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*
  Sensing and Robotics for Infrastructure Lab, UCLA Los Angeles, USA
  - 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*
  New Haven Learning Centre Toronto, Canada
  - Designed, modelled, and 3D-printed a bite guard for therapists working with autistic children
- **Costume and Prop Creation [🌐]** *June 2022 - Present*
  405th: Halo Costume and Prop Maker Community Toronto, Canada
  - 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*
  Sensing and Robotics for Infrastructure Lab UCLA Los Angeles, USA
  - 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*
  Northern Secondary School FRC Team 8884 Toronto, Canada
  - 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*
  MPP Hon. Stan Cho Willowdale, Canada
  - 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*
  CAD Competition [Placed 2nd] Toronto, Canada
  - 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*
  CAD Competition [Placed 11th] Toronto, Canada
  - 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*
  Candidate for Bachelor of Applied Science in Mechatronics Engineering September 2024 - July 2029

Honors and Awards

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