Oliver Limoyo

CONTACT INFORMATION

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EDUCATION

University of Toronto, Toronto, Canada 2016 - Present
Ph.D. Student in Robot Learning GPA: 4.00/4.00

McGill University, Montreal, Canada 2011 - 2016
B.Eng. Mechanical Engineering. GPA: 3.79/4.00

PUBLICATIONS

[1] O. Limoyo, T. Ablett, F. Marić, L. Volpatti, and J. Kelly, "Self-calibration of mobile manipulator kinematic and sensor extrinsic parameters through contact-based interaction," in *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA)*, Brisbane, Queensland, Australia, 2018.

[2] F. Marić, O. Limoyo, L. Petrović, I. Petrović, and J. Kelly, "Singularity avoidance as manipulability maximization using continuous time gaussian processes," in *Proceedings of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) Workshop, "Towards Robots that Exhibit Manipulation Intelligence"*, Madrid, Spain, 2018.

RESEARCH & TEACHING

Ph.D. Student, University of Toronto - STARS Laboratory 2017 - Present
State Representation for Reinforcement Learning, Supervisor: Prof. Jonathan Kelly

- Ph.D. thesis on applying reinforcement learning for real-world robots leveraging representation learning of sensor data.

MASc Student, University of Toronto - STARS Laboratory 2016 - 2017 (Transfer)
Self-calibration of Mobile Manipulators, Supervisor: Prof. Jonathan Kelly

- Work on developing novel methods for camera and manipulator self-calibration.

Teaching Assistant, University of Toronto 2016 - Present

- **ROB501** - *Computer Vision for Robotics* (Fall 2017, Fall 2018): Grade projects on vision algorithms. Generate scripts to automate the grading process
- **AER521** - *Mobile Robotics and Perception* (Winter 2018): Lead weekly tutorials on basic mobile robotic concepts implemented on Qbot2 with Quarc, Matlab and Simulink

Research Assistant, McGill - Centre for Intelligent Machines F2015 - S2016
Dynamic Balancing of a Pick-and-Place Robot, Supervisor: Prof. Jorge Angeles

- Maintain the electronics and implement a PID controller on Simulink and RT-LAB
- Demo the robot running industry test cycles to visitors
- Conceptualize designs in CAD software to increase the test cycles per second.
- Research, find and read articles on the topic of dynamic balancing and Schönflies motion generator for the principal Ph.D. researcher's literature review.

Research Assistant, McGill - Biomedical Microsystems Laboratory F2014 - W2015
3D Printing of an Embedded Strain Gauge Sensor, Supervisor: Prof. Xinyu Liu,

- Set up and use an open source 3D printer to simultaneously print two different materials

- Research methods to print strain gauge sensors embedded within flexible structures
- Design two proofs of concepts: a glove sensor and buttons for a keyboard

Research Assistant, McGill - Biomechanics Laboratory S2012
Cyclical Test Frequency Dependence of Aortic Tissue, Supervisor: Prof. Rosaire Mongrain

- Investigate the effect of cyclical loading frequency on aortic tissue in order to be able to run accelerated tests simulating physiological loadings
- Collect and prepare samples of porcine aorta tissue to be installed on a bi-axial tensile test machine
- Measure the stress and strain properties from data

Reviewing

ICRA 2018 2018

Honors & Awards

Ontario Graduate Scholarship, University of Toronto 2017
NSERC Industrial Undergraduate Student Research Award, McGill University 2015
Golden Key International Honour Society Invitation, McGill University 2012
Summer Undergraduate Research in Engineering Award, McGill University 2012

Volunteer Service

Tester for SenseAct (a real-time reinforcement learning framework), Kindred F2018

- Reproduce Kindred's experiments on our lab's robot.
- Document findings as a blog post on their official website.
- Submit a pull request on the SenseAct repository with related fixes.

Self-Driving Car Autonomy Team Advisor, aUToronto F2017 - S2018

- Advise the autonomy team for stop sign and lane detection
- Work on calibrating LiDAR and camera extrinsics on the car

Lab Representative, Aerospace Students Association F2017 - S2018

- Act as my research group's primary point of contact with the Executive Committee

Athletics Coordinator, Aerospace Students Association F2016 - F2017

- Coordinate athletic activities
- Upkeep the athletic equipment and venues

Autonomous Underwater Vehicle Software Developer, McGill Robotics F2015 - F2016

- Refactor the PID control and thrust mapper nodes to be object oriented and more intuitive
- Implement the option of dynamic reconfigurable PID gains
- Participate in weekly pool tests to debug and test software on the robot

Autonomous Underwater Vehicle Section Leader, McGill Robotics F2014 - S2015

- Lead and manage the group members of the auxiliary pressure vessels team
- Design and manufacture the pressure vessels which would house the batteries and hydrophones along with their various electronics and connectors.

National Conference Delegate Experience Member, EWB McGill Chapter F2014

- Attend weekly meeting discussing the logistics and planning of the conference
- Organize the "Delegate Experience" room, where the delegates rested and networked between talks and workshops in a casual atmosphere.

Industry Experience

Customer Engineering Intern, Pratt and Whitney Canada, R&D S2015
Supervisor: Aline Miquet, Ph.D.

- Program scripts on VBA to track, visualize and analyze various metrics on the auxiliary power units of the airplane fleet to guide the resdesign of parts and efficiently plan repairs
- Accurately automate various weekly processes such as warranty and coverage calculations on exce

Technical Coordinator, Mercedes Textiles S2014
Supervisors: Duane Leonhardt and Soroush Nobari, Ph.D.

- Take part in the development of a new portable three stage fire pump from the initial design to the assembly of the first model
- Create the accompanying operator and shop manual with assembly drawings and instructions.

Manufacturing Supervisor Intern, Pratt and Whitney Canada, Plant 1 F2013
Supervisor: Michel Roch

- Coordinate with maintenance, logistics and other department supervisors to ensure a timely delivery of shafts and turbine blades
- Motivate and work with unionized workers in a struggling department to reduce the high amount of overdue parts.

Technical Coordinator, Mercedes Textiles S2013
Supervisor: Duane Leonhardt

- Install and program a Dot Peen marking machine station and train operators to use the machine
- Design a Jerry can fuel cap adaptor, now patented and sold as a product
- Draw and design mechanical components using 3D solids and 2D detailed drawings.

Skills & Languages

Systems: Linux, Windows
Software: PyTorch, PyBullet, Simulink, AutoDesk Inventor, Solidworks, Git
Languages & Frameworks: Python, C/C++, ROS, Matlab, Fortran, VBA
Languages: English (Native), French (Fluent), Mauritian Creole (Fluent)