and celebrate African geniuses whose extraordinary display of brilliance has helped solved pressing issues in their countries and communities. The first edition of African Genius Awards took place on May 25 this year at the prestigious University of Pretoria, South Africa. *May 25, 2022*
3. Invited to be a member of the Consultative Group to support the International Energy Agency (IEA) Digital Demand –Driven Electricity Network Initiative (3DEN), *July 26, 2021*.
4. Participant to the G20 Meeting as Representative within the Energy Transition and Climate Change Working Group, Italy, *spring 2021*.
5. 2021 Award of Excellence in Science, Technology, and Innovation, by the Bamako Forum. (Prix d'Excellence en Science, Technologie et Innovation, Forum de Bamako) *June 2021*.
<https://www.africapresse.paris/Didier-Acouetey-AfricSearch-au-Forum-de-Bamako-La-jeunesse-africaine-a-besoin-d?lang=fr>
6. Thought leader during the Foresight Day event organized by the African Union and Afrochampions initiative. This was the first-time Africa’s integration day was celebrated- *July 2020*.
7. Keynote Speaker at the first University of Toledo College of Engineering Town Hall. The online event was hosted by Michael Toole, Dean of the College of Engineering and attended by about 100 alumni, staff and faculty of the University of Toledo.- *June 2020*
8. Initiated a Cooperative Memorandum of Understanding (CMOU) between the University of Toledo and the University of Loyola in Congo to explore collaboration between the two institutions. The CMOU was signed into effect in *summer 2020*.
9. Elevated to Senior Member of the Institute of Electrical and Electronics Engineers (IEEE). Realization of this grade requires extensive experience and reflects professional maturity and documented achievements of significance. Only 14% of IEEE Power & Energy Society members and only 11% of IEEE members have the distinction of being a Senior member. *June 25, 2020*.
10. Appointed as IEEE Power and Energy Society(PES) Women in Power (WiP) representative for Central Africa- *January 2019- December 2019*.
11. Appointed as IEEE Smart Village Director of Business Development-DRC- *December 2019*
12. Appointed as Chair of the IEEE PES Congo Scholarship Plus- *December 2019*
13. Invited speaker at the TedX Montrouge “ Etincelles”, Paris, France- *November 2019*.

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14. 2019 Achievement Award by the Congolese Community of Columbus Ohio, Columbus, Ohio, *June 2019*.
15. 2019 Innovative Technology Achievement Award by the Congolese Business Roundtable and Chamber of Commerce, Washington DC, USA, *April, 2019*.
16. 2018 Engineer of the Year Award by the Institute of Electrical and Electronics Engineers (IEEE) - Toledo Section, Toledo, Ohio, USA- *November 15, 2018*
17. 2018 IEEE Certificate of Appreciation in grateful recognition of 10 years of service as an IEEE member, Toledo, Ohio, USA- *November 15, 2018*.
18. 2018-2019 Co-op Hall of Fame by the World Association of Cooperative Education-September 22, 2018 <https://www.waceinc.org/coophof/hall2019/pg5.html>
19. Featured as “2018 Women Killin’it in Sustainability” , Natalie Colarossi, The University Network <https://www.tun.com/blog/women-killin-it-sustainability-research/>
20. 2018 First Place Best Poster Award at the Institute of Electrical and Electronics Engineer National Aerospace and Electronics Conference (IEEE NAECON2018), Dayton, OH, USA- July 2018 <http://sites.ieee.org/naecon-2018/grand-challenge/>
21. 2018 Design News 10 of the Most Important Black Female Engineers , USA –March 5, 2018 <https://www.designnews.com/electronics-test/10-most-important-black-woman-engineers>
22. 2017 Continental Award for Manufacturing and Engineering Sector - Africa Most Influential Women in Business by CEO Magazine based in South Africa- November 2017
23. 2017 Regional Award Award for Manufacturing and Engineering Sector - Africa Most Influential Women in Business by CEO Magazine based in South Africa- October 2017 https://issuu.com/ceoglobal/docs/miw_20regional_20digital_20magazine
24. 2017 Country Award for Manufacturing and Engineering Sector - Africa Most Influential Women in Business by CEO Magazine based in South Africa- October 2017
25. Appointed by the President of the Democratic Republic of Congo as a Member of the Board of Directors at the Societe Nationale d’Electricite (SNEL), the national electric utility company-*July 2017*
26. Nominee for the 2017 Clean Energy Education & Empowerment Award by C3E initiative a program from the USA Department of Energy in collaboration with MIT Energy Initiative and Stanford Precourt Institute for Energy, USA - *March 2017*
27. Nominee for the 2016 Most Influential African Women in Business and Government by CEO Mag based in South Africa- *December 2016*.
28. 2016 ICorps@Ohio, Team 20-Battery Management University of Toledo, served as Entrepreneurial Mentor and Entrepreneurial Lead. Helped earn \$15,000 research grant.- *July 2016*
29. Named one of 40 under 40 by Optimum magazine for fuel cell vehicle research and for founding SMIN Power Group a renewable energy business in DRC-2014 *Kinshasa, D.R.Congo*
30. 1.2016 Leja Bulela Certificate of Appreciation for Outstanding Presentation –*July 2013 Atlanta, Georgia, USA*.
31. 2012 Institute of Electrical and Electronics Engineers (IEEE) Certificate of Appreciation for Notable Services and Contributions-*June 2012*
32. 2010 IEEE Toledo Section Young Engineer of the Year- *November 18, 2010*
33. 2009 Congolese Hero Award-2009 by the Congolese Development Center of Massachusetts in grateful recognition of outstanding community contribution.

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34. 2009 Nkoyi Merit Award- 2009 by the Congolese Community of the Greater Washington DC Metro Area in recognition of outstanding professional achievements in Electrical Engineering
35. University of Toledo, Electrical Engineering and Computer Science Dept. Most Outstanding Thesis Award- *November 2008*
36. University of Toledo International Student of the Month
37. Inducted in the Golden Key International Honour Society – *Fall 2003 Per invitation only, for seniors and juniors in the top 15% of their class.*
38. Dean’s List – Fall 2000, Fall 2001, Spring 2002, Spring 2003, Fall 2003, Spring 2005, Fall 2005
39. General Electric Co-op Recognition Award for Outstanding Service – Fall 2002, Summer 2003, Spring 2004
40. International Students Association’s Certificate of Achievement- Fall 2001, Spring 2002
41. National Society of Black Engineers ‘ Torchbearer Certificate of Achievement- *Spring 2002*
42. First Place of the UT American Language Institute (A.L.I.) ‘ Poetry and Essay Contests- *Spring 2000*

Selected Leadership & Community Service

February 8, 2024	1. Invited panelist at the high- level panel “ Women in Science Rising: Leadership in Business and Economics” organized by RASIT at the United Nations Headquarters, New York. Delivered a remark titled ““Initiatives in Science, Technology, Engineering, and Math in the Democratic Republic of the Congo”
December 5, 2023	2. Served as College of Engineering Marshall at Fall graduation ceremony.
August 2022- Present	3. Appointed as a Board Member of Imagination Station, Toledo, Ohio.
January 2021- October 2023	4. Appointed by Governor Mike Dewine as a State of Ohio Commissioner member of the New African Immigrant Commission.
January 2020	5. Appointed as IEEE Power and Energy Society(PES) Women in Power (WiP) representative for Central Africa
December 2019	6. Appointed as IEEE Smart Village Director of Business Development-DRC- December 2019
December 2019	7. Appointed as Chair of the IEEE PES Congo Scholarship Plus- December 2019
November 9, 2019	8. Invited speaker at the TedX Montrouge “ Etincelles”, Paris, France- November 2019.
October 8, 2019	9. Invited presentation “Promoting STEM in Africa” at the University of Toledo Department of Sociology & anthropology Fall 2019 brownbag series across campus and around the world: interdisciplinary dialogue on international issues.
October 3, 2019	10. Invited speaker at the University of Toledo World Languages and Culture roundtable “Languages mean business”.
March 28, 2019	11. Invited speaker to present research at the IEEE Toledo Section Dinner. Event will be held at the University of Toledo Brady Engineering Innovation Center. 1PDH offered to attendees.

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February 9, 2019	12. Invited to conduct workshop at the Girl Power Event organized by Imagination Station, Toledo, Ohio. Girl Power is a STEM career day for girls. This program gives young women in our community the opportunity to meet and learn from women in the STEM fields. This event offers a special EXTREME demonstration from Imagination Station, special activities prepared by STEM professionals and the opportunity to explore the science center.
August 5-10, 2018	13. 2018 Energy for Development in a Carbon Constrained World Working Meeting (EDC2018) Organized by the Carnegie Innovation Center at Khavli Royal Society international Center, UK. Per invitation only.
March 29, 2018- Present	14. University of Toledo HUT Haiti Solar Power Project
March 5, 2018- March 9, 2018	15. University of Toledo Scholars Institute Program- Spring 2018 cohort
July 2017- Present	16. Appointed by the President of the Democratic Republic of Congo as Member of the Board of Directors at the Societe Nationale d' Electricite (SNEL), the national electric utility company- <i>July 13, 2017</i> http://mediacongo.net/article-actualite-28458.html
September 2016- August 2017	17. General Conference Chair for 2017 IEEE PES PowerAfrica Conference in Ghana. Under my leadership, we raised \$21,000, received 201 submissions, accepted 104 papers,228 attendees from 33 countries. http://sites.ieee.org/powerafrica/ See 6/28/17 article by Ghana News Agency titled "Energy Minister urges Africa Leaders to commit to Electrification" http://www.ghananewsagency.org/economics/energy-minister-urges-african-leaders-to-commit-to-electrification-118911
2016	18. Association for the Advancement of Sustainability in Higher Education (AASHE) 2016 Conference Reviewer
2014-Present	15. 2015 Institute of Electrical and Electronics Engineers (IEEE) Power and Energy Society (PES) General Meeting System Economics Subcommittee
2011-Present	16. Professional Engineer registered in Ohio
2011-2012	17. National Society of Professional Engineers- Member
2012-2017	18. University of Toledo Sustainability Energy Efficiency and Design Initiative- Co-founder and member
2010-2012	19. Toledo IEEE GOLD Affinity Group- Starter and Chair
2010-Present	20. IEEE Women in Engineering-Member
2010-Present	21. IEEE Toledo Section–Member and Past Executive Council Member
2006-2007	22. University of Toledo Electrical Engineering and Computer Science (EECS) Department Chair Search Committee- Member
2008	23.EECS Student Council- Graduate Student Representative
2005	24.Green Energy Ohio- Member
Fall 2003 - Present	25.Golden Key International Honour Society – Member
August 2000 - 2004	26.National Society of Black Engineers
August 2000 - 2004	27.African People's Association - Vice President, President

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August 2000 - 2005	28. International Student Association – Representative; Member
September 2002 - December 2002	29. Junior Achievement – 6th Grade Teacher in Van Wert, Ohio.
August 2000 - February 2001	30. Community Service through School Visits (Rossford high school, Gesu, Rogers high school etc)
February 2001- April 2001	31. Volunteer Computer Lab Assistant at the Toledo Public Library-Sanger Branch Library.

Patent

1. Ngalula Sandrine Mubenga US patent 63/167,471 (pending) “Efficiency Measuring Apparatus, Active Equalizer Inductor Design Tool, and Equalizer Design App”, 03/29/2021.

Publications

1. Ngalula Mubenga, “A Renewable Energy System for Fuel Cell Vehicles”, Master Thesis, University of Toledo, Ohio, 12/2008.
2. Ngalula Mubenga, “A Battery Management System for Large Li-ion Batteries with Bilevel Equalization”, Dissertation, University of Toledo, 12/2017.

Edited Book Chapter

3. Ngalula Mubenga “Batteries, energy storage technologies, energy-efficient systems, power conversion topologies, and related control techniques”. From Kyandoghere Kyamakya and Pitshou Ntambu Bokoro (Eds.), “Recent Advances in Energy Systems, Power and Related Smart Technologies: Concepts and Innovative Implementations for a Sustainable Economic Growth in Developing Countries” (1st ed., pp 23-52.). Springer Nature, September 20, 2023.
[Batteries, Energy Storage Technologies, Energy-Efficient Systems, Power Conversion Topologies, and Related Control Techniques | SpringerLink](#)

Peer-Reviewed Publications

4. Ngalula Sandrine Mubenga and Thomas Stuart , “A Case Study on the Hybridization of an Electric Vehicle and the Development of a Solar Powered Hydrogen Generating Station”, 2011 IEEE Power Engineering Society General Meeting, Paper#2011GM0558, Detroit, Michigan USA, 07/25/ 2011
<http://ieeexplore.ieee.org/document/6039198/>
5. Ngalula Mubenga, “Grid Connected solar photovoltaics in Island States: Challenges, Opportunities and Waste Management”, Paper#381, IEEE International Conference on Renewable Energy Research and Applications Conference, Palermo, Italy, 11/25/2015.
[http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=7418625&filter=AND\(p_Publication_Number:7405753\)](http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=7418625&filter=AND(p_Publication_Number:7405753))
6. Ngalula Sandrine Mubenga, Zachary Linkous, and Thomas Stuart, “A Bilevel Equalizer for Large Lithium Ion Batteries”, Batteries, vol.3, no.4, article no. 39, published by MDPI AG, Basel, Switzerland, Dec.7, 2017 <http://www.mdpi.com/2313-0105/3/4/39>

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7. Ngalula Sandrine Mubenga and Thomas Stuart, "A Low Cost Hybrid Equalizer for Lithium Ion BESS ", 2018 IEEE Clemson University Power Systems Conference (IEEE PSC18), Clemson, SC, Sep. 5, 2018.
8. Ngalula Sandrine Mubenga and Thomas Stuart, "A Bilevel Equalizer for Lithium Ion Batteries", IEEE 2018 National Aerospace and Electronics Conference (NAECON 2018), Dayton, OH, USA, October 2018.
9. Mubenga, N.S.; Sharma, K.; Stuart, T. "A Bilevel Equalizer to Boost the Capacity of Second Life Li Ion Batteries". Batteries 2019, 5, 55. published by MDPI AG, Basel, Switzerland, Aug. 1, 2019
<https://www.mdpi.com/2313-0105/5/3/55/htm>
10. Mubenga, Ngalula Sandrine, and Thomas Stuart. 2022. "Capacity Measurements for Second Life EV Batteries" Electricity 3, no. 3: 396-409. <https://doi.org/10.3390/electricity3030021>
Received: 23 June 2022 / Revised: 9 August 2022 / Accepted: 11 August 2022 / Published: 13 August 2022
11. Mubenga Ngalula Sandrine "The Efficiency Measuring Apparatus for the Design of Li-ion Batteries Equalizers", IEEE National Aerospace and Electronics Conference, Dayton Ohio, Aug.17, 2021
<https://ieeexplore.ieee.org/document/9696391> -Published
12. Mubenga NS, Salami B, Stuart T. "Bilevel vs. Passive Equalizers for Second Life EV Batteries". Electricity. 2021; 2(1):63-76. Retrieved online February 7, 2021 from <https://www.mdpi.com/2673-4826/2/1/4/htm> -Published
13. Sanjaya Bhattarai & Ngalula Sandrine Mubenga "Review of equalization techniques applied to second-life EV battery packs and their efficiency", IEEE National Aerospace and Electronics Conference, Dayton Ohio, August 2023 – Accepted 7 July 2023.
14. Ngalula Sandrine Mubenga, Janvier Kamundala, Christian Bakole, Patrick Tshabola, Daddy Mbombo, and Marco Kuyu "Overview of the Electricity Sector and Impact of the Electricity regulatory Authority (ARE) in the democratic republic of Congo from 2020 to 2022", 2023 IEEE PowerAfrica Conference, Marrakech, Morocco- Published November 2023.

Selected Reports, Presentations, and Interviews.

19. "Series and Parallel Hybridization of Electric Vehicles by Means of Fuel Cell Integration and Development of Hydrogen Generating Station Powered by a Photovoltaic Array", Mustapha Barakat, Ngalula Mubenga and Thomas Stuart, poster presented at 2008 Ohio Fuel Cell Coalition Symposium, Cleveland, Ohio, USA, 5/2008.
20. "Utility Vehicles for the Hydrogen Economy", Thomas Stuart and Ngalula Sandrine Mubenga, Final Report to Ohio Department of Development, Toledo Ohio USA, 7/2010.
21. Presented a seminar on relay protection SEL PROT400 to approximately 10 attendees consisting of Managers and peer Electrical Engineers, Toledo Ohio USA, 2011
22. Presented a brown bag lunch on "A Case Study on the Hybridization of an Electric Vehicle and the Development of a Solar Powered Hydrogen Generating Station" to approximately 6 peer Electrical Engineers, Toledo, Ohio, USA, 2011

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23. Guest speaker at the SSOE Women Leadership Roundtable, approximately 12 attendees senior level and higher, Toledo, Ohio, USA, 2012
24. "Overview of Renewable Energy Projects" Ngalula Sandrine Mubenga, presentation at the Leja Bulela 20th Anniversary Conference, Atlanta, Georgia, USA, 7/2013
25. Special guest on the TV show "Un Homme, Un Concept" hosted by Elysée Odia on CongowebTV, Kinshasa D.R.Congo, 7/26/2013
26. Special guest on the TV show "Jeunesse et Emploi" hosted by Okono on RTNC2, Kinshasa, D.R.Congo, 7/26/2013
27. Special guest on the TV show " Expertise Scientifique" hosted by Symon Lelo on RTNC2, Kinshasa, D.R.Congo, 7/29/2013
28. Guest appearance on the TV show " Bluntely" hosted by on RTNC2, Kinshasa, D.R.Congo, 7/27/2013
29. "UT Students and City of Westerville Promoting Clean Technology" by Ngalula Sandrine Mubenga, PE, MSEE, University of Toledo Sustainability Energy Efficiency and Design (SEED) Initiative blog, <http://journals.utoledo.edu/seed/2013/11/25/ut-students-and-city-of-westerville-promoting-clean-technology/> 11/25/2013
30. "Building Automation Team Saved UT 1.4Million Dollars in FY14" by Ngalula Sandrine Mubenga, PE,MSEE, University of Toledo SEED Initiative blog, <http://journals.utoledo.edu/seed/2014/10/20/building-automation-team-saved-ut-1-4million-in-fy14/> 8/10/214
31. "New Energy Dashboard Showing Real Time Energy Use!" by Ngalula Mubenga, PE, MSEE, University of Toledo, SEED Initiative blog, 4/21/2015 <http://journals.utoledo.edu/seed/2015/06/01/new-energy-dashboard-showing-ut-real-time-energy-use/>
32. Guest appearance on France24 TV News, France, segment during COP21, commented on decision to allocate \$2billion dollars for Africa transition towards green energy future, 12/2/2015 <http://www.sminpowergroup.com/resources/media/>
33. Invited as a Panel speaker at the European Parliament for two events during Africa Week Conference. Will speak during "Africa in the heart of a globalized world" and "Women Empowerment Forum" web-streamed events, Brussels, Belgium, 4/4 –4/11/2016.
34. Keynote speaker at the Midwest Renewable Energy Association " 27th Energy Fair", Wisconsin, USA, 6/19/2016 <https://www.theenergyfair.org/2016/03/08/6865/>
35. **Forbes Afrique** Interview "Sandrine Mubenga, la spécialiste en Génie Electrique" by Patrick Ndungindi, 8/18/2016 http://www.forbesafrique.com/Sandrine-Mubenga-la-specialiste-en-genie-electrique_a3850.html
36. Keynote Speaker at " 2nd Makutano Sultani Business Meeting", Kinshasa, DRC, 9/18/2016

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37. Interview with Kin Event TV channel, Dem. Rep. of the Congo
<https://www.youtube.com/watch?v=104FH6OnHWc>
38. Interview with Makutano, Dem. Rep. of the Congo <https://www.youtube.com/watch?v=z74g6P2VWjM>
39. Interview by CNBC Africa, Dem. Rep. of the Congo “ SMIN Power Group Boss speaks of firms DRC Business amid political uncertainty” 10/6/2016 <http://www.cnbcfrance.com/video/?bctid=5159305131001>
40. Presenter at the ICorps@Ohio Showcase, Columbus, Ohio, USA October 21, 2016.
<https://youtu.be/lcQ9fSIKRwc>

<https://icorpsohio.org/events/>
41. Speaker at Institute of Electrical and Electronics Engineers (IEEE) Toledo Section Dinner and Presentation, presented “Grid Connected Solar Photovoltaic”, Rossford, Ohio, USA 11/3/2016
<http://ewh.ieee.org/r4/toledo/>
42. Interview by Economico.cd, Dem. Rep. of the Congo “Le Ghana Reflechit a Electrifier l’Afrique”, February 9, 2017
<http://www.economico.cd/2017/02/09/power-africa-2017-ghana-reflechit-a-electrifier-lafrique/>
43. Interview by Economico.cd, Dem. Rep. of the Congo “Sandrine Mubenga Lufungulo: Et si on Electrifierait l’Afrique?”, May 26, 2017
<http://www.economico.cd/2017/05/26/sandrine-mubenga-electrifier-afrique/>
44. “Lowering the Cost of Energy Storage for E/HV and Grid Applications Using the Bilevel Equalizer for Large Li-ion Batteries.” Invited Presentation at The Advanced Design & Manufacturing Expo, Cleveland, Ohio, USA. March 7, 2018.
<http://schedule.admcleveland.com/speaker/mubenga-phd-pe-dr-ngalula-sadrine/49072>
45. Interview by Design News, USA: “New Battery Management Technology Could Boost Range and Longevity of Big Packs “, Charles Murray, February 20, 2018
<https://www.designnews.com/electronics-test/new-battery.../111735579058280>
46. Interview by UTNews, USA: “UT Engineer Creates Solution to Cheaper Longer Lasting Battery Packs”, Christine Billau , March 6th, 2018.
http://utnews.utoledo.edu/index.php/03_06_2018/ut-engineer-creates-solution-to-cheaper-longer-lasting-battery-packs
47. Interview by WTOL TV channel, USA: “ UT Professor brush with Death Inspires Energy Storage Invention”, Victoria Itoni, March 9, 2018
<http://www.wtol.com/story/37691956/ut-professors-brush-with-death-inspires-energy-storage-invention>
48. Interview by the Toledo Blade, USA : “University of Toledo engineer finds power from near death experience”, Jay Skebba, March 10, 2018
Article and video available online at <http://www.toledoblade.com/Technology/2018/03/10/University-of-Toledo-engineer-finds-power-from-near-death-experience-literally.html>
49. Interview by Agence d’Information d’Afrique Central , Congo Brazza “ Energie Electrique: Sandrine Mubenga invente une nouvelle technologie revolutionnaire » Patrick Ndungini, March 13, 2018

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<http://www.adiac-congo.com/content/energie-electrique-sandrine-mubenga-invente-une-nouvelle-technologie-revolutionnaire-80588>

50. Interview by 13 ABC TV Channel, USA “ Near Death Experience Leads UT researcher to her Life’s Work”, Lissa Guyton, March 15, 2018
<http://www.13abc.com/content/news/UT-professor--477013543.html>
51. Interview from The University Network’s, USA: « Near Death Experience Inspires Hybrid Technology for Cheaper Longer Lasting Batteries” , Jack Schroeder March 17,2018
<https://www.tun.com/blog/hybrid-technology-for-cheaper-longer-lasting-batteries/>
52. Interview by NBC24 TV Channel, USA: “UT Researchers Develop New energy Storage Solutions “ Karaline Cohen, March 27,2018
<http://nbc24.com/news/local/ut-researchers-develop-new-energy-storage-solution>
53. Interview by Africanshapers “USA Sandrine Mubenga laureate du prix ingenieur de l’annee » Patrick Ndungini, November 20, 2018 <https://africanshapers.com/usa-sandrine-ngalula-mubenga-laureate-du-prix-de-lingenieur-de-lannee/>
54. Interview by Voice of America- Africa, USA “Afrotech show” April 3, 2019
<https://www.youtube.com/watch?v=mu8Jr8JAed4>
55. Interview by Jeune Afrique,” Sandrine Mubenga, genie electrique” Special RDC Edition, no 3063, p 120-121, 22-28 September, 2019
56. News Release by University of Toledo, “UTOLEDO ELECTRICAL ENGINEER LEADING CHARGE TO BUILD VENTILATORS IN THE CONGO”, Christine Billau, May 14, 2020
<http://media.utoledo.edu/2020/05/14/utoledo-electrical-engineer-leading-charge-to-build-ventilators-in-the-congo/>
57. Interview by The Next Einstein Forum, “Is Africa ready to take advantage of the energy transition to come? Dr. Sandrine Mubenga gives her point of view”, June 30, 2020 <https://nef.org/lafrique-est-elle-prete-a-tirer-profit-de-la-transition-energetique-dans-un-contexte-de-4ir/>
58. Ngalula Sandrine Mubenga, “ Africa Foresight Days”, invited as thought leader at the Africa Integration Day organized by the African Union and the Afro Champions Initiative, July 2020- (I)(International)
59. Ngalula Sandrine Mubenga interview by the Next Einstein Forum “ Opportunities and challenges for transition to renewable energy in Africa, July 3,2020 (I)(international)
60. Ngalula Sandrine Mubenga, “Women in Power Breaking the Glass Ceiling” panel discussion at the IEEE PES and IAS PowerAfrica Conference, August 2020, Completed/Published, August 2020--(I) (International)
61. Interview by BloombergLive , “Insights from Bloomberg’s The Future of Smart Cities: Innovation and Disruption at the Grid Edge”, October 27, 2020
<https://www.bloomberglive.com/blog/insights-from-bloombergs-the-future-of-smart-cities-grid-edge/>
Video available at : <https://youtu.be/9W66Zve5DIg>

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62. Ngalula Sandrine Mubenga: "A Bilevel Equalizer to Boost the Capacity of Second Life EV Batteries" Keynote presentation at The International Conference on Advances in Energy Research and Applications (ICAERA'20) 2020, Toronto, Canada, In Press, September 2020 -(I) (International)
63. Mieves, J, 2021, "SANDRINE NGALULA MUBENGA: Köpfe aus der einen Welt, published by Christ in der Gegenwart" on January 3, 2021 and retrieved online January 18, 2021 from <https://www.herder.de/cig/cig-ausgaben/archiv/2021/1-2021/koepfe-aus-der-einen-welt/>
64. Invited speaker at the African Union and United Nations for South-South Cooperation "African Women in STEM and their Contribution in the COVID-19 Pandemic Response" webinar, March 2021.
65. Billau, C, 2021, "UToledo Technology Gives Second Life to Used Batteries From Electric Vehicles", published by UToday, Engineering, and retrieved online March 22,2021 at http://news.utoledo.edu/index.php/03_09_2021/utoledo-technology-gives-second-life-to-used-batteries-from-electric-vehicles
66. Jean Noel Ba-Mweze interviewed Dr. Mubenga for the DW (Voice of Germany) " Une Congolaise developpe une voiture electrique", Aug.18, 2021 <https://p.dw.com/p/3z8cF>
67. Rene Mendy of BBC Smart Money interviewed Dr. Mubenga "Sweet spot: revitalizing the sugar sector in Kenya Also, vroom vroom: we look at electric vehicles in the DRC". Feb. 15, 2022. Video clip available at <https://www.bbc.co.uk/programmes/p0bp691k> See minute 14:55
68. Ngalula Sandrine Mubenga, Sylvie Olela, and Allegrgia Ntumba, " Impact of the Electricity Regulatory Authority (ARE) in the Democratic Republic of the Congo and Opportunities for Investments", invited presentation at the African Energy Forum, Country Spotlight on the Democratic Republic of the Congo, Nairobi, Kenya, June 22, 2023.
69. Ngalula Sandrine Mubenga, "Initiatives in Science, Technology, Engineering, and Math in the Democratic Republic of the Congo", remark as an invited panelist at the high- level panel " Women in Science Rising: Leadership in Business and Economics" organized by the Royal Academy of Science International Trust, United Nations Headquarters, New York, February 8, 2024.



Fig 1:N. Sandrine Mubenga in front of the 4.2 MW solar field she designed for the City of Napoleon, Ohio.