

Roger Wienaah

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EDUCATION

University of Energy and Natural Resources (UENR)

Programme: Bachelor of Science in Electrical and Electronic Engineering

Sept 2018 - Oct 2022

Academic Standing: 3.88 / 4.0 FGPA

ACHIEVEMENTS / AWARDS

- Awarded Valedictorian, School of Engineering, UENR Oct 2022
- Awarded Valedictorian, Department of Computer and Electrical Engineering, UENR Oct 2022
- Awarded Winner, IMechE Speak Out for Engineering Presentation Competition - Ghana Heat Aug 2022
- Awarded First Runner up, National Science and Technology Fair Mar 2017

RESEARCH INTERESTS

- Autonomous Mobile Robotics
- Motion Planning
- Machine Learning
- Control Theory

RESEARCH EXPERIENCE

Undergraduate Researcher, Electrical and Computer Innovation Lab, UENR

Jan 2022 – Oct 2022

Advisor: Ing. Kwabena Amoako Kyeremeh

Thesis: Distribution Network Reconfiguration using Genetic Algorithm

- Developed a MATLAB app using a spanning tree-based genetic algorithm to optimize power loss in distribution networks.
- Deployed and tested the application on the IEEE 33- bus and 69-bus distribution systems
- Achieved 9% improvement over compared methods
- Developed and presented a 54-page research report to a 4-member panel and secured grade 'A'

Lab Assistant, Makerspace Lab, Kumasi Hive

May 2021 – Jul 2021

Supervisor: Prince Banini

- Built a semi-autonomous monitoring system for water quality assessment in fishponds to improve fish farming
- Developed a mobile application to view sensor data, water quality, and device tracking
- Won second best project at the GMES and Africa Incubation Challenge with a cash prize of \$4000
- Assisted the lab lead in designing printed circuit boards for IoT products

TEACHING EXPERIENCE

Undergraduate Teaching Assistant, Department of Computer and Electrical Engineering

Feb 2022 – May 2022

Lecturer: Ing. Joseph Owusu

Course: Computer Literacy (Python and Arduino Programming for Engineers)

- Delivered biweekly tutorials on Python and Arduino coding to 120+ computer and electrical engineering freshmen
- Pioneered a mentorship program with 3 colleagues to improve the academic performance of engineering freshmen
- Helped 7 students to secure grade 'A' in 4 courses of their first semester
- Assisted lecturer with course logistics, grading quizzes and assignments

TRAINING CERTIFICATES / PROGRAMS

- UPenn Robotics Specialization | Coursera Nov 2023 – Present
- AI programming with Python | Udacity Nanodegree, AWS AI & ML Scholarship Oct 2023

- Learning SOLIDWORKS: For Students, Engineers and Designers | CAD/CIM Tech. | Udemey Sept 2023
- AI Internship Program | Pantech Prolabs India Pvt Ltd Aug 2023 - Sept 2023
- Software Development Graduate Program | AmaliTech gGmbH Oct 2021- April 2022

SKILLS AND COMPETENCIES

Technical Skills: Python (PyTorch, Flask, Django, Pandas), MATLAB, Arduino, SQL, 3D Design and Printing

Tools & Technologies: LaTeX, SolidWorks, Proteus, Kicad, AWS, Git, Microsoft Office, Power BI

Languages: Fluent in English, Twi and Dagaati

PROJECTS / COMPETITIONS

Finalist, MathWorks MATLAB Minidrone Competition, EMEA

Oct 2022

- Led a team (Geeklords) to build a line follower algorithm for a Parrot Mambo mini drone using MATLAB and Simulink
- Ranked in the top 9 teams out of 330+ teams from 44 countries in Europe, Middle East & Africa

Aqua AI, Artificial Intelligence Project, Ocean Challenge4Africa Hackathon

April 2022

- Led a team (Aqua AI) to build a plastic pollution hotspot detector ML app to detect plastic debris in the ocean with data from EUMETSAT satellites and the Copernicus DIAS WEKEO platform
- Trained a classifier using the Naïve Bayes algorithm to identify the type of debris found with an accuracy rate of 85%.

Project Nexah, Artificial Intelligence Project, Schneider Electric Go Green Competition, MEA

April 2022

- Led a team (NEXAH) to build an AI-powered smart home system for energy optimization using Arduino and Python
- Ranked in the top 10 teams out of 40+ teams in the Middle East & Africa region

Digi-Farm, Precision Agriculture Project, Hult Prize Oncampus Competition, UENR

Nov 2020

- Built an Arduino based IoT system to remotely monitor soil conditions for smallholder vegetable farmers in Ghana

Competitor, MISE Problem Solving Tournament, MISE Foundation Ghana

April 2017

- Selected among 4 students to compete in the 2017 MISE Mathematics Olympiad for high school students in Ghana

PROFESSIONAL EXPERIENCE

Retail Data Analyst and Back-Office Support, Vivo Energy Ghana – Shell Licensee, Accra

Oct 2022 – Present

- Developed a dashboard using MS Excel and Power BI to track retail fuel and lubricant volumes from 245 retail sites
- Assist 14 territory managers in managing 90+ retailers' accounts
- Provide daily, weekly and monthly departmental fuel performance report to the retail team to drive business decisions

Software Intern, Grassroots Hub, Sunyani

Oct 2021 – Nov 2021

- Developed a web app to streamline recruitment for the Ghana Tech Lab national mobile app training programme
- Gained skills in backend web development using Python (Django) and PostgreSQL

Electrical Engineering Intern, Volta River Authority (VRA), Wa

Jun 2019 – Aug 2019

- Assisted electrical field engineers and conducted transformer tests to identify faulty transformers
- Gained customer service skills by addressing the problems of customers connected to the grid

LEADERSHIP EXPERIENCE

Head, SRC Internships, Scholarships, and Exchange Programs Committee, UENR

Oct 2021 – Oct 2022

- Secured a partnership with an educational travel and tour company to provide students with international internships and travel discounts
- Managed a team of 16 members to educate students on scholarship opportunities and how to secure them
- Helped 10 freshmen secure the GNPC scholarship for undergraduate studies
- Organised a passport registration exercise in partnership with the Sunyani passport office for 250+ students

President, UENR Robotics Club, University of Energy and Natural Resources

Aug 2021 – Oct 2022

- Successfully led a team from the club to win the National Energy Innovation Competition and secure top positions in other competitions
- Managed a team of over 50 students to learn and equip themselves with skills in the fields of robotics and IoT
- Successfully organised a tech exhibition (URC TECHFEST) to promote robotics to 95+ high school students in Sunyani

General Secretary, Ghana Institution of Engineers, UENR Student Chapter

May 2020 – Aug 2021

- Successfully helped in organising a skills fair to equip over 200 students with in-demand computer skills
- Managed all correspondence of the association

VOLUNTEER ACTIVITIES

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| ● Teams' coordinator, Hult Prize 2022 On-campus Program, UENR, Sunyani | Aug 2021 |
| ● Tutor, Python Programming, GHIE Skills fair program, UENR | Jul 2021 |
| ● Tutor, Stem4Africa Project for high school students by Sankofa Mentorship Hub-Synergies Institute Ghana (SMH-SIG), Sunyani Hwidiem | Jan 2021 – Aug 2022 |

PROFESSIONAL MEMBERSHIPS

Student Affiliate Member, Institution of Mechanical Engineers (IMechE), UENR Chapter

Student Member, Ghana Institution of Engineers (GHIE), UENR Student Chapter