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

Design	SolidWorks (CSWA Certified), AutoCAD, Autodesk Inventor, ANSYS, GMSH, SOFA, FMEA
Manufacturing	FDM 3D Printing, Laser Cutting, Turning, Milling, Drilling, Welding
Programming	MATLAB, C/C++, Java, Python, VBA, JavaScript, LaTeX, Octave, VHDL, Ladder Logic
Misc.	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 2nd 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 1st 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