

Alex Jacobs

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📍 Waterloo, Ontario, Canada

SKILLS

- **CAD Programs:** Solidworks, Fusion 360, Onshape, Blender
- **Programming Languages:** C++, Java, Lua
- **Manufacturing:** 3D-Printing, Lathe, Milling Machine, Drill Press, Band Saw, Scroll Saw

PROJECTS

- **Unmanned Surface Vehicle** 🌐 August 2023, January 6th 2025 - April 21st 2025
Los Angeles, USA
Sensing and Robotics for Infrastructure Lab, UCLA
 - Designed and modelled a portion of the hull of the vehicle
 - Debugged and tested numerous SLAM algorithms on several datasets
 - Created and ran simulations on multiple algorithms
- **Forearm Guard** 🌐 August 2023
Toronto, Canada
New Haven Learning Centre
 - Designed, modelled, and 3D-printed a bite guard for therapists working with autistic children
- **Costume and Prop Creation** 🌐 June 2022 - Present
Toronto, Canada
405th: Halo Costume and Prop Maker Community
 - Designed, 3D-printed, manufactured and displayed 1:1 scaled replicas of props and wearable costumes from the franchise Halo

RELEVANT EXPERIENCES

- **Student Lab Assistant Co-op** 🌐 January 6th 2025 - April 21st 2025
Los Angeles, USA
Sensing and Robotics for Infrastructure Lab UCLA
 - Wrote a program to add Gaussian noise to LiDAR or IMU data within .bag files for **Robot Operating System (ROS)**
 - Created files and instructions to import buildings from CAD to the robotics simulator **Gazebo**
 - Designed and modelled multiple pre-existing mounting solutions to allow for newer parts to be installed
 - Debugged and tested numerous SLAM algorithms on several datasets
 - Debugged several deprecated programs related to **Robot Operating System (ROS)**
 - Designed multiple different logos for the lab as a whole
 - Other miscellaneous work to accelerate the lab's research
- **FRC Robot** 🌐 September 2023 - June 2024
Toronto, Canada
Northern Secondary School FRC Team 8884
 - Ported and 3D-printed a swerve drive for the robot
 - Manufactured various systems for the robot, including a swerve drive and much of the frame
- **Updated Stakeholder List** 🌐 December 2023 - June 2024
Willowdale, Canada
MPP Hon. Stan Cho
 - Edited and updated the current stakeholders list, providing new and updated data on stakeholders
 - Researched and added new information, such as new stakeholders in the region
- **TDSB Mechanical CAD Competition** March 5th 2024
Toronto, Canada
CAD Competition [Placed 2nd]
 - Modelled and rendered a specified part in **Fusion360** based on pre-made drawings within a 3-hour time limit
- **Skills Ontario Mechanical CAD Competition** May 7th 2024
Toronto, Canada
CAD Competition [Placed 11th]
 - Modelled and rendered a modular lighting system based on specified criteria using **Fusion360**
 - Measured a physical component and developed an accurate 3D model using **Fusion360**

EDUCATION

- **University of Waterloo** GPA: 4.00/4.00
September 2024 - July 2029
Candidate for Bachelor of Applied Science in Mechatronics Engineering

HONORS AND AWARDS

- University of Waterloo President's Scholarship of Distinction May 2024
- Term Distinction January 2025