

ANTHONY QIU | Mechanical Engineering at The University of Waterloo

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SKILLS

CAD

- 3D CAD design and FEA analysis using Solidworks.
- 2D engineering drawings using Solidworks and AutoCAD, applying GD&T specifications.

Mechanical

- Rapid prototyping via 3D printing.
- Needs analysis and conceptual design.
- Manufacturing experience on the mill, lathe, and vertical bandsaw.

Software/Other

- Java, Python, C++, RobotC, HTML, Microsoft Suite (Word, Excel), Project Management, Report Writing.
- Usage/Application of sensors (colour, ultrasonic, touch, gyro) and motors.

PROJECTS (SEE PORTFOLIO)

Launcho | A Spring Powered Toy Rocket Launcher

Sept 2022 – Dec 2022

- Fabricated initial prototype to gauge design feasibility under a restricted budget of \$20.
- Designed 9 3D models using SolidWorks to assemble a fully functional design satisfying initial constraints and criteria.
- 3D printed unique and complicated components using ABS and machined steel parts that performed under high stress conditions with a lathe and mill.

Brake Caliper Mounting Arm | Brake Caliper Mounting Arm for Midnight Sun Solar Car

Jan 2023 – Feb 2023

- Designed 3D model in SolidWorks with dimensions obtained from caliper instruction manual.
- Performed FEA stress test and topological analysis to yield the most optimal strength to weight ratio.

Impeller | Impeller for Robotic Suction Arm

Jan 2023 – Feb 2023

- Designed Impeller in SolidWorks, fabricated by 3D printing with PLA.
- Performed flow simulations in Solidworks to determine the impeller design which yields the highest suction force.

DESIGN TEAMS

Mechanical Designer (Dynamics)

Jan 2022 – Present

Midnight Sun, University of Waterloo, Waterloo, ON

- Designed brake caliper mounting arm to reliably secure fixed brake calipers to the solar car with minimal mass.
- Researched optimal brake caliper placements on solar car and compiled information to account for factors including center of mass, airflow, and simplicity.

Propulsion Team Member

Sept 2022 – Present

Waterloo Rocketry, University of Waterloo, Waterloo, ON

- Researched compatibility between 2000-series aluminum alloy and Nitrous Oxide, analyzed temperature, pressure, and corrosiveness, presented the results in a written report.
- Analyzed unwanted feed system oscillations found during cold flow rocket test and suggested additional mounting fixtures for nitrogen tanks which resulted in the elimination of these oscillations.
- Sourced a pressure regulator with unique requirements by contacting more than 6 companies, acquiring a sales quotation.

EDUCATION

Honors Mechanical Engineering (BASc.)

Sept 2022 – Present

University of Waterloo, Waterloo, ON

- Term Average: 89.18%.
- Relevant courses: ME115 (Material Science), ME100 & ME101 (Mechanical Design), ME123 (Circuits), PHYS115 (Physics).

EXPERIENCE

Crew Member

Jul 2021 – Jul 2022

McDonalds, Markham, ON

- Worked as a team in a high intensity kitchen to prepare food for customers by using effective and concise communication.
- Trained new crew members by thoroughly explaining and demonstrating new concepts.
- Demonstrated flexibility by taking on a wide variety of tasks ranging from kitchen work to cleaning.

Co-op Student

Feb 2021 – Jun 2021

WizRobotics Markham, ON

- Web scraping school contact information for a province wide robotics competition using python and selenium (an automation tool), playing a crucial role in gathering participants.
- Participated in a robotics competition as a judge. Closely analyzed and scored participant work based on design, planning, technicality, and innovation.

Volunteer Camp Assistant

Mar 2020 – Mar 2020

Venom Volleyball, Richmond Hill, ON

- Instructed volleyball techniques through demonstrations and guided practice.
- Supervised children during drills and games, ensuring their safety.