Muibdeen Akinyele

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Professional Summary

Robotics Engineer specializing in autonomous systems, perception, and mechatronic design. Experienced with ROS2, Python, C++, and embedded control to develop high-performance robotic platforms.

Work Experience

Caterpillar Inc: Design Engineer Aug 2022 - Aug 2025

- Designed electrical and control systems for large-engine and autonomous platforms.
- Developed Python-based fleet visualization tools improving diagnostic speed by **30%**.
- Integrated machine learning and computer vision using Unreal Engine and ROS2 into R&D platforms for autonomous navigation.
- Designed real-time state monitoring and perception frameworks supporting path-planning systems.

Sandia National Labs: Research and Development 2021

- Improved throughput by **25%** via designing and fabricating vibration and modal test fixtures for large payloads.
- Ensured reliable high-frequency data collection by developing custom signal transmission assemblies
- Collaborated with NM Small Business Association to create feature-detection software enabling accessible automation.

Projects

UCF WEAR Lab: Vehicle Exterior Damage Detection System (V.E.D.D.S) 2022-2025

- Created automated gantry system for vehicle inspection.
- Implemented YOLO-based damage detection pipeline achieving 70% accuracy.
- Automated inspection workflows by integrating mechanical and perception subsystems.

Autonomous Mecanum Drive Robot 2023-2024

- Developed the kinematics for a ROS2 based autonomous mecanum drive robot
- Enabled rapid software prototyping by creating a simulation environment.
- Created a hot-swap subsystem configuration by designing and fabricating a modular robot chassis.

Education

2025 - present Robotics M.S at **University of Central Florida** (GPA: 3.5/4.0)
2018 - 2022 Mechanical Engineering B.S at **University of Central Florida** (GPA: 3.5/4.0)

Skills

Core Competencies ROS2, Gazebo, Unreal Engine, Linux, SolidWorks, CREO, Git, Python, C++, FEA, Additive Manufacturing, SLAM, Computer Vision, Machine Learning, Inverse Kinematics