Chukwujama Osinachi Victor

MECHANICAL ENGINEERING GRADUATE
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RESEARCH INTERESTS

Robotics. Edge AI. Machine Learning. 3D printing, and Computer Aided Design (CAD).

EDUCATION

Mechanical Engineering, Bachelor of Engineering — Imo, Nigeria
(Major: Industrial and Production Engineering) — Nov 2017 – August 2023
Federal University of Technology, Owerri, Nigeria (https://www.futo.edu.ng)
CGPA: **4.56/5.00**

RESEARCH EXPERIENCE

Design and Implementation of a Surveillance Drone with an Object Detection System using YoloV5
Undergraduate Final Project, Supervised by Prof. O.O. Obiukwu (Aug 2023) — MEE, FUTO

- Conducted a study on the lack of effective surveillance systems in Nigeria, identifying key gaps in current technologies
- Developed an image annotation workflow in Roboflow and a machine learning training pipeline on Google Colaboratory for training the machine learning model
- Trained a machine learning model based on the pre-trained YoloV5 model which is based on Pytorch
- Successfully integrated and configured the surveillance drone hardware with the machine-learning model
- The project was completed giving 70% accuracy in detecting masked bandits and riffles and 50% accuracy in detecting machetes
- The project is to be sold to the Nigerian government to improve the defense effort

Embedding and Optimizing Yolo Models for Object Detection on a Jetson Nano
Undergraduate Post-Defence Research, Supervised by Prof. O.O. Obiukwu (Mar 2024) — MEE, FUTO

- Performed optimization on the trained machine learning model, converting it from a PyTorch model to an Nvidia TensorRT model that utilizes the GPUs on the Jetson Nano
- Improved the training speed from 1 hour 30 minutes average to 50 minutes average, giving a 44% reduction

PUBLISHED WORKS

Quantum Computing in Artificial Intelligence: a Review of Quantum Machine Learning Algorithms
http://dx.doi.org/10.22178/pos.117-25 — Path of Science

- This review paper analyses quantum-based machine-learning algorithms such as Quantum-Support Vector Machines (QSVM) and Quantum Neural Networks (QNN).
- The result of this analysis is a summary of the readiness of these algorithms in practical applications, as per their current limitations.

Secure and Resilient Industrial IoT Architectures for Smart Manufacturing: A Comprehensive Review
https://doi.org/10.9734/jerr/2025/v27i61548 — Journal JERR

- This review paper analyses Industrial Internet of Things (IIoT) techniques and methods in relation to smart manufacturing. It goes over the key components, security implications, and techniques to build secure and resilient IIoT systems.
- It finally goes over open challenges and tradeoffs. Open challenges include the security risk of not using encryption to prevent latency issues, supply chain integrity, and human factors.

Clinical Applications of 3D-Printed Medical Implants
https://doi.org/10.69613/22dn3m33 — JOPIR

- This review article analyzes 3D printed for medical applications, most especially in implants and reconstructions.
- It concludes with ethical considerations like data protection and intellectual property theft.

SKILLS

- Computer programming: proficient in Python, JavaScript, and intermediate proficiency in Go, and PHP.
- 3D design with expertise in Fusion 360 and familiarity with SOLIDWORKS
- 3D printing with high dexterity in using PLA filaments and a single prior experience in printing with ABS materials
- Robotic design of ground-wheeled robots using Arduino, Raspberry Pi, and Robot Operating System (ROS)
- Effective communication in English language
- Good teamwork from previous teams and projects

WORK EXPERIENCE

Software/DevOps Engineer. Lagos, Nigeria
Hotels.ng - Part-time June 2024 - Present

- Authored Continuous Integration and Continuous Deployment (CI/CD) workflows for application deployment, database migrations, and automated testing.
- Developed a highly concurrent Python/celery application for processing AI workloads in a distributed manner via a message broker communication with RabbitMQ.
- Authored new scripts for logging and log processing that increased monitoring by over 70% over manually checking for logs

Mechanical Technician Trainee. Lagos, Nigeria
Rite Foods - Graduate internship March 2024 - June 2024

- Carried out daily routine maintenance of baking and packaging machines to maintain a downtime of 20% or less
- Generated daily reports on maintenance activities to ensure that equipment and supplies are properly tracked
- Designed and 3D printed parts for machines that had no immediate replacement

Robotics & 3D Printing Industrial Trainee. Lagos, Nigeria
Generative CAD - Internship Apr 2024 – present

- Collected customer requirements and designed 3D models for additive manufacturing
- 3D printed designs using PLA and ABS materials to validate ideas
- Designed robots using the Robot Operating System (ROS) framework for path planning
- Simulated Robotics environments using Gazebo and RViz

HONOURS, AWARDS AND ACHIEVEMENTS

First Class Graduate, Mechanical Engineering Department, FUTO, 2023. Graduated in the 96th percentile in the department, emerging as the best-graduating student in the Industrial and Production Engineering option.

Petroleum Development Trust Fund (PTDF) Scholarship Recipient, 2018. Received this prestigious award for excellence in academic performance.

SELECTED TALKS/PRESENTATIONS

- **Design and Implementation of a Surveillance Drone with Object Detection System using YoloV5,** *Final Project Defence, Department of Mechanical Engineering, FUTO, August 2023.*

COMMUNITY SERVICE AND VOLUNTEERING

- **Microsoft Learn Student Ambassador.** Organized training and workshops on software engineering and cloud computing using Microsoft Azure and related technologies. Over 300 students were trained in such technologies and up to 50 students received cloud credits for self-exploration.

- **Director of Research, Mechanical Engineering Department,** *FUTO.* Organized training and workshops on 3D printing, 3D design, microcontrollers, and machine learning for students and staff of the School of Engineering with a focus on the Department of Mechanical Engineering. Over 50 students and 5 staff participated in these training sessions and improved their awareness and use of these industry 4.0 technologies.

PROFESSIONAL AFFILIATIONS

- Graduate Member, Nigerian Society of Engineers (NSE)
- Graduate Member, IEEE
- Graduate Member, SPE

EXTRACURRICULAR INTERESTS AND HOBBIES

- Technical training of students in 3D design, embedded systems, software engineering, and cloud computing
- Calisthenics for fitness
- Physics simulations in areas like force interactions