Victor Aladele

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EDUCATION

Georgia Institute of Technology — ***Atlanta GA***
PhD in Electrical Engineering — *Aug 2016 - Present*
Anticipated Graduation — *Aug 2022*
Research focus — *Robotics and Machine Learning*

New Jersey Institute of Technology — ***Newark NJ***
B.S. in Electrical Engineering — *May 2016*

PUBLICATIONS

- **IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)**
  Three first author publications (2020, 2021, 2022 under review).
- **International Symposium on Experimental Robotics (ISER)**
  Co-author publication (2018)

TECHNICAL SKILLS

Programming Languages	C++, Python
Tools	Robot Operating System (ROS), Pytorch, Pybullet, Tensorflow OpenAI gym, MATLAB, Gazebo, Blender, CUDA, Autodesk Inventor

WORK EXPERIENCE

Georgia Institute of Technology — ***Atlanta GA***
Graduate Research Assistant — Aug 2016 - Present

· PhD Advisor: *Seth Hutchinson, PhD*
· Dissertation Title: *Cooperative manipulation strategies for multi-robot and human-robot collaboration*

Royal Institute of Technology (KTH) — ***Stockholm, Sweden***
Visiting PhD Student — Aug 2021 - Jan 2022

· Host Advisor: *Danica Kragic Jensfelt, PhD*
· Designed a novel application of residual reinforcement learning to cooperative manipulation. Tools used include: Pybullet, Stable-baselines, OpenAI gym

Google (Brain/Research) — ***Remote / Mountain View CA***
Research Intern — May 2021 - August 2021

· Worked on developing reinforcement learning solutions for high-speed robotics.
· Developed and implemented curriculum learning algorithms to improve robot learning.

Blue River Technology (A John Deere Subsidiary) — ***Remote / Sunnyvale CA***
Software Engineering Intern — May 2020 - Aug 2020

· Worked on a team to develop software for cutting-edge *John Deere* machinery
· Tools and frameworks used include: C++17, CUDA, Flatbuffers, Protocol buffers, Google Test, Jira.

Bosch (Advanced Corporate Research), BSH Home Appliances — ***Sunnyvale CA***
Robotics Software Intern — May 2019 - Aug 2019

· Worked on implementing impedance control on a 6 DOF robotic arm for object insertion tasks.

· Tools used include: C++, Python, ROS, Rigidbody Dynamics Library (RBDL), Gazebo, Kinova arm.

Massachusetts Institute of Technology ***Cambridge MA***
Research Intern June 2015 - Aug 2015

· **Advisors**: Daniela Rus *PhD*, Robert McCurdy, *PhD* **CSAIL**
· Designed and 3D printed gear pumps for hydraulically actuated robots.
· Designed CAD models in Autodesk Inventor.

RESEARCH PROJECTS

Cooperative Mobile Manipulation *August 2019 - Present*
Working both in simulation and on hardware

· Developing deep reinforcement learning schemes for multi-robot collaboration.
· Using TrajOpt for motion planning on a single-arm pick-and-place task
· Implementing operational space control on KUKA IIWA7 arms that are mounted on mobile bases.
· Working in Gazebo, Drake and Pybullet.

CLASS PROJECTS

Robot Intelligence and Planning *Fall 2020*

· Implemented a version of DeepMind's AlphaZero chess AI. Used Deep Reinforcement Learning in conjunction with Monte-Carlo Tree Search to train a deep neural network to play the game of chess. Tools used include: Python, Pytorch, cuda.
· Implemented deep reinforcement learning algorithms like: DQN, REINFORCE and A2C.
· Implemented Rapidly-exploring Random Trees (RRT) to navigate a 2D map. Algorithm implementation included steering dynamics with nonlinear optimization and obstacle detection.

Computer Vision *Fall 2020*

· Image classification using deep learning framework; transfer learning with CNNs like Alexnet.
· Feature Matching, using feature detectors (Harris detector) and feature descriptors (SIFT) in pytorch.

Advanced Programming Techniques *Fall 2019*

· Used OpenGL to simulate a bitmapped football field with multiple drones controlled by a distributed MPI program. The goal was to create a simulation of multiple drones display over a football field.
· Designed a UDP server-client program.

HONORS, AWARDS AND SOCIETIES

· Tau Beta Pi Honors Society, Member *Aug 2014 - Present*
· Institute of Electrical and Electronic Engineering, Member *Aug 2013 - Present*

EXTRACURRICULAR ACTIVITIES

· Annually review applications for the undergraduate summer research program at MIT. *2018 - present*
· Co-chaired the "Multi-Robot Systems I" session at the IROS 2021 conference. *September 2021*
· Reviewed papers for publication at the following conferences: IROS(2020, 2021), ICRA(2021).
· Worked with Atlanta Public School teachers to develop a project-based learning (PBL) component of the Algebra II curriculum. *March 2021*