Brielle Chenier

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SKILLS

- Mechanical Design: Certified Solidworks Professional (CSWP), Onshape, AutoCAD, 3D printing, CNC, Waterjet, GD&T
- Programming: Python, C++, Git, Java, LabVIEW
- Language: English and French

EXPERIENCE

Mechanical Engineering Intern, *Beta Technologies*
January 2022 – Present
Burlington, United States

- Working on battery subteam to develop a battery pack for electric VTOL aircraft.
- Designing fixtures for battery pack assembly and testing in Onshape
- Performed and analysed tests to ensure battery pack reliability during crash and short circuit

Mechanical Technical Lead, *Waterloo Aerial Robotics Group*
September 2020 – Present
Waterloo, ON

- Designed quadcopter frame in SolidWorks capable of carrying a 2kg payload and flying up to 3km. Built and performed calculations to ensure sufficient lift, flight time, and appropriate landing gear.
- Fabricated grabbing device using servos and micro-controllers to pick up and deploy medical packages for fixed-wing aircraft.
- Ensured mechanical system integration with electrical and firmware for 2021 and 2022 competition airframes.

Engineering Intern, *Eospace*
May 2021 – August 2021
Redmond, United States

- Developed a nitrogen hood in SolidWorks and printed with an SLA printer. Used to remove oxygen when welding modulator lids in order to create a hermetic seal and increase reliability.
- Design an oven to cure epoxy by heat cycling devices 2x faster and machined a plate to cool parts more safely and efficiently.
- Programmed in LabVIEW to have a solenoid release air at specific times during a heating process.

Mechanical Team Member, *University of Waterloo Solar Car Design Team*
September 2020 – May 2021
Waterloo, ON

- Designed tools to aid in car manufacturing and increase efficiency during assembly and competition
- Assembled carbon fiber and Nomex to create four different layups for car structure and bottom panel
- Learned about engineering techniques for welding and built welding jigs for car main frame to support 4 passengers

PROJECTS

Friendship Lamp, *Color Changing Lamp*
October 2020 – February 2021

- Programmed a Raspberry Pi powered lamp to connect via Firebase to a buddy lamp and display matching colors in real-time
- Lamp can be controlled remotely with a website made using React.
- Designed lamp case in Solidworks and 3D printed to house LED's .

EDUCATION

University of Waterloo, *BASc in Mechatronics Engineering*
2020 – 2025
Waterloo, ON

- 3rd place in 2021 Senior Design at Waterloo Engineering Competition
- Eng. Society Educational Outreach and Enghack Director, Outreach Commissioner

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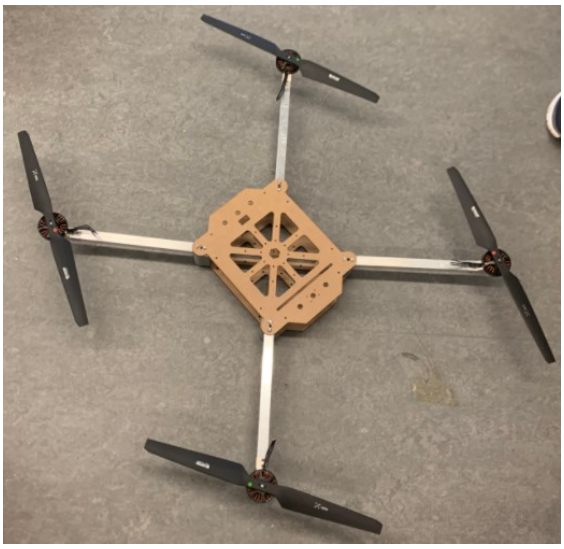
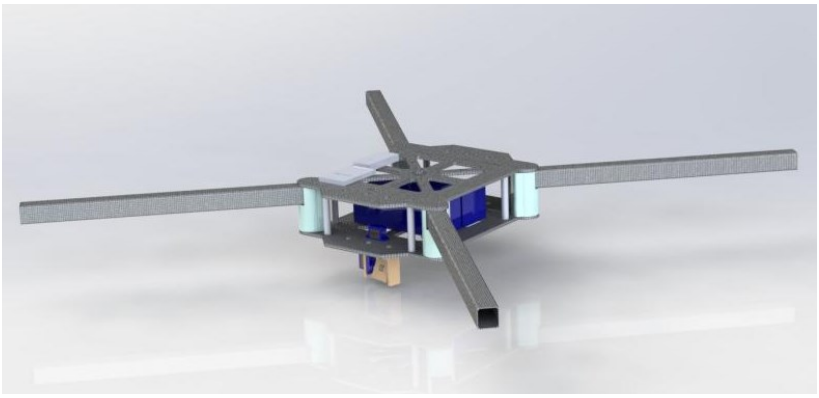
WARG 2022 Competition Drone

- 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