

Quashie Trinity Ellogah

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EDUCATION & TRAINING

University of Energy and Natural Resources (UENR)

Sunyani-Ghana

BSc. Electrical and Electronic Engineering

Aug 2019 - Aug 2021

- **Relevant coursework:** Classical Control Systems, Analogue & Digital Communication, Linear Electronics, Power Electronics, Digital Control Systems, Electrical Services Design, Data Communication & Computer Networking, Research Methods, Numerical Methods for Engineers, Microprocessor, Fault Diagnosis & Failure Tolerance, Power Generating, Transmission & Distribution.

Kumasi Technical University (KsTU)

Kumasi, Ghana

HND (Electrical and Electronic Engineering)

Sep 2013 - Sep 2016

- **Relevant coursework:** Microcomputers, Electronic Servicing, Electronics 1, Electronics 2, Network Analysis 1, Network Analysis 2, Applied Thermodynamics, Engineering Mathematics 1, Engineering Mathematics 2, Engineering Mathematics 3, Telecommunication, Mechanics of Fluids 1, Mechanics of Fluids 2, Computer Literacy, Electrical Machines 1, Electrical Machines 2, Power System 1, Digital Electronics, Control Systems 1, Fault Diagnosis in Electrical.

GLOBAL CHANGE RESEARCH INSTITUTE CAS (CZECH GLOBE)

Brno, Czech

2019

- **Purpose:** Training on Carbon Monitoring Tower; Direct measurements of forest-atmosphere exchanges of carbon dioxide, water, energy, and other trace gases allow us to observe whole-ecosystem metabolism as well as quantify the role of forests as sources of trace gases, the input of gaseous pollutants and nutrients, and the role of forests in cleansing the atmosphere. Yet, despite the significant role that African tropical forests play in global carbon sequestration, few studies on GHG measurements over forest ecosystems have been conducted in Africa. These African tropical forests have their own unique and specific forest biogeocenosis, which differs both physiologically and ecologically from other tropical forests. Thus, the establishment of an experimental station of eddy covariance (EC) in the Bia Tano forest reserve within the Ahafo region of Ghana will provide a direct and accurate means to measure the exchange of carbon dioxide (CO₂) and water vapor (H₂O) between a typical African tropical forest ecosystem and the atmosphere with its dynamic response to environmental variables.

WORK EXPERIENCE

University of Energy and Natural Resource-Earth Observation

Sunyani, Ghana

Engineering Technologist (Link)

Sep 2019 – Present

- Making sure all Electrical and Electronics issues at the University of Energy and Natural Resources at the Earth Observation Research and Innovation Center are all resolved and upgraded to the correct standards.

[UENR-EORIC](#)

University of Energy and Natural Resource-Earth Observation

Sunyani, Ghana

Research & Teaching Assistant – EORIC & EEE (Link)

Oct 2021– Nov 2022

- Tutored undergraduate students in courses including; Differential equations, Numerical methods, and Linear algebra. This involved conducting tutorial sessions, grading assignments, and offering office hours to address student queries. I also collaborated closely with professors to design course materials and exams, ensuring that the content was appropriately challenging and aligned with the learning objectives of the courses.
- Collaborated with faculty members on their research projects. The research topics spanned the application of numerical methods to solve complex mathematical problems, the study of differential equations in modeling real-world phenomena, and the exploration of advanced concepts in linear algebra.

MULTI TV

Kumasi, Ghana

Satellite Technical Trainer  95k Views (Link)

June 2007 – Aug 2016

- Having written a satellite installation manual (T2 & S2) for training satellite TV installers across the country for over 5 years, he has been certified and trained as a technical instructor for satellite installation. He has over 10 years of experience in satellite installation and VSAT and has also trained others. He works on L, S, C, X, Ku, and Ka-Band Satellite Antenna Systems.

- Delivered lectures, conducted workshops, and guided hands-on practical sessions to help our students understand and apply various data science concepts and techniques. The topics I teach include predictive analytics, machine learning, data visualization, and programming in languages such as Python and R.
- Engaged in collaborative meetings with other instructors and program coordinators to ensure the smooth running of the program. Basically, it entailed curriculum design, addressing student concerns, and contributing to broader strategic planning for the program. [Satellite Master Video 1](#) & [Satellite Master Video 2](#)

Strong Technology

Kumasi, Ghana

Junior Machine Learning Engineer

JUNE 2007 – Sep 2016

- Collaborated with teams in designing and implementing effective machine learning models. Basically, it involved understanding the requirements of the project, performing exploratory data analysis, preprocessing and cleaning the data, and selecting appropriate features.
- Implemented training programs for technicians on resistors, transistors, capacitors, inductors, diodes, and the Circuit Wizard simulation software. Developed the ability to trace faults on circuit boards and effectively resolve issues.

ACADEMIC RESEARCH EXPERIENCE

Undergraduate Research

Self Excited Generator BSc. Electrical and Electronic Engineering

2020

- An automatic two way switching technology capable of switching in between the national grid system and an emergency self excited generator
- A generator that does not need any other fuel source but uses a starting battery energy to start its operation
- The findings were useful in the improvement of an effective free energy system to improve the power system in Ghana.

Stun Gun, HND (Electrical and Electronic Engineering)

2015

- Stun gun works as a two-stage voltage converter. The first stage with the high frequency switching transformer increases the voltage of the battery to a higher voltage of a few hundred volts to several kV. This voltage charges a capacitor.
- The stun gun, also known as a taser, can incapacitate an attacker with an electric shock. Brief contact with the stun gun's output voltage delivers a shock that temporarily paralyzes the attacker, deterring further aggression. Prolonged contact (more than 1 second) induces muscle spasms, causing the attacker to fall to the ground and preventing them from coordinating movements for several minutes.

Update on Self Excited Generator

Still working on it

- This is an update on my BSc project and it can produce about 2.5KW ENERGY [GitHub](#)

AWARDS & ACHIEVEMENTS

Shell Ocean Discovery Xprize: A team of Ghanaian technology experts are building a special robot from waste material to be used to perform multiple tasks that include obtaining detailed maps of a seafloor before installation of subsea infrastructure such as pipelines. Known as the Autonomous Underwater Vehicle (AUV), the successful production of the robot is expected to help cut down the cost of subsea infrastructure by offshore oil and gas companies, as well as improve safety at sea and other water bodies. [GitHub](#)

MULTI TV : For over 5 years of training more than 5000 young satellite engineers across the country. MultiTV is, therefore, partnering with Syndicated Capital, a Multi TV distributor, to organize a nation-wide installer training program. Trainees will be given world class satellite installation training and will also be given pragmatic marketing tips to sharpen their skills and make them results-oriented sales men. [MyJoyOnline.com](#)

PROJECTS

AN IOT Based Smart Energy Management System | *For Residential Building and Solar PV Generation.* [GitHub](#)

- This thesis presents the design and implementation of an IoT-based Smart Home Energy Management System (SHEMS) with a primary focus on integrating solar photovoltaic (PV) generation. Leveraging the ESP8266 microcontroller and the Blynk app, the SHEMS aims to automate and remotely control electrical appliances.
- The deliverables of this project encompass a fully functional IoT-based SHEMS, comprehensive documentation, and thorough testing and validation. This research endeavors to advance the field of home energy management by providing an integrated and adaptable solution that empowers users to actively participate in energy conservation and economic efficiency, ultimately fostering sustainable energy practices in residential environments.

Early Smoke Fire Detection System | *A First Aid Fire System.* [GitHub](#)

- The integration of smoke detectors into fire emergency hazard systems is well-established in modern times. Given the significant health, safety, environmental, and economic risks associated with the release of hazardous materials, it is crucial to have devices that can efficiently control sensors, process information, trigger evacuation alarms, and shut down equipment and gas valves. Additionally, it is important to note that most fire-related fatalities are caused by excessive smoke inhalation rather than direct burns.
- In this work, we have developed a low-cost and reliable microcontroller-based automated fire alarm system designed to remotely alert individuals of fire incidents in potential fire-prone areas. The Engineering Laboratory at UENR was selected as the study area. This system involves a comprehensive review of the existing MQ-2 sensor module and incorporates a compact microcontroller board (Arduino Nano) based on the ATmega328P microcontroller, a buzzer, a SIM module (SIM 800L), a buck converter and a changeover system.

Treadmill Control System | *an Arduino Micro controller System* [GitHub](#)

- This paper presents an electronic system for controlling a DC motor by using a TRIAC and the elevation motor using Arduino UNO. The system comprises an Arduino microcontroller, an H-bridge driver circuit, and, of course, the DC motor and the elevation motor.
- The aim of the project was to control the speed and elevation of the treadmill. The paper evaluates the performance of the speed control system by analyzing parameters such as motor speed response, speed stability, and control accuracy. The experimental results show that the implemented TRIAC control system achieves accurate speed control with good stability and response characteristics.

IoT Based Automatic Power Factor Correction | *Safety Problems and High Energy Cost.* [GitHub](#)

- Power quality of the AC system has become a great concern due to the rapidly increased use of inductive loads. Electrical energy is wasted everyday due to the lagging power factor in the inductive loads used in industries. Hence, the urgent need to avoid this wastage of energy in our power system. Poor power factor results in poor reliability, safety problems and high energy cost. Internet of Things (IoT) potentially enhance the quality of life in the energy sector is used monitoring and controlling of electrical sites remotely. Many control methods for the Power Factor Correction (PFC) were proposed where different types of devices performing similar work were used.
- This paper aims to measure and correct power factor using capacitor banks. The results are then displayed on LCD as well as sending the results through wi-fi module to web page to be viewed remotely. The profit gained after correcting the power factor is also calculated and sent to the web page for viewing by the user. A prototype of the work is built for achieving the aim of this paper.

Precision MDS007 Yaa Asantewaa | *Python, Arima Model, Jupyter Notebook.* [GitHub](#)

- A radar detector is an electronic device used by motorists to detect if their speed is being monitored by police
- The superheterodyne receiver in radar detectors has a local oscillator that radiates slightly, so it is possible to build a radar-detector detector, which detects such emissions (usually the frequency of the radar type being detected, plus about 10 MHz)
- radar detectors may combine other technologies, such as GPS-based technology with a point of interest database of known speed trapping locations, into a single device to improve their chances of success.

COMPUTING SKILLS

Programming: C, C++, Java basic, Python, MATLAB, R, MySQL, PHP, HTML.

Technologies: Flutter, Arduino, Raspberry pi, Node MCU, HPC (Parallel GPU assembling), Firebase database, Tensor flow basic etc.

Libraries: TensorFlow, Scikit-Learn, Pytorch, Numpy, Scipy.

Electronic: Resistor, transistors, capacitors, inductors, diode etc. and Circuit wizard simulation software, ability to trace fault on the circuit board and solve the problem.

Electrical: : Domestic wiring, industrial wiring.

Other Skills: Software configuration management, strong verbal and written communication skills, excellent troubleshooting and debugging skills, exceptional problem-solving skills, good teams skills.

REFERENCES

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