CLINTON ENWEREM

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PROFESSIONAL SUMMARY

Electrical Engineer & Robotics Researcher with 4+ years of experience in:

• Safe, robust, optimization-based, and learning-enhanced motion planning and control for robotics and automated vehicles.

• Deep distributional reinforcement learning and its applications in robot trajectory planning and control.

• HIL and SIL robot hardware/software development using ROS(2), C++, Python, and Docker.

My research focuses on simulation-based, practically-grounded motion planning and control techniques for critical robot navigation problems.

EDUCATION

University of Maryland, College Park	MD, USA
Ph.D., Electrical & Computer Engineering. Expected Spring 2026. Advisors: John S. Baras and Calin Belta.	Aug. 2021 – Present
University of Nigeria, Nsukka	Enugu, Nigeria
Bachelor of Engineering, Electrical Engineering (Control Theory Emphasis). Highest Honors. GPA: 3.84.	Aug. 2018

WORK EXPERIENCE

Graduate Research Assistant

Institute for Systems Research (ISR), University of Maryland

• Develop Python, MATLAB, and C++ scripts to model, solve, test, and validate robust motion planning and control algorithms.

- Develop Python-based deep neural network models using TensorFlow and PyTorch for learning-enhanced robust deep RL.
- Automate experiment workflows by writing custom YAML/XML configuration files and shell scripts (Bash, Zsh).
- Publish research findings in conference/journal papers, technical reports, and presentations.

Research Intern

ISR & University System of Maryland at Southern Maryland (USMSM)

• Conducted system identification experiments to validate a twelve-dimensional state-space linearized model of a Crazyflie 2.1 quadrotor.

• Developed an optimal swarm control algorithm for controlling and coordinating 10 Crazyflie quadrotors under localization uncertainty.

• Wrote ROS-compliant software programs to implement the control algorithm, and prepared a research paper and a technical report to summarize research findings.

Robotics Trainee

Robotics & Artificial Intelligence Nigeria

• Prototyped a low-cost flight control and communications system (MultiWii, ArduPilot) for a delivery drone as part of a team.

- Developed ROS-compliant visual SLAM and control software for a modular differential-drive ground mobile robot.
- Wrote embedded ROS software (GPIO) for state estimation, collision avoidance, and feedback control on a diff-drive robot.

PROJECTS

Risk-Regularized QR-DQN for Safe RL <i>Python, TensorFlow, SafetyGymnasium</i> A risk-sensitive quantile regression DQN algorithm for safety-aware distributional RL in dynamic environments.	Nov. – Dec. 2024
Risk-Aware Motion Planning under Static Map Ambiguity <i>MATLAB, C++, ROS2, Bash</i> A CVaR-based (global) path planning algorithm for robust navigation under static map uncertainty.	May – Jun. 2024
Robust Motion Planning under Stochastic Model Uncertainty (Paper) Python, Bash A log-linear and (CVaR-based) risk-aware adaptation of the RRT* algorithm.	Jan. – Mar. 2024
Robust Autonomous Navigation of a Delivery Robot (Code) <i>Python, C++, ROS</i> <i>ROS package for real-time collision avoidance with IMU, camera, and LiDAR. Africa-wide robotics competition finalist.</i>	Jun. – Aug. 2021

TECHNICAL SKILLS

Robotics	ROS/ROS2, Gazebo, RViz, MoveIt!, Webots	ML Tools	TensorFlow, PyTorch, OpenCV, TensorBoard
Programming	Matlab, C++, Python, Bash, LATEX	Optimization	Gurobi, Pyomo, Mosek, Ipopt
RL Sandboxes	PyBullet, Safety-Gymnasium, Open-AI Gym	Dev Tools	git, GitHub, GitLab, Docker

REFERENCES

Available on request.

Aug. 2021 - Present

College Park, MD

Jun. - Aug. 2022 California, MD

Mar. 2020 - Feb. 2021

Ibadan, Nigeria