Oluwatimilehin Emmanuel Owolabi

Also appears as Timilehin or Timi

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Education

Covenant University   Ogun, Nigeria
B.Eng. in Electrical Engineering   September 2020 – August 2025
- **GPA:** 4.85/5.0 (WES equivalent: 3.92/4.0)
- **Undergraduate Thesis:** Development of Multiple Quadcopters for a Coordinated Swarm Operation

Research Interests

Continual reinforcement learning; humanoid whole-body control; robot foundation models; safety for learning based control.

Research Experience

WaySense — Dr. Daniel Omeiza, Oxford Robotics Institute   Oxford, United Kingdom (Remote)
Undergraduate Research Assistant   March 2024 – September 2024
- Analyzed the Lyft Level 5 dataset to estimate multi-agent vehicle positions and velocities, detect lane-change maneuvers, and improve explainability of autonomous driving decisions in complex traffic scenarios using both ego- and agent-centric representations.
- Pioneered application of subset-scan algorithm on Graph Neural Networks to identify statistically significant anomalies in datasets.

Google Developer Groups on Campus   Ogun, Nigeria
Robotics Research Team Lead   September 2024 – August 2025
- Led the replication of Stanford's ALOHA paper in simulation, using OpenVLA-OFT (an improved vision-language-action model) to demonstrate bimanual robotic manipulation and train students in advanced embodied AI methods.
- Developed vision-based manipulation policies using DeepMind Control Suite and MuJoCo, achieving robust box-picking performance through end-to-end learning in high-fidelity simulation environments with JAX optimization.
- Prototyped a low-cost 3D-printed manipulator for object sorting, matching the performance of the WidowX 250 S at just 2.5% of its cost while supervising interdisciplinary teams across mechanical, electrical, and software domains.
- Mentored 16 students on critical review and implementation of robotics research papers, deepening their understanding and improving replication accuracy.

Covenant University Centre for Research, Innovation and Discovery   Ogun, Nigeria
Research Student   September 2024 – August 2025
- Collaborated on multidisciplinary AI research projects including autonomous garbage collection systems and epidemiological prediction models for pandemic preparedness in Sub-Saharan Africa using machine learning approaches.
- Developed intelligent research discovery system using natural language processing to automatically parse, summarize, and cluster academic literature from Scopus alerts, significantly improving research workflow efficiency.

Peer-Reviewed Publications (Journals and Conferences)

A. Awelewa, K. Ojo, T. Abimbola-Oladejo, **T. Owolabi**, "Fuzzy-PID Controller for Liquid Level Control of Tank Systems", NIPES-Journal of Science and Technology, 2025.

T. E. Somefun, **T. Owolabi**, and O. M. Longe, "Practical Trade-offs in Neural Network Optimization: Brute Force Search and Gradient Descent", Engineering Research Express, 2025.

O. Idowu, H. Hu, A. Akinwale, A. Ilori, Z. Xingze, Y. Wang, A. Rasheed, and **T. Owolabi**, "Enhancing Radiological Imaging for Better Healthcare Outcomes Through High Performance Hybrid Approach", ASRIC Journal on Engineering Sciences, 2024.

T. E. Somefun, N. Elijah, A. E. Igho-Orere, **T. Owolabi**, C. Somefun and S. Ongbali, "Energy Optimization Algorithm for Reducing Energy Consumption in a Smart Home", International Conference on Multidisciplinary Engineering and Applied Science (ICMEAS), 2023.

O. Owolabi, C. Chukwuma, O. Omogboyega, and A. Awelewa, "Coordinated Control of Quadrotor Swarms: Classical, Adaptive, and Learning-Based Methods", *Under Review at IEEE Southern African Universities Power Engineering Conference (SAUPEC)*, 2026.

A. Awelewa, K. Ojo, E. Edmond, **O. Owolabi**, and I. Samuel, "Smart Energy Metering and Monitoring System Using Internet of Things", *Under Review at IEEE Southern African Universities Power Engineering Conference (SAUPEC)*, 2026.

Teaching Experience

Association of Professional Women Engineers of Nigeria
Machine Learning Tutor

Lagos, Nigeria
April 2024 – Present

Project Cage Technologies
Robotics Instructor

Lagos, Nigeria
May 2024 – July 2024

Awards and Honors

President, Department of Electrical and Information Engineering	2025
Finalist, Pan-African Robotics Competition	2024
Third Place, DSN Covenant University Hackathon	2022
Founder's Award, Best WASSCE Result, Wellspring College	2021
Valedictorian, Department of Science, Wellspring College	2020
Salutatorian, Overall Graduating Class, Wellspring College	2020
Lux Award, Most Intellectual Student, Wellspring College	2020

Core Skills

Programming & Systems: Python, C++, MATLAB, Git, Linux, Docker, AWS, Raspberry Pi, STM32, ESP32
Robotics & Control: ROS2, MuJoCo, JAX, Model Predictive Control, Optimal Control, Sensor Fusion
Machine Learning & AI: PyTorch, TensorFlow, JAX, Scikit-learn, OpenCV, Hugging Face, MLflow, LangChain, LangGraph
Personal Skills: Leadership, Hyper-focus, Resilience, Growth Mindset, Teamwork

Selected Projects

Autonomous Quadcopter   2025
- Designed and built a custom ESP32-based quadrotor from scratch.

Affordable 3D Printed Manipulator   2025
- Low cost 3D-Printed Manipulator with Comparable Performance to WidowX 250 S.

Pick and Place Robot Arm   2025
- A robotic arm that learns to pick and place objects using curriculum reinforcement learning.

Selected Presentations and Invited Talks

AI: Our Current Reality and Future Trajectory
Nigerian Society of Engineers (NSE), August 2024

Deep Learning: Neural Networks
Association of Professional Women Engineers of Nigeria (APWEN), April 2024

Selected Certifications

Deep Learning Specialization Certificate   Coursera / DeepLearning.AI

Professional Experience

Trotta
Founding Machine Learning Engineer

California, USA (Remote)
January 2026 – Present

Quidax
Graduate Trainee (Machine Learning)

Lagos, Nigeria
January 2026 – Present

Scrella
Lead Machine Learning Engineer

Lagos, Nigeria
July 2024 – December 2024

- Architected and deployed production-scale MLOps pipelines optimizing critical business workflows.
- Implemented Vision Language Models for confidential video analysis, accelerating decision-making processes.

Zummit Africa
Machine Learning Research Intern

Lagos, Nigeria
April 2023 – May 2024

- Developed a brain tumor segmentation application, achieving 95% accuracy using U-Net and medical imaging datasets.
- Developed a toxic comment classifier with imbalanced social media data; benchmarked BERT against BiLSTM.

Innovia Labs
Research Intern

Lagos, Nigeria
March 2024 – May 2024

- Contributed to the development of an electric VTOL drone for search and rescue applications by configuring the Pixhawk4 flight controller for autonomous flight.

- Developed a gesture-controlled home automation system using a cascaded landmark detection model and multilayer perceptron (MLP) classifier.

EPAIL Nigeria   Lagos, Nigeria
Research Intern   August 2023 – October 2023
- Developed and deployed a vision-based firearm detection system for security turret booths; collected and annotated a dataset of 10,000 firearm segmentation images.
- Developed a small-sized fixed-wing drone for surveillance operations.

Schneider Electric   Lagos, Nigeria
Sustainability Intern   August 2023 – October 2023
- Conducted robotics workshops for young students on building a simple self-driving car.
- Collaborated with African schools and NGOs for STEM, contributing to a goal of empowering 1 million youths globally.
- Assisted in analyzing and approving NGO support budgets, each totaling over $60,000.

Leadership Experience

Association of Electrical and Information Engineering Students   Ogun, Nigeria
President   September 2024 – August 2025
- Led a 20-member executive team in coordinating projects and competitions for over 2,000 students.
- Launched a student mentorship program pairing juniors with seniors for academic and career guidance.

Volunteer Experience

Leadtech Engineering   Abuja, Nigeria
Co-Founder and CTO   December 2024 – Present
- Designed and produced hands-on engineering kits to teach core engineering principles
- Organized and led technical training programs, mentoring students in practical engineering skills

Robotics and Artificial Intelligence Innovators Network   Ogun, Nigeria
Robotics and AI Team Lead   September 2024 – Present
- Led the development of a speech emotion recognition system with PyTorch Lightning, using a CNN-LSTM pipeline to classify audio samples.
- Organized a fruit image classification competition featuring ResNet-18, MobileNet V2, and EfficientNet V2; evaluated participants' models and demonstrated why EfficientNet V2s achieved superior performance.

Enactus   Ogun, Nigeria
Member (National Champions)   May 2021 – May 2023
- Designed a soil-nutrient sensor circuit for the "Cow Blood to Manure" sustainability project.
- Contributed to the Pet City initiative which uses recycled plastic bottles to make interlocking road tiles.
- Supported the Bargass project which involves converting plant biomass waste into reusable food packs.

Society Memberships

Black in AI (BAI), Member since April 2025

Black in Robotics, Member since April 2025

African Robotics Network (AfROB), Member since August 2025

International Society of Automation (ISA), Member since May 2024

Association of Professional Women Engineers of Nigeria (APWEN), Member since April 2024

Data Science Nigeria(DSN), Member since June 2022

Nigerian Society of Engineers (NSE), Member since December 2021