Reuben Jacob

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SUMMARY

Third-year Mechanical Engineering student at the University of Toronto (Sustainable Energy Minor) with hands-on experience in CAD modeling, and embedded systems. Proficient in SOLIDWORKS (CSWA), Python, C++, git, and ROS2, with strong ability to deliver cost-effective prototypes from concept to testing. Passionate about leveraging my design and programming skills to develop innovative vehicular technologies and sustainable transportation systems.

EDUCATION

University of Toronto – Toronto, ON **Expected: June 2028**

B.A.Sc. Mechanical Engineering + PEY Co-op | Minor: Sustainable Energy | GPA: 3.60/4.0 | Dean's Honor List

EXPERIENCE

University of Toronto Underwater Exploration (UTUX) **Nov. 2024 - Present**

Software Team Member *Toronto, ON*

- Student-led design team of 200+ students developing UUVs and providing hands-on engineering experience.
- Developing a ROS 2 control node in Linux (Ubuntu 22.04) to translate force/moment commands into precise motor outputs, forming the control foundation for future autonomous UUVs.
    - **Stack:** JavaScript; C++; Node-RED; Git; ROS2 (Humble); Linux (Ubuntu 22.04); Notion; GitHub

Mechanical Engineering Design **Sept. 2024 - Dec. 2024**

Team Member *Toronto, ON*

- Collaborated with a team of four to apply the engineering design process, developing four candidate designs for a hobbyist CNC machine and modelled the final design using SOLIDWORKS.
    - **Key Results:**
        - Created and presented mechanical drawings of candidate designs during a check-in, securing timely approval from the supervising TA.
        - Produced CAD models and 10+ detailed engineering drawings that earned a 90% grade and TA commendation.

Engineering Strategies & Practice II **Jan. 2024 - Apr. 2024**

Communication Liaison *Toronto, ON*

- Worked in a group of 6 and partnered with a client to design a low-cost dust collection system for a hobbyist table saw.
    - **Key Results:**
        - Led client communications to schedule meeting times & location to discuss design specifications.
        - Developed a successful prototype of the final design under $200 and presented findings to the client who expressed great satisfaction with the design.

PROJECT

Upgraded Toy RC Car (Personal) **July 2025 (Completed)**

- Retrofitted a budget toy RC car with variable steering/throttle and ATMEGA328P-controlled LED brake, turn, and headlights, completing the system for under $70.

3D Printed Gear Reducer (MIE 243) **Dec 2024 (Completed)**

- Engineered and 3D-printed a parallel 12:1 gear reducer in SOLIDWORKS and validated durability via high-load drill testing for 30+ seconds without failure.

CERTIFICATIONS, SKILLS & INTERESTS

Certifications: SOLIDWORKS CAD Design Associate (Dec 2024), George Brown Basic Machining Course (Mar 2025)
Technologies: SOLIDWORKS, ANSYS, VS code, Arduino IDE, Notion, Linux (Ubuntu), GitHub, MatLab, Outlook, Excel
Skills: Python (pandas), C++, Object-Oriented Programming, ROS2, Git, Soldering
Engineering Skills: Engineering Design, Finite Element Analysis, CAD, Machining (Lathes, Drill Press, Milling)
Interests: Driving, Road trips, *Kerbal Space Program*, Biking