Victoria Holroyd

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Education

Univerity of Victoria | *Bachelor of Engineering in Mechanical* Expected Graduation Spring 2026

- 3.9 GPA

Experience

Hybrid 3D Labs Jan. 2025 – Apr. 2025

Mechanical Engineering Intern *Victoria, Canada*

- Continuing the design and development of a 3D-printed honeycomb-structured helmet aimed at mitigating Traumatic Brain Injuries (TBI) in cyclists, including research into head and neck impact effects and current safety standards.
- Independently developed an aerodynamic version of the helmet using SolidWorks, enhancing design and performance for competitive cyclists.

Starlight Developments May 2024 – Aug. 2024

Development Intern *Victoria, Canada*

- Conducted various tasks associated with development projects, including writing project breakdowns, verifying budgets, reviewing architects' drawings, participating in consultant meetings, and performing site visits to check for deficiencies.
- Led tour for 55 members of a local development group around one of our projects under construction.

Reinbold Engineering Group Jan. 2023 – Apr. 2023

Junior Mechanical Designer: HVAC & Plumbing *Kelowna, BC*

- Designed and modeled HVAC and plumbing layouts for high and low-rise residential and commercial buildings using REVIT.
- Performed air ventilation and water load calculations to size ducts and pipes for suites and corridors.
- Implemented fire safety equipment and emergency routes throughout buildings.

Projects

Human Robot Communication | *Honors Thesis* Start: May 2025

- This honours thesis will focus on the development of Human robot communication through gestures and voice commands. The project will begin with face-to-face interaction, where a single robotic arm responds to gestures and speech in real time. Over the course of development, the system will evolve to support remote control through a VR interface, enabling immersive, natural interaction from a distance. The goal is to improve communication fluency and task efficiency in collaborative robotic systems.

Aerial Engineering and Research Organization (AERO) | *Mechanical Team* Sep. 2024 – Present

- A club dedicated to designing and building a small unmanned plane from scratch to compete in the Aerial Evolution Student Competition with this year's theme being firefighting.
- Our plane will be able to detect hotspots (IR emitters) and map them, as well as pick up water from a source tank, transport it, and release it into target tank autonomously.
- Primarily focused on the development of a water transport system, a bottom fill system able to carry 7.5 liters and fill almost instantaneously

Flywheel Powered Toy Car | *MECH 350* Jan. 2024 – Apr. 2024

- Using SolidWorks, designed and built a small vehicle to harness energy for a flywheel spinning at 2000 RPM primarily using a friction clutch comprised of two pressure plates and stacked wave springs.
- Researched and wrote multiple project reports outlining alternative designs, theoretical calculations, and testing results of our final vehicle.
- The final design traveled 38m, was lightweight, efficient, and 90% recyclable.

Automaton: Theory of Mechanisms | *MECH 335* Jan. 2024 – Apr. 2024

- Created an automaton depicting an Olympic speed skater, Steven Bradbury, winning gold after his components wiped out using four-bar mechanisms, a gear train, a scotch yoke, and a geneva wheel with three teammates.

- Completed all calculations to create the smooth motions of the skater, including those to form the four-bar mechanisms moving the figure's feet into certain precision points.

Autonomous Underwater Robotics (AUVIC) | *Mechanical Team* Sep. 2022 – Sep. 2023

- Worked on an underwater vehicle able to complete a series tasks, such as shoot torpedoes, identify symbols, and grab onto a cover fully autonomously to compete in Robonation International Robosub competition.

Competitions

Western Canada Engineering Competition (WEC) | *4th Place* Jan. 2025

- Engineered an autonomous letter-folding mechanism in just 8 hours using an Arduino, sensors, popsicle sticks, glue, and tape.
- Developed and integrated a proximity sensor, folding arms, and a self-resetting system to enable precise, continuous operation without manual intervention.
- Collaborated with a team of three to rapidly prototype and troubleshoot under pressure.

UVIC Engineering Competition (VEC) | *1st Place* Nov. 2024

- Engineered an autonomous robot in 8 hours able to detect IR light, move through obstacles and retrieve an object.
- Advanced to the second round of competition, WEC.

Awards

University of Victoria Excellence Scholarship | *Full-ride scholarship for achieving a 98% average in high school.*

Cecil E. Engineering Award | *Scholarship for my academic standing and passion for engineering.*

Faculty of Engineering Dean's Entrance Scholarship

Women in Engineering and Computer Science Entrance Scholarship

Miscellaneous

Interests | *Hiking, Soccer, Painting & Art, Camping, Cooking, Dogs*

Updated Apr. 21, 2025