

Victor Aladele

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EDUCATION

Georgia Institute of Technology

PhD in Electrical Engineering

Anticipated Graduation

Research focus

New Jersey Institute of Technology

B.S. in Electrical Engineering

Atlanta GA

Aug 2016 - Present

Aug 2022

Robotics and Machine Learning

Newark NJ

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

Graduate Research Assistant

Atlanta GA

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)

Visiting PhD Student

Stockholm, Sweden

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)

Research Intern

Remote / Mountain View CA

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)

Software Engineering Intern

Remote / Sunnyvale CA

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

Robotics Software Intern

Sunnyvale CA

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
Research Intern

Cambridge MA
 June 2015 - Aug 2015

- **Advisors:** Daniela Rus *PhD*, Robert McCurdy, *PhD* **CSAIL**
- Designed and 3D printed gear pumps for hydraulically actuated robots; worked with 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.
- Applying adaptive control for dual-arm disturbance rejection.
- Implementing operational space control on KUKA IIWA7 arms that are mounted on mobile bases.
- Applying Gaussian Processes as a semi-parametric control approach for a 7DOF manipulator.
- 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.
- Object detection with limited training data; applied transfer learning 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*