LATEEF OLANREWAJU AKINOLA

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RESEARCH INTEREST

My research interest is primarily focused on the application of Machine Learning and AI to improve the intelligent control mechanisms and dynamics of autonomous robotic systems in order to ensure their efficient and safe operation in dynamic, complex and unstructured scenarios, with application to transportation, exploration, etc.

EDUCATION

Bachelor of Engineering, Mechanical Engineering   **2023**
Federal University of Technology, Akure (FUTA), Nigeria
Grade: 4.71/5.00
Thesis: *Vibroacoustic Response Analysis of Sandwich Composite Panels using the Wave and Finite Element Method*
Advisor: Dr. Rilwan K. Apalowo

RESEARCH EXPERIENCE

Research Assistant   **Mar 2023 – May 2023**
Mechatronics and Automation Laboratory, FUTA, Nigeria
Development of a traffic control 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 Arduino Uno R3 panel
- Wrote a C++ program to allow seamless shifting for the LEDs and shift registers *[code]*.

Research Assistant   **Jan 2022 – May 2023**
Dynamics and Structures Laboratory, FUTA, Nigeria
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.
- Computed the structural energy analysis (SEA) properties of the structures.
- Investigated the influence of structural parameters, such as fibre orientation, on the calculated SEA properties.
- Established optimum structural parameters for the sandwich composite panels.

WORK EXPERIENCE

Robotics Intern   **Nov 2023 – Present**
Reflect Robotics, Nigeria
- Designed, modelled, and assembled parts of a two-wheeled mobile robot using SOLIDWORKS.
- Led a small team in writing ROS controller and gazebo launch files for the two-wheeled mobile robot.

Junior Machine Learning Engineer   **Jul 2023 – Present**
Omdena, Freelance
- Created, formatted and augmented a local dataset of five different rice diseases.
- Collaborated with teammates to build a CNN as a Classifier using TensorFlow *[link]* *[certificate]*.

Google Machine Learning Intern   **Sep 2022 – Nov 2022**
Google Developers, Remote
- 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 top 20%.

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

Mechanical Design Intern   **May 2021 – Nov 2021**
Integral Engineers and Project Managers (iEPM), Lagos
- Researched and designed HVAC, Water Supply, Drainage Services, and Firefighting layouts for 5+ building projects.
- Participated in cooling load calculations and equipment selection training by Hitachi and Daikin Global.
- Assisted in site supervision and interpretation of drawings to mechanical contractors.

Mechanical Technician (Intern)   **Nov 2019 – Jan 2020**
God's Love Engineering Workshop, Ogun, Nigeria
- Assisted the engineering team in overhauling Motorcycles and Gasoline Engines for repairs.
- Created engineering documentation, consisting of automobile working processes for use in future projects.
- Educated colleagues on the basic working principles of an Internal Combustion Engine (ICE)

HONORS AND AWARDS

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**

PROJECTS

- Dynamics of a UR5 Robot [code] [link] [video]
- Inverse Kinematics of a UR5 Robot [code] [link]
- Robot Motion Planning and Control: A* 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]
- Autonomous Driving: Car Detection Application using YOLO algorithm [code] [link]
- Semantic Image Segmentation on the CARLA Self-Driving Car Dataset using U-Net [code] [link]
- 4-Way Traffic Control Prototype with Arduino Uno [code] [link]
- Face Mask Detection with OpenCV, Keras/TensorFlow, and Deep Learning [code] [link]
- Transfer Learning: Horse vs Human Classification using Tensorflow [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 "*Then Roles of Engineers in National Development*", *Akure*   **Nov 2018**

PROFESSIONAL COURSES

- **Modern Robotics Specialization** (*Coursera*):
  - Course 1: Foundations of Robot Motion *[link]*   **May 2022**
  - Course 2: Robot Kinematics *[link]*   **Jun 2022**
  - Course 3: Robot Dynamics *[link]*   **Jul 2022**
  - Course 4: Robot Motion Planning and Control *[link]*   **Oct 2022**
  - Course 5: Robot Manipulation and Wheeled Mobile Robots   **Nov 2023 – Present**
- **Introduction to Python** (*DataCamp*) *[link]*   **May 2022**
- **Machine Learning with Scikit-Learn** (*DataCamp*) *[link]*   **Jul 2022**
- **Introduction to git and GitHub** (*Coursera*) *[link]*   **Apr 2023**
- **Machine Learning Specialization** (*Coursera*) *[link]*:
  - Supervised Machine Learning *[link]*   **Jul 2022**
  - Advanced Learning Algorithm *[link]*   **Jan 2023**

o	Unsupervised Learning, Recommenders, Reinforcement Learning *[link]*	**Jan 2024**
●	**Deep Learning Specialization** *(Coursera) [link]*:	
o	Neural Networks and Deep Learning *[link]*	**Aug 2022**
o	Improving Deep Neural Networks *[link]*	**Aug 2022**
o	Structuring Machine Learning Projects *[link]*	**Aug 2022**
o	Convolutional Neural Networks *[link]*	**Sep 2022**
o	Sequence Models *[link]*	**Sep 2022**
●	**DeepLearning.AI TensorFlow Developer Professional Certificate** *(Coursera) [link]*:	
o	Introduction to TensorFlow for AI, ML, and DL *[link]*	**Sep 2022**
o	CNN in TensorFlow *[link]*	**Sep 2022**
o	NLP in TensorFlow *[link]*	**Oct 2022**
o	Sequences, Time Series and Prediction *[link]*	**Dec 2022**

SKILLS

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Technical Skills & Tools

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

Soft Skills

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

SERVICE ACTIVITIES (LEADERSHIP & VOLUNTERING)

●	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, Tell Africa, FUTA Chapter, 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**
●	Senior Prefect, Area Community High School (Snr), Owode-Yewa, Nigeria	**2015 – 2016**
●	Education Officer, M-Students' Society of Nigeria (MSSN), ACHSO, Nigeria	**2015 – 2016**

PROFESSIONAL AFFILIATIONS

Student Affiliate, Institution of Mechanical Engineers (IMechE)	**2022 – 2023**
Member, The Nigerian Institution of Mechanical Engineers (NIMechE)	**2017 – 2023**
Member, Nigerian Universities Engineering Students' Association (NUESA)	**2017 – 2023**

LANGUAGES

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

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