TETTEH DAWSON PRINCE

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RESEARCH INTEREST

3D Scene Reconstruction
3D Object Recognition
Point Cloud Analysis

EDUCATION

Kwame Nkrumah University of Science and Technology (KNUST), Kumasi-Ghana **2021-2024**
BSc. Telecommunication Engineering
First class division
Thesis: Breast cancer detection using an AI-powered web app
Project Advisor: Prof. Jerry John Kponyo

AWARDS AND HONORS

Included in the Provost's list of exceptional students in the College of Engineering **2022**
Kwame Nkrumah University of Science and Technology.
This is awarded to a student who displays excellent academic performance in the academic year.

Class Representative of the Year in the College of Engineering **2022**
Kwame Nkrumah University of Science and Technology
This is awarded to a class representative whose performance meets the satisfaction of the student body of the College of Engineering.

Included in the Provost's list of exceptional students in the College of Engineering **2021**
Kwame Nkrumah University of Science and Technology
This is awarded to a student who displays excellent academic performance in the academic year.

RESEARCH EXPERIENCE

Research Assistant **2024 - Present**
Responsible Artificial Intelligence Lab, KNUST
Advisor Name: Prof. Jerry John Kponyo

- Building an AI-powered assistive device for the visually impaired using YOLO and Faster R-CNN for object recognition OCR for real-time text-to-speech functionality.
- Conducting extensive research in noise reduction and speech enhancement techniques for hearing aids

Research Intern **2023**
Council for Scientific and Industrial Research-Institute for Scientific and Technological Information (CSIR-INSTI), Ghana

- Built a shape detection model to be used by a robotic arm to detect shapes. (Python, Yolov8n, OpenCV)

PROJECTS

"BREAST CANCER DETECTION USING AN AI-POWERED APP": This project aimed to create a web app that can assist radiologists in their diagnosis of breast cancer to reduce the occurrence of misdiagnosis by radiologists. The web app was powered by a machine learning model that I trained using breast cancer mammograms. (React Js, Tailwind CSS, Fast API, VGG19).

"LICENSE PLATE RECOGNITION": I trained a model on sample license plates in Ghana and the Ghana Police can adopt this to tackle issues with real-time traffic violation detection and stolen vehicle detection. (Yolov8n)

"ILLEGAL MINING DETECTION SYSTEM": This project aimed at detecting illegal mining activities occurring in Ghana. Piezoelectric sensors were buried near sites declared as "No-go areas" such as forest reserves and water bodies to detect any unusual vibrations occurring at those locations. Intense vibrations indicate that a suspicious activity is ongoing and needs to be addressed. (Piezoelectric sensors, Arduino Uno)

TEACHING EXPERIENCE

Kwame Nkrumah University of Science and Technology, Kumasi-Ghana **2024 – Present**
Teaching Assistant, Department of Telecommunication Engineering

- Assisting in teaching a class of 148 undergraduate students TE 461(Computer Application and Project Design) and EE 472 (Digital Signal Processing).
- Assisting in teaching postgraduates TE 555(Responsible AI and Emerging Techniques)
- Developing tutoring notes and recitation questions to lead tutorial sessions for 148 undergraduate students to further explain concepts taught in class.
- Participation in invigilation and marking of exam scripts.

PROFESSIONAL DEVELOPMENT AND TRAINING

DeepLearningAI: Improving Deep Neural Networks
Stanford University CS229: Machine Learning for visual recognition
Stanford University: Introduction to Statistics
Harvard University: CS50 of Computer Programming
MIT: 6.042j (Mathematics for computer science)
DeepLearningAI: Sequence Models
Stanford University: Convolutional Neural Network
Princeton University: Algorithms
UC Berkeley: CS 61a (The Structure and Interpretation
UC Berkeley: CS 61c (Computer Architecture)

SKILLS AND KNOWLEDGE

Management: Team building, Rapport Building, People Management, Excellent Communication.

Machine Learning Concepts: Computer Vision (CV), Hyperparameter Optimization, Generative Modelling, Natural Language Processing (NLP), Transfer Learning, Time-Series Data, Large language models, Reinforcement learning, and Federated learning.

Tools: Docker, Kubernetes, PyTorch, TensorFlow, SciKit, Python, Java, C, C++, CUDA, LaTeX, OpenCV, NLTK, Jupyter Notebook, Pandas, SQL, MongoDB, Git, Visual Studio, Linux.

PROFESSIONAL AFFILIATIONS

National Society of Black Engineers | Member

Institute of Electrical and Electronics Engineers, KNUST | Member

Ghana Engineering Students and Associates | Member

Telecommunications Students and Associates | Executive Member | Academic Mentor & Tutor

COMMUNITY SERVICE

Department of Telecommunication Engineering, KNUST **2022-2023**

- Organized tutorial sessions for mates who failed courses taken during the academic year
- Served as an academic mentor for freshman students in the department

LANGUAGES

English: Distinguished levels in Listening, Speaking, Reading, and Writing.
Twi: Native Language, Distinguished levels in Listening and Speaking.
Spanish: Amateur levels in Listening, Speaking, Reading, and Writing.