

# Joshua O'Reilly

joshuaoreilly.com   joshua@joshuaoreilly.com   linkedin.com/in/joshua-oreilly/

## Education

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### Master of Science in Robotics, Systems and Control

ETH Zürich

Zürich, Switzerland

2021 – 2023

### BASc in Mechanical Engineering and BSc in Computing Technology – 9.4/10 GPA

University of Ottawa

Ottawa, ON

2015 – 2020

Awards: NSERC USRA, NSERC Experience Award, OPEFE Scholarship, Dean's Merit Scholarship

## Experience

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### Teaching Assistant

University of Ottawa

Ottawa, ON

Fall 2019

Taught Arduino, MATLAB, SolidWorks and machine shop skills in product design class, corrected assignments

Guided students through design process of revamped tractor exhibit for Agriculture and Food Museum

### Software/Mechanical Engineering Intern

Romaeris Corporation

Ottawa, ON

Fall 2018

Improved UAV camera system frame-rate by 50% with threading and processes using Python and OpenCV

Designed and simulated UAV taxiing system using SolidWorks and ANSYS Workbench

### Robotics Intern

Zentrum für Mechatronik und Automatisierungstechnik

Saarbrücken, DE

Spring 2018

Wrote control software to automatically align 6-DOF robotic arm with riveting surface using Python and ROS

Improved read and write speeds of robot database by factor of 30 using Python and Pandas

### Makerspace Coordinator

Richard L'Abbé Makerspace

Ottawa, ON

Sep 2016 – April 2017

Taught workshops in Arduino, soldering, 3D printing, laser cutting and CAD to students

## Research

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### Undergraduate Thesis

University of Ottawa

Ottawa, ON

Fall 2020

Modelled and simulated robotic legs for beachfront litter collection robot and selected optimal topology using Python

### Research Assistant

University of Ottawa

Ottawa, ON

Jan 2019 – Sep 2020

Automated gain selection for airship dynamic model with batch simulation and analysis job in MATLAB

Developed autopilot stack with Pixhawk 4 and Raspberry Pi using Simulink Embedded Coder and C++

## Leadership

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### Co-Founder and Co-Captain

uOttawa Bionics

Ottawa, ON

Aug 2017 – June 2019

Managed team of 25 engineering students in designing and manufacturing a hip exoskeleton for stroke patients

Designed and manufactured parts using SolidWorks, and developed motor position controller using Arduino

## Publications

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E. Lantaigne and J. O'Reilly, "Multibody Dynamic Modeling and Control of an Unmanned Aerial Vehicle under Non-Holonomic Constraints", 2020 International Conference on Unmanned Aircraft Systems (ICUAS), Athens, Greece, 2020