# Uthman Olawoye

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## EDUCATION

**West Virginia University** — **Morgantown, WV**
Ph.D. in Aerospace Engineering — *Aug 2022 – Present*
- Research Topic: Cooperative Localization of Multi-Agent Robotic Systems.

Master of Science in Aerospace Engineering — *Jan 2020 – May 2022*
- Thesis: UAV position estimation using a LiDAR-based 3D object detection method

**Afe Babalola University** — **Ado-Ekiti, Nigeria**
Bachelor of Engineering in Mechatronics Engineering — *Oct 2013 – Jun 2018*

## WORK EXPERIENCE

**Graduate Research Assistant** — **Morgantown, WV**
*WVU Navigation Lab* — *Jan 2021 – Present*
- Research and develop algorithms for localization of cooperative multi-robot teams in GNSS-denied environments.
- Lead simulation studies and real-world experiments for cooperative UAV/UGV navigation.
- Collaborate with industry and government partners to improve UAV/UGV navigation and control.

**Interim Engineering Intern – Location Technology Team** — **Santa Clara, CA**
*Qualcomm* — *May 2025 - Aug 2025*
- Developed groundwork for testing Factor Graph Optimization (FGO) techniques for precise position and velocity estimation.
- Contributed to the initial design and setup of the test framework, integrating GNSS and motion sensor data.
- Collaborated with senior engineers to explore performance trade-offs between traditional and graph-based localization methods.

**Graduate Teaching Assistant** — **Morgantown, WV**
*West Virginia University* — *Jan 2020 – Dec 2020*
- Organized weekly lab sessions for 30 students to gain hands-on experience with data acquisition and instrumentation systems
- Evaluated student progress through grading assignments, quizzes, and lab reports
- Provided individual support to students struggling with course material during office hours

**Assistant Lecturer (Control Systems)** — **Ibadan, Nigeria**
*The Polytechnic Ibadan* — *Dec 2018 – Oct 2019*
- Taught core concepts in control theory to 47 students through weekly lectures
- Delivered lessons on topics including open/closed loop systems, modeling, block diagrams, control system analysis, and stability analysis.
- Evaluated student progress through grading assignments, quizzes, and lab reports
- Supervised final-year projects for a team of 4 students
    - Guided development of a smart waste disposal system
    - Advised students building an obstacle-avoiding mobile robot
- Contributed to the refinement of the course curriculum and projects

**Engineering Intern** — **Ibadan, Nigeria**
*FanMilk Ng Ltd* — *Jan 2018 – Dec 2018*
- Designed and implemented a networking system for controlling the Domino thermal coders on the packaging machines remotely from a hub, which led to 15 % increase in work time.
- Organized training sessions to educate the production line heads and engineers on using the above system.
- Assisted the maintenance department in developing and successfully implementing the CIL ( Clean, Inspect, and Lubricate) checklist for production line machines.
- Compiled weekly reports of the utility machines' operations.

**Engineering Intern** — **Ibadan, Nigeria**
*Transmission Company of Nigeria* — *Jan 2017 – Dec 2017*
- Monitored power outage system and planned equipment maintenance.
- Handled electrical fixtures repair and replacements.

## Research Projects

**UAV Position Estimation using LiDAR-based 3D Object Detection** *Jan 2021 – May 2022*
Masters Thesis
- Created a dataset of 7,000+ annotated LiDAR scans for training object detection models.
- Implemented PointPillars for real-time UAV detection and localization.
- Achieved 30% improvement in localization accuracy over traditional clustering methods.

**Autonomous Navigation of UAV/UGV Teams in Underground Tunnels** *Jan 2021 – Aug 2024*
- Designed Factor Graph Optimization for drone localization and SLAM for UGV navigation in GNSS-denied environments.
- Conducted simulations and collected experimental data in underground tunnels.

**Collaborative Search and Rescue UAV Project with Kinnami and U.S. Air Force** *Jan 2024 – Present*
- Integrated AmiShare communication system for real-time UAV peer-to-peer communication.
- Programmed UAVs for autonomous cooperative flights using Ardupilot and MAVROS.
- Validated localization algorithms for UAV and pedestrian position estimation.

**NASA Space Robotics Challenge Phase 2 – Team Mountaineers** *Jan 2020 – Sep 2021*
- Participated in ROS/Gazebo simulated autonomous lunar rover challenge.
- Supported the perception team with image acquisition and processing.

## Publications and Presentations

D. Akhihiero, **U. Olawoye**, and G. A. Pereira 2025
*Optimization-based motion planning for vector field following in dynamic environments,*
International Conference on Unmanned Aircraft Systems (ICUAS).

**U. Olawoye**, D. Akhihiero, and J. N. Gross 2025
*Experimental analysis of quadcopter drone hover constraints for localization improvements,*
IEEE/ION Position, Location and Navigation Symposium (PLANS).

**U. Olawoye**, C. Kilic, and J. N. Gross 2025
*Analysis of the unscented transform for cooperative localization with only inter-vehicle ranging information,*
IEEE/ION Position, Location and Navigation Symposium (PLANS).

D. Akhihiero, **U. Olawoye**, S. Das, and J. Gross 2024
*Cooperative localization for GNSS-denied subterranean navigation: A UAV–UGV team approach,*
NAVIGATION: Journal of the Institute of Navigation, vol. 71, no. 4.

**U. Olawoye** and J. N. Gross 2023
*UAV position estimation using a LiDAR-based 3D object detection method,*
IEEE/ION Position, Location and Navigation Symposium (PLANS).

## Awards and Achievements

**West Virginia University, Statler Research Scholarship** Jan 2021 - Present
- Scholarship for students engaged in research in the College of Engineering and Mineral Resources, who also show financial need

**The Afe Babalola Excellence Award** 2013 - 2018
- Awarded to a student who maintained a first class for the academic year

## Volunteering and Extracurricular Activities

**IEEE Conference on Automation Science and Engineering (CASE)** 2025
- 21st IEEE (CASE) conference. **Role:** Reviewer

**IEEE Transactions on Aerospace and Electronic Systems (TAES)** 2025
- IEEE (TAES) conference. **Role:** Reviewer

**West Virginia University, Undergraduate Research Symposium** 2025
- 2025 Spring Undergraduate Research Symposium. **Role:** Judge

**West Virginia University, NSF-Funded REU** 2024

– Undergraduate Robotics Research for Rural Appalachia

**Vex Robotics Competition** 2024 - Present

– WVU MAE Mountaineer 2025 VRC High School Qualifier. **Role:** Judge
– WVU MAE Mountaineer 2025 VRC Middle School Qualifier. **Role:** Judge
– WVU MAE Mountaineer 2024 VRC High School Qualifier. **Role:** Judge
– WVU MAE Mountaineer 2024 VRC Middle School Qualifier. **Role:** Judge

**West Virginia Science Bowl** 2024 - Present

– WVSB 2025 High School Qualifier. **Role:** Questions Judge
– WVSB 2025 Middle School Qualifier. **Role:** ScoreKeeper
– WVSB 2025 High School Qualifier. **Role:** Rules Judge

**Nigerian Universities Engineering Student Association, ABUAD Chapter** 2017-2018

– Department Representative

## Skills

**Languages:** Python, C++, MATLAB
**Libraries:** OpenCV, TensorFlow, PyTorch, GTSAM, Point Cloud Library
**Software:** ROS, CoppeliaSim, AutoCAD, Solidworks, ANSYS, Simulink, RTKlib, Git