Brielle Chenier

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SKILLS

- Mechanical Design: Certified Solidworks Professional (CSWP), Onshape, AutoCAD, 3D Printing, CNC, Waterjet, GD&T.
- Software: Python, C++, Git, Java, LabVIEW
- Languages: English, French

EDUCATION

University of Waterloo, *BASc in Mechatronics Engineering*   2020 – 2025
- 3rd place in Senior Design at Waterloo Engineering Competition 2021   Waterloo, ON
- Eng. Society Educational Outreach and Enghack Director, 2022 Outreach Commissioner

EXPERIENCE

Mechanical Engineering Intern - Battery Team, *Beta Technologies* 🔗   January 2022 – April 2022
- Designed fixtures for battery pack assembly and testing in Onshape   Burlington, United States
- Performed tests to ensure battery pack reliability during crashes and short circuits
- Created a demo to demonstrate battery technology internally and at tech conferences
- Analyzed battery crash test results using Ansys

Mechanical Technical Lead, *Waterloo Aerial Robotics Group*   September 2020 – Present
- Designed quadcopter frame in SolidWorks to carry a 2kg payload and fly 3km.   Waterloo, ON
- Built and performed calculations to ensure sufficient lift, flight time, and appropriate landing gear for competition drone.
- Designed device to grab, pick up and deploy medical package for fixed-wing aircraft.
- Integrated mechanical system with electrical and firmware for competition airframes.

Engineering Intern, *Eospace*   May 2021 – August 2021
- Developed a nitrogen hood in SolidWorks and printed with an SLA printer in order to   Redmond, United States
hermetically seal modulators.
- Designed an oven to cure epoxy by heat cycling devices 2x faster and CNC machined a plate to cool parts in a safer way.
- Developed a LabVIEW program for a solenoid to release air at specific times during a heating process.

Mechanical Team Member, *University of Waterloo Solar Car Design Team*   September 2020 – May 2021
- Designed tools to aid in car manufacturing and increase efficiency during assembly.   Waterloo, ON
- Assembled carbon fiber and Nomex to create four different layups for car outer structure and bottom panel.
- Researched engineering techniques for welding and built welding jigs for car mainframe to support four passengers.

PROJECTS

**Friendship Lamp,** *Color Changing Lamp* 🔗   October 2020 – February 2021
- Developed a program for a Raspberry Pi lamp to connect via Firebase to a buddy lamp and display matching colors in real-time.
- Created a website in React to remotely control lamp colors.
- Designed lamp case in SolidWorks and 3D printed to house LEDS

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WARG 2022 Competition Drone

- 4kg drone, capable of carrying 2kg payload

- Designed in SolidWorks and prototype made with laser cutting fiber board. Final design will be made by water jetting carbon fiber

- 3D printed brackets for arm to keep them rigid during flight as well as distribute battery load
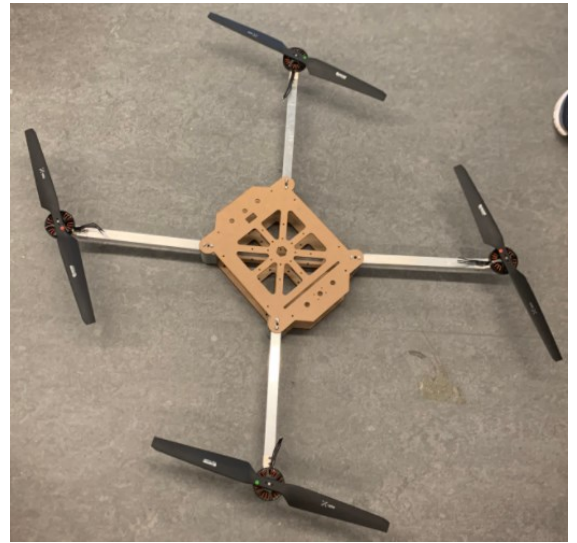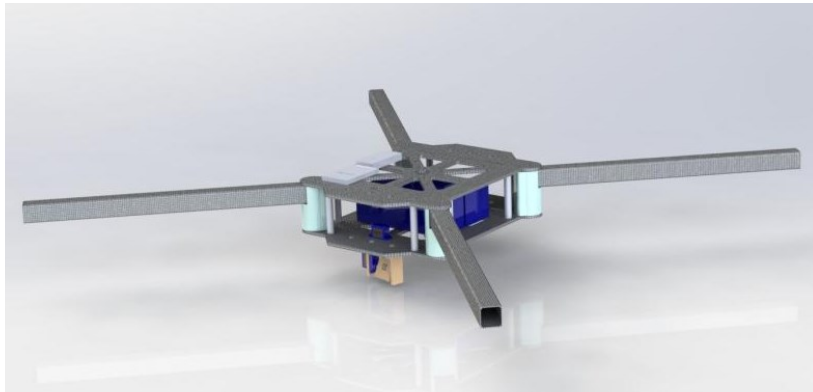
FIRST Robotics Climb System

- Aluminum extrusion rails driven by chain to lift 150lb robot up a 45cm step

- 6 bearings held in each extrusion to ensure rails stay in correct position and do not bend

- Motor behind bottom bracket to control wheels and move robot forward during climb

- Sheet metal parts made with a waterjet and bent