

# Austin Luu

MECHANICAL ENGINEERING UNDERGRADUATE

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## Education

### Ryerson University

Toronto, ON, Canada

B.ENG IN MECHANICAL ENGINEERING

2016-2021

- GPA: 3.71 | Dean's Honour List
- Awards: Mechanical Eng. First Year Alumni Award | Robotics International Society of Manufacturing Engineers Award
- Relevant Courses: Mechatronics Systems Design, Stress Analysis, Control Systems, and Machine Learning

## Technical Skills

<b>Design</b>	SolidWorks (CSWA Certified), AutoCAD, Autodesk Inventor, ANSYS, GMSH, SOFA, FMEA
<b>Manufacturing</b>	FDM 3D Printing, Laser Cutting, Turning, Milling, Drilling, Welding
<b>Programming</b>	MATLAB, C/C++, Java, Python, VBA, JavaScript, LaTeX, Octave, Ladder Logic
<b>Misc.</b>	GIT, ENOVIA, Microsoft Office, CRM, Teamcenter PLM, Adobe Photoshop

## Experience

### Celestica

Toronto, ON, Canada

PRODUCT DATA ANALYST

May 2019 - Present

- Initiated and managed an Aerospace & Defense value engineering cost savings project. Reducing excess inventory by over 20% and expanding product variance by over 15%, leading to an annual cost savings of \$1.5 million
- Coordinated and managed \$5 million in global Aerospace & Defense cross-functional sourcing projects with buying, sourcing, design, and manufacturing departments to enable material procurement and manufacturing
- Developed VBA macros for; consolidating & analyzing performance metric reports, consolidating & scrubbing customer BOMs for product data management, neural network predictive analysis of component cost based on description

### Ryerson Rams Robotics

Toronto, ON, Canada

MECHANICAL DESIGN CO-LEAD

Sep. 2016 — Present

- Piloted development and evaluation of dynamic and static force model simulations in MATLAB for technical enhancements and modifications to existing designs, increasing structural integrity by over 35%
- Redeveloped system architecture of rocker bogie and differential bar mechanisms using SolidWorks & ANSYS FEA; decreasing weight and moment forces for the URC2019 competition, placing 2<sup>nd</sup> internationally
- Led an agile team of 15 in designing and developing an autonomous robot capable of expanding 150cm in height, repetitive lifting of 10lb, and omni-directional drive; placing 1<sup>st</sup> nationally over the 2018 & 2019 VEXU competitions

### Ryerson University

Toronto, ON, Canada

RESEARCH ASSISTANT

Sep. 2020 — Jan. 2021

- Re-evaluated project requirements and led mechanical design ideation for soft robotic continuum arm application on UAVs, drawing inspiration from hydrostatic skeletons and muscular hydrostat structures in nature
- Designed and modeled soft robotic continuum arm in SolidWorks and applied FEA in GMSH, SOFA, and ANSYS to analyze and simulate mechanical behaviour
- Led literature review and application towards research publication of potential technologies in Aerial Manipulation Systems

## Projects

### Parallel Computing Drone Swarm

TEAM PROJECT @ PENNAPPS HACKATHON

2018

- Designed system and hardware architecture for a hazard detection 2D mapping robot which collects thermal, moisture, and relative location data from two autonomous IoT enabled ground drones; placing top 20th percentile
- Developed with: Python, C++, MQTT Protocol, laser cutting, 3D printing, and Arduino 101s

### Bionic Arm

TEAM PROJECT @ RYERSON RAMS ROBOTICS

2018

- Designed and fabricated a prosthetic arm assembly offering 15 degrees of freedom using an Arduino mega, C++, SolidWorks & ANSYS softwares, and 3D printing
- Implemented a \$150 budget design as a proof of concept to further the field of bio-mechanics in hope of making prosthetics more accessible and versatile