LATEEF OLANREWAJU AKINOLA

Address: Lagos State, Nigeria | **Phone**: +234 812 822 3439 | **Email**: lateefoakinola@gmail.com
GitHub: https://github.com/LateefAkinola | **Website**: https://lateefakinola.github.io/

RESEARCH INTEREST

I am interested in the application of AI and control theory to improve the intelligent control systems, learning, and planning of autonomous robots in order to ensure their efficient and safe operation in human-involved environments. I want to develop robotic systems that are adaptive and can perform tasks reliably in dynamic, unstructured environments without human supervision.

EDUCATION

Federal University of Technology, Akure (FUTA) Akure, Ondo, Nigeria
Bachelor of Engineering (BEng) in Mechanical Engineering Aug *2023*
Grade: 4.72/5.00 (First Class Hons.)
Thesis: Vibroacoustic Response Analysis of Sandwich Composite Panels using the Wave and Finite Element Method
Advisor: Dr. Rilwan K. Apalowo

RESEARCH EXPERIENCE

Mechatronics and Automation Laboratory, FUTA Akure, Ondo, Nigeria
Research Assistant *Mar 2023 – May 2023*
Development of a traffic control system prototype for a 4-way junction using Arduino
Advisor: Prof. Olurotimi A. Dahunsi

- Researched and leveraged 8-bit shift registers to increase the digital I/O outputs of the Arduino Uno R3 panel.
- Wrote a C++ program to allow seamless shifting for the LEDs and shift registers *[Code]*.

Dynamics and Control Laboratory, FUTA Akure, Ondo, Nigeria
Undergraduate Research Assistant *Jan 2022 – May 2023*
Vibroacoustic Response Analysis of Sandwich Composite Panels using the Wave and Finite Element Method
Advisor: Dr. Rilwan K. Apalowo

- Calculated the wave propagation properties of the structure using the wave finite element (WFE) method.
- Investigated the influence of structural parameters, such as fibre orientation, on the computed SEA properties.
- Established optimum structural parameters for the sandwich composite panels.

TEACHING EXPERIENCE

Stackup Mentorship Program Remote
Machine Learning Tutor *Aug 2023 – Sep 2023*

- Tutored diverse groups of students to implement machine learning algorithms for predictive modeling and forecasting.
- Guided mentees in building a machine learning model using Sklearn and linear regression with datasets from Kaggle.

AlQareeb Model College Owode-Yewa, Ogun, Nigeria
Lead Science Teacher *Jul 2020 – Jan 2021*

- Implemented a peer-tutoring system to enhance understanding of math techniques, increasing students' scores by 30%.
- Organized after-school tutoring sessions for students needing extra support, improving overall academic achievement.
- Served as a mentor for new science teachers, providing guidance on classroom management and instructional techniques.

TECHNICAL EXPERIENCE

Reflect Robotics Ikorodu, Lagos, Nigeria
Robotics Intern *Nov 2023 – Present*

- Designed, modelled, and assembled parts of a two-wheeled mobile robot using SolidWorks.
- Led a small team in writing the two-wheeled mobile robot's ROS controller and gazebo launch files.
- Generated robot world maps using SLAM and implemented seamless robot navigation using ROS Nav2 stack.

Omdena Freelance
Junior Machine Learning Engineer *Jun 2023 – Aug 2023*

- Collaborated with peers to create rice plant diseases datasets and build CNN classifiers using TensorFlow *[Link] [Cert.]*.

Google Developers Remote
Google Machine Learning Intern *Sep 2022 – Nov 2022*

- Implemented autonomous car detection tasks with the YOLO algorithm *[Link]*, semantic image segmentation with U-Net *[Link]*, and face recognition with a deep Face-Net.
- Collaborated with teammates in several Kaggle machine learning competitions; ranked in the top 20%.

Mechaton Engineering Private Limited Tamil Nadu, India
Product Design Intern (Remote) *Jul 2021 – Sep 2021*

- Designed 40+ parts and created an assembly of over 700+ parts for the "Multi-Plunger Positive Displacement Pump" Project using SolidWorks *[Certificate]*.
- Prepared detailed technical documentation and reports for the project.

HONORS AND AWARDS

Fee Waiver for MSc in Intelligent Field Robotics Systems ($16 000)	IFROS Consortium	2024
Graduate School Application Support ($150)	Al-Musaffir Foundation	*2023*
Monthly Learning Support Scholarship Award ($15)	Edustipend	*2022*
SSA Machine Learning Bootcamp Scholarship ($550)	Google Developers	*2022*
TOD Undergraduate Scholarship Award ($500)	Tolu Odebiyi Foundation (TOD)	*2019, 2020, 2021*
FUTAMGA Undergraduate Scholarship Award ($45)	FUTA M-Graduates Association	*2019*
Best Student Scholarship Award ($35)	Rotary Club of Owode-Yewa	*2011*

SELECTED PROJECTS

- Robot Arm Manipulator with ROS2 *[Link]*
- Mini MobileArmBot simulation (Gazebo | Rviz) with ROS2 *[Link]*
- Turtlesim Catch Them All (CTA) Simulator with ROS2 *[Link]*
- Dynamics *[Code] [Link] [Video]* and Inverse Kinematics *[Code] [Link]* of a UR5 Robot
- Robot Motion Planning and Control: A-Star Graph Search *[Code] [Link]*
- Robot Sample-Based Planning using a Probabilistic Roadmap Method (PRM) *[Code] [Link]*
- Virtual Lunar Lander Using Deep Reinforcement Learning *[Code] [Link] [Video]*
- Semantic Image Segmentation on the CARLA Self-Driving Car Dataset using U-Net *[Code] [Link]*

CONFERENCES & WORKSHOPS

- ROBOTICS & AI SUMMER SCHOOL, *Institut de Robòtica i Informàtica Industrial, Spain*
  A 3-day event with an intensive agenda on current main robotic issues was presented: Deep learning perception on Robotics, Human-Robot Interaction and robot navigation, and Assistive Robotics. *Jul 2023*
- 39th IEEE International Conference on Robotics and Automation (ICRA), *Philadelphia*
  ICRA included plenary sessions, contributed paper sessions, workshops and tutorial sessions, forums, exhibitions, and robot challenges. *May 2022*
- Intelligent Control Methods and Machine Learning Algorithms for Human-Robot Interaction and Assistive Robotics, ICRA2022, *Philadelphia* *May 2022*
- FUTA/SEET Symposium on "*The Roles of Engineers in National Development*", *Akure* *Nov 2018*

PUBLICATIONS

Unpublished Manuscripts (In Preparation and Under Review)

[U1] **Lateef O. Akinola**, John Ajala, and Rilwan K. Apalowo. "Vibroacoustic Response Analysis of Sandwich Composite Panels using a Wave Finite Element (WFE) Approach". (*In Preparation)*

[U2] John Ajala, **Lateef O. Akinola**, and Rilwan K. Apalowo. "Vibroacoustic Behaviour of Pre-stressed and Pressurized Composite Structures using Wave Finite Element Method (WFEM)". (*In Preparation)*

RELEVANT CERTIFICATIONS

- **Applied Control Systems 1: autonomous cars (Math + PID + MPC)** *Oct 2024 - Present*
- **ROS2 for Beginners Level 2 - TF | URDF | RViz | Gazebo** *(Udemy) [Certificate]* *May 2024*
- **ROS2 for Beginners (ROS Foxy, Humble - 2024)** *(Udemy) [Certificate]* *May 2024*
- **Machine Learning Specialization** *(3 Courses | Stanford University & DeepLearning.AI) [Certificate]* *Jan 2024*
- **Introduction to Git and GitHub** *(Coursera | Google Cloud) [Certificate]* *Apr 2023*
- **Modern Robotics: Foundations of Robot Motion** *(Coursera | Northwestern University) [Certificate]* *May 2022*
- **Modern Robotics: Robot Kinematics** *(Coursera | Northwestern University) [Certificate]* *Jun 2022*
- **Modern Robotics: Robot Dynamics** *(Coursera | Northwestern University) [Certificate]* *Jul 2022*
- **MR: Robot Motion Planning and Control** *(Coursera | Northwestern University) [Certificate]* *Oct 2022*
- **Deep Learning Specialization** *(5 Courses | DeepLearning.AI) [Certificate]*: *Sep 2022*
- **DeepLearning.AI TensorFlow Developer Professional Certificate** *(4 Courses) [Certificate]*: *Dec 2022*

SKILLS

Technical Skills & Tools

Control Theory | *Deep Learning* | *Machine Learning* | *Mechanical Design* | *Motion Planning* | *Perception and Computer Vision* | *Robotics (Dynamics and Kinematics)* | *Robot Operating System (ROS2)* | *Design for Manufacturing and Assembly (DFMA)* | *AutoCAD* | *ANSYS* | *CoppeliaSim* | *CorelDRAW* | *MATLAB* | *Python* | *Scikit-Learn* | *SolidWorks* | *TensorFlow* | *Rviz* | *Fusion 360* | *Gazebo* | *C++*

Soft Skills

Analytical and Problem-Solving Skills | *Research and Development Skills* | *Excellent Team Player* | *Technical Report Writing Skills* | *Data Analysis*

LEADERSHIP & VOLUNTEERING ACTIVITIES

- Robotics Instructor, Vast Creations, Lagos, Nigeria — 2024
- Utility Officer, NYSC OSUN/23C1, Ede, Nigeria — *2023*
- Machine Learning Mentor (Remote), StackUp x Trybe, Singapore — *2023*
- Outreach Officer, Pioneer Medical Initiative, FUTA, Nigeria — *2021 – 2023*
- Volunteer, The Solid Path Initiative, Nigeria — *2020 – Present*
- Public Relations Officer & Graphic Designer, Musadiat Masjid, Akure, Nigeria — *2020 – 2023*
- Tutor, M-Students' Society of Nigeria (MSSN), FUTA, Nigeria — *2018 – 2023*

LANGUAGES

- **English -** ***(IELTS - 7.5:*** *Listening - 7.5, Reading - 8.0, Speaking - 7.5, Writing - 7.0)*