**­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**

**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 under a load of 10 kN.

**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.

**EXPERIENCE**

**Mechanical Designer (Dynamics)** Jan 2023 – Present

Midnight Sun Solar Car Design Team, 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 2023 – Present

Waterloo Rocketry Design Team, 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 resulting in a functioning test rig setup.
* 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.

**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.

**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).