# Alexander (Alec) Krawciw

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## Education & Training

Bachelor of Mechanical Engineering, Software Development Minor          (2017 – 2022)
University of Victoria                                                                                   Victoria BC, Canada
GPA: 8.98/9.0
Introduction to mechanical design theory and methodologies. Focus on mechatronics and automation. Theory and practice of software architecture, implementation, and testing.

Certified Solidworks Associate – Mechanical Design          (November 2020)
Member IEEE Robotics and Automation Society

## Work Experience

**Systems Developer Co-op**          (Jan 2021 – Aug 2021)

Gregory C Marshall Naval Architect Ltd.          Victoria, BC

- Designed and operated a 20ft electric hydro-foiling catamaran from scratch
- Developed system control architecture in Python/C, merging distributed control with an integrated web interface
- Assembled mechanical and electrical components and designed instrumented tests to ensure safety and performance

**Mechanical Engineering Co-op**          (June 2020 – Aug 2020)

General Fusion Inc          Burnaby, BC

- Used Solidworks to design parts, assemblies, and manufacturable engineering drawings
- Developed automated processing pipeline for laser sensor data in Python
- Machined and assembled vacuum and high-pressure pneumatic systems

**Optical Engineering Co-op**          (Jan 2019 – Apr 2019)

Hertzberg Astronomy and Astrophysics          Victoria, BC

- Assisted in the bench layout and calibration of precision optical systems
- Developed control software in Matlab for a novel wavefront sensor
- Designed new documentation standards for the optics laboratory

## Publications

A. Krawciw, O. Lardière, et al, "Flattened Pyramid Wavefront Sensor Demonstration with a Regular Pyramid," in *AO4ELT6 Proc.* Quebec City QC, 2019. Available: http://ao4elt6.copl.ulaval.ca/proceedings/401-Z3gL-241.pdf

## Volunteer Experience

**Chief Engineer**                                                                          (May 2019 – Present)
UVic AERO Club                                                                                      Victoria, BC
- Lead club through competitive design cycle of requirements to operations and testing
- Managed club finances and apply for grants
- Taught new club members about systems and managed club documentation

**Developer**                                                                                  (Apr 2020 – Present)
*FIRST* Tech Challenge                                                          Manchester, NH (Remote)
- Developed a free web-based simulation interface for students to learn programming
- Partnered with other developers to use existing frameworks in a cloud environment

**Event Volunteer**                                                                      **(**Jan 2017 – Present)
*FIRST Robotics British Columbia*                                                            Victoria, BC
- Developed workshop curricula and taught high-school teams about CAD, computer vision, and robot odometry
- Developed an online high five platform for promoting team spirit and collaboration as part of a virtual season celebration
- Helped organize virtual and in person robotics tournaments for middle and high school students.

## Awards

*FIRST Robotics BC Alumni Scholarship*                                                          (May 2021)
   Given to three alumni who demonstrate commitment to *FIRST* through volunteering
*Unmanned Systems Canada Student Competition Winner*                              (May 2018)
   Top team for designing drones and autonomous planes
*Maurice William Summerhayes Memorial Scholarship*                          (September 2017)
   Given to an academically outstanding student entering engineering
*FIRST Tech Challenge Inspire Award World Championships*                          (April 2017)
   Top overall team in robotics competition out of about 5000 teams worldwide.
*Canada Wide Science Fair: Bronze Medal*                                                        (May 2016)
   Given for science fair project developing a new fabrication process for Graphene.

## Technical Skills and Interests

**CAD and Engineering Drawings**: Solidworks, AutoCAD, PTC Creo, Onshape

**Programming Languages**: Python, Java, C, C++, Matlab

**Computer Vision:**  OpenCV development in ROS with C++ and Vuforia in Java

**Web Development:** HTML5, CSS, Javascipt, JQuery, Node.JS

**Systems Engineering:**  Integration of mechanical and electrical systems.  Developing control systems and algorithms