Oyindamola Omotuyi

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EDUCATION

Ph.D. in Mechanical Engineering **2018 - 2023 (Expected)**
University of Cincinnati, Ohio **MSc. (Graduated 2021)**
Research Focus: Reinforcement Learning, Controls, State Estimation, AI, and Computer Vision GPA 3.9/4.0

Bachelor of Science in Systems Engineering **2011 – 2016**
University of Lagos, Nigeria GPA 5.0/5.0
Senior Design Project: Design and Fabrication of an Unmanned Aerial Quadcopter System
Award: Valedictorian, Overall Best Graduating Student in the University

SKILLS

Programming	Python, C++, Pytorch, TensorFlow, Sklearn, Keras, OpenCV, MATLAB, C#, ReactJS, HTML, CSS
Software/Libraries	NVIDIA Isaac Sim, Isaac Gym, Open AI Gym, ROS, Gazebo, RVIZ, APM Autopilot, DroneKit, Visual Studio, PCL, Eclipse, Autodesk Inventor, Autodesk Maya, Mathematica, LaTeX
Hardware/OS	Linux, NVIDIA Jetson Nano, Raspberry Pi, Arduino Uno, Odroid, Intel Realsense D435i, Adafruit IMU Sensors, Wheel Encoders, Pixhawk
Version Control	Git, Bitbucket

PUBLICATIONS AND PRESENTATION

CONFERENCE PUBLICATIONS

Omotuyi, O., & Kumar, M. (2022). *Learning Decentralized Controllers for Segregation of Heterogeneous Robot Swarms with Graph Neural Networks*. In the International Conference on Manipulation, Automation, and Robotics at Small Scales (MARSS), Toronto, Canada.

Omotuyi, O., & Kumar, M. (2021). *UAV Visual-Inertial Dynamics (VI-D) Odometry using Unscented Kalman Filter. IFAC-PapersOnLine*, *54*(20), 814-819.

Omotuyi, O., Pokhrel, S., & Sharma, R. (2021). *Distributed quadrotor uav tracking using a team of unmanned ground vehicles*. In *AIAA Scitech 2021 Forum* (p. 0266).

Ayomoh, M. K., **Omotuyi, O. A.**, Roux, A. J., & Olufayo, O. A. (2018). *Robot navigation model in a multi-target domain amidst static and dynamic obstacles*. In *Proceedings of the IASTED International Conference Intelligent Systems and Control (ISC 2018)* (pp. 44-51).

POSTER

Omotuyi, O., Kumar, R., & Kumar, M. "*Real-Time Automated Vehicle Crash Detection and Reporting System*"**.** 21st Annual Pilot Research Project Symposium

Kumat, A., **Omotuyi, O.**, Deshpande, A. M., Calabrese, N., Kumar, M., "*Autonomous Mobile Robot Localization and Navigation system using camera and inertial measurement unit (IMU) in an indoor environment".* 2019 AIAA Intelligent Systems Workshop, July 2019.

PRESENTATION

Oyindamola Omotuyi, James Wells, Aditya M. Deshpande, Rumit Kumar, Manish Kumar. *"Laser-Based EKF Localization on TurtleBot3 Robot."* 44th Dayton-Cincinnati Aerospace Sciences Symposium. March 2019.

RESEARCH AND ACADEMIC PROJECTS

- University of Cincinnati Research Council grant project on Indoor Telehealth Drone.
- AprilTag Based-SLAM with known and unknown correspondences on Turtlebot3 mobile robot using ROS/Gazebo.
- Classification of Traffic Light Signals, MNIST, and Fashion-MNIST dataset using Computer Vision Techniques.
- Cooperative Push by Swarm of Ground Robots using an Emergent Local Communication Strategy.
- Attitude Control of a Quadrotor using Linear–quadratic regulator(LQR) and PID Controller.
- Autonomous Waypoint Navigation Path-Following of the StratoSurfer fixed-wing UAV.

RELEVANT WORK AND RESEARCH EXPERIENCE

Digital Futures Fellow, *Dept. of Mechanical Engineering, University of Cincinnati* **Aug. 2022 - Present**
- Developing human digital twin based on motion modeling for industry applications.
- Collaborating with other fellows and industry partners in developing state-of-the-art algorithms for industry 4.0/5.0 revolution projects.

Product Marketing Manager Intern, Robotics, *NVIDIA Corporation* **May 2022 - July 2022**
- Developed complex deep reinforcement learning environments for autonomous mobile robots and UAVs using NVIDIA Isaac Gym integration with the NVIDIA Isaac Sim 2022.1 June release.
- Authored several blogs featured in Mateusz Weekly Robotics newsletter, ROS News for the Week, NVIDIA at ICRA with over 38,000 impressions and 400 likes, etc.

Graduate Research Assistant, *Dept. of Mechanical Engineering, University of Cincinnati* **Aug. 2021 - April 2022**
- Designed the hardware and software stack for keyboard control and obstacle avoidance of an indoor remotely semi-piloted unmanned aerial vehicle for medical supplies delivery and patient communication.
- Developed robust vehicular crash detection and reporting systems using CNN based on video and audio inputs.

AI Marketing Engineer Intern, *NVIDIA Corporation* **May 2021 - Aug. 2021**
- Authored the first **NVIDIA Conversational AI eBook,** an highly educational resource for business decision-makers and software developers at the enterprise.
- Collaborated with cross-functional teams to develop marketing assets for NVIDIA Isaac Gym.
- Contributed to the research paper “Isaac gym: High performance gpu-based physics simulation for robot learning”

Graduate Teaching Assistant, *Dept. of Mechanical Engineering, University of Cincinnati* **Aug. 2018 - May 2021**
- Pioneered with a team the design of a new course curriculum and design projects on Intelligent Mobile Robotics.
- Supervised students on projects utilizing EKF-SLAM with AprilTags Landmarks on Turtlebot3 in ROS/Gazebo.
- Tutored 12 students on building and controlling the NVIDIA Jetson Nano Robots.
- Prepared lecture materials and taught ROS and Gazebo.
- Content Management for Mechanical Engineering department’s First Graduate Program brochure and Webpage.

Undergraduate Research Assistant, *Robotics Lab, University of Lagos, Nigeria* **Feb. 2016 - Oct. 2016**
- Supervised a team of robotics projects such as obstacle avoidance robot car and home automation systems.
- Built with a team a remote-piloted quadcopter for the University of Lagos Graduation exhibition honored by Lagos state, Nigeria Governor.

IT Onsite Support Analyst Intern, *Schlumberger Nigeria Limited, Lagos, Nigeria* **Jun. 2015 - Jan. 2016**
- Improved users IT support experiences while managing the operations of one of the major locations in Lagos.
- Reduced the risk of total shutdown due to a widespread fault of networking and server systems.
- Initiated the development of the first Information Technology unit intern handbook.

HONORS AND AWARDS

- **1st Place, NVIDIA Riva (Speech AI) Intern Hackathon** 2021
- **Graduate Student Engineer of the Month,** CEAS, University of Cincinnati 2020
- **People’s Choice Poster Presentation Award,** 2020 Pilot Research Project Symposium 2020
- **Pilot Research Project Award,** University of Cincinnati’s Education and Research Center 2020
- **University Graduate Scholarship**, University of Cincinnati 2018-Present
- **EducationUSA Opportunity Fund Scholar,** EducationUSA Lagos Nigeria 2018
- **First Nigerian Engineering Graduate with a perfect GPA of 5.00/5.0,** University of Lagos 2016
- **Award of Academic Excellence,** The Association of Professional Women Engineers of Nigeria 2016

LEADERSHIP AND VOLUNTEERING EXPERIENCE

- **Secretary**, Mechanical and Materials Engineering Graduate Student Association 2020-2021
- **Mechanical Engineering Rep,** Prospective Graduate Student Orientation, University of Cincinnati 2020
- **Graduate Student Life Panel Member,** Mechanical Engineering, University of Cincinnati 2019
- **Nigerian Corper’s Peer Educator Trainer,** NYSC Community Development Service 2017-2018
- UNILAG Lean In Circle, organized and participated in meet-ups for ladies in STEM and Web Development Hackathon with mentors from Andela Company. 2015-2018

PROFESSIONAL AFFILIATIONS

2020	Reviewer, **AIAA Science, and Technology Forum and Exposition**	Cincinnati, Ohio
2020 - Now	Student Member, **UC-IEEE**	Cincinnati, Ohio
2018 - Now	Student Member, **National Society of Black Engineers**	Cincinnati, Ohio
2017 - Now	Member, Mentor & Alumni, **EducationUSA Advising Center**	Lagos, Nigeria