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SUMMARY

Robotics Research & Software Engineer. Specialties in safe motion planning and autonomous navigation, SLAM, assisted driving, shared autonomy, reinforcement learning, computer vision, driver behavior modeling.

EXPERIENCE

- Research Assistant**, Robotics Engineering, WPI May 2017 – Dec 2021
- Building shared autonomy frameworks for safe navigation of mobile robots using classical and RL approaches
 - Developed an integrated human driver simulation framework for studying realistic human-vehicle interaction
- Robotics R&D Engineer**, CAYTU SARL, Senegal May 2021 – Aug 2021
- Defined the robotics software architecture for a new product line (semi-autonomous delivery robot system)
 - Coordinated engineering and software teams, and managed project schedules and timelines

PROJECTS

- Shared Autonomy for Socially-Aware Robot Navigation | C++, ROS, Python, OpenCV**
- Developing a haptic shared control framework for enabling remote teleoperation of mobile telepresence robots
 - Developing dynamic collision avoidance algorithms with social navigation constraints using Velocity Obstacle-based and reinforcement learning approaches
- Last-Mile Robot Navigation (Pan-African Robotics Competition Package) | ROS, Gazebo, Turtlebot3**
- Developed photo-realistic city simulation in Gazebo for last-mile mobile robot navigation
 - Developed and maintained software packages (simulation & real robot) for the competition serving 30+ teams
- RoboNav: Indoor Navigation using Deep Reinforcement Learning | Python, PyTorch, ROS, Gazebo**
- Enabled end-to-end learning for dynamic collision avoidance for a mobile robot using only raw 2D lidar inputs
 - Successfully implemented and trained models using Deep Q-Learning and DDPG algorithms
- Driver Behavior Modeling via Imitation Learning | Python, MoCap, OpenSim, MATLAB**
- Developed a imitation learning approach to analyze driver maneuvers and built a motion library of driving styles
 - Designed and conducted a fixed cockpit driving user study to collect vehicle maneuver motion data
- Surgical Robotics using an Industrial Manipulator Robot | ROS, Arduino, Python**
- Developed mechanism to enable mounting a da Vinci Research Kit insertion tool on an ABB Industrial robot
 - Developed a software package consisting of kinematics, trajectory generation, and teleoperation functionality

EDUCATION

- Doctor of Philosophy (PhD)**, Robotics Engineering Aug 2016 – Mar 2022
Worcester Polytechnic Institute, MA, USA
- Master of Science (MS)**, Robotics Engineering Aug 2016 – May 2018
Worcester Polytechnic Institute, MA, USA
- Bachelor of Engineering**, Electrical and Electronics Engineering Sep 2008 – Jul 2013
Covenant University, Ota, Nigeria

SKILLS

- **Robotics Tools:** ROS, Gazebo, RViz, OpenCV
- **Programming:** C++, Python, MATLAB, LaTeX, R
- **Software Tools:** VSCode, OpenSim, Git, PyTorch, OpenAI Gym, CARLA, Simbody, Linux
- **Hardware & Robots:** Turtlebot3, Universal Robot (UR5), ABB IRB 120, VEX Robot Kit, Arduino

AWARDS & ACTIVITIES

- Recipient of the 2021 Dr. Glenn Yee Graduate Student Tuition Award
- Technical Coordinator, 2021 [Pan-African Robotics Competition \(PARC\)](#)
- Invited Panelist at [Society, Robots and Us](#) program (Jan 2021) by Silicon Valley Robotics
- Invited Reviewer: IEEE T-ITS (2019), IEEE IROS (2018)