Rowan Zawadzki **Integrated Engineering Student**

roozki.github.io

Solutions are not found, they are created. zawadzkirowan@gmail.com | 604-818-5219

TECHNICAL SKILLS

High-level Software
- Advanced ability with Robot Operating System (**ROS** 1 + 2) (2.5 year exp.)
- Advanced ability with **Git** CLI and Github
- Advanced ability in **C++** (4 year exp)
- Intermediate ability in HTML/CSS, Java, Python
- Intermediate experience with **OpenCV** and **custom object detection**
- Understanding of **inverse kinematics** for realtime robotics applications (**MoveIt**)
- Daily-driving **Linux** Ubuntu
- Experience with developing **navigation stacks** (**Nav2**, 3d perception, **sensor meshing**).

Electrical + Firmware
- Experienced at designing, **soldering** and wiring **complicated circuits/systems**
- Confident with C++ firmware and micro-controllers (**ESP32, Teensy**, Arduino), as well as **Serial** and **TCP/IP** protocols.
- Power systems and energy storage/various battery types, EMF protection
- Experienced with integrating **GNSS/**GPS **RTK** into custom systems.
- Basic Experience with **Zephyr RTOS** (making position + velocity based serial-controlled firmware for a 20 Hz, 6-DOF robotic arm for Inverse kinematics).

Design and Manufacturing
- Experience with the engineering design process, from concept to design to **prototyping**/building, and **iterative improvement**.
- Proficient in **CAD**
- Basic experience in materials
- Manufacturing methods including laser-cutting, water-jetting and 3D printing.
- Proficient with hand tools commonly used for **mechanical and electrical prototyping**.
- **Lathe** Trained
- MIG **Welding**
- Confident with power tools (angle grinding, dremel, etc)

EDUCATION

University of British Columbia   **Apr 2026**
Bachelor of Applied Science – Integrated Engineering

TECHNICAL WORK EXPERIENCE

GoDark Faraday Bags, Vancouver, BC   **Jul 2022 – Aug 2022**
Independent Research Contractor
- Explored and advanced **A.I. object detection** applications.
- Trained and tweaked the **YOLO algorithm** (running on Darknet with ROS) to **detect custom objects**.

ENGINEERING STUDENT TEAMS

UBC Rover/Snowbots, UBC   **Sep 2021 – Present**
Software Lead as of August 2022
- Placed 3rd in the CIRC 2022 summer competition out of 13 teams. We were the top scoring Canadian team. We had some growing pains in the 2023 competition, but I am proud of our progress.
- My goal is to make UBC Rover a globally recognized robotics team.
- Created a hype video: https://youtu.be/zTYScrHvHgI

UBC Rocket, UBC   **Sep 2021 – Apr 2022**
Recovery Systems Team Member
- Researched and developed pyrotechnic parachute release mechanisms.
- Created a hype video: https://youtu.be/Ti_pFQMo54s

AWARDS

UBC Schulich Leader Scholarship ($100,000)   2021

TECHNICAL PROJECTS

Personal Projects   **2016 – Present**

- (2019) Designed, built, and coded a **4-axis robotic arm** complete with **facial tracking** and **serial communication.**
- Other projects include design and built of a **4-propeller drone**, line-following robots, **colour-tracking lamp**, AC with thermodynamic peltier modules, radio controlled robot to open a dorm-room door lock, WiFi controlled light switch, an **esp32 smart watch** and a solar-powered battery backup system.
- Videos about projects: https://youtube.com/shorts/H_Vrpo-Ml8o?feature=share , https://youtu.be/efBHSK6pX-8 , https://youtu.be/ID8tj8uk5Vc, https://youtube.com/shorts/sOcFEUQ63kI?feature=share

Canadian Space Payload Accelerator, Artemis Student Lunar Drill Team   **Nov 2021 – Dec 2021**
- Researched and proposed novel potential lunar projects.
- Researched drilling techniques and participated in thought seminars with professionals.

OTHER WORK EXPERIENCE

School District 43, Coquitlam, BC   **Sep 2020 – Aug 2021**
Coding Teacher
- Developed and delivered coding curriculum for kids in grades 3 – 5.
- **Simple micro-controller coding, Minecraft coding, 2d game coding.**

A&J Massullo Excavating, Lower Mainland, BC   **Jun 2019 – Aug 2019**
General Landscaper
- Operated heavy machinery and conducted landscaping duties.

Cactus Club Cafe, Coquitlam, BC   **Apr 2018 – Dec 2018**
Dishwasher
- Washed dishes and assisted with preparing food.

Skye Consulting, Coquitlam, BC   **May 2016 – Jun 2021**
Administrative Assistant
- Providing computer technical support and STEM program development expertise.

VOLUNTEER EXPERIENCE

School District 43 XSTEAMcon, Coquitlam, BC   **May 2022**
Presenter
- Facilitated and presented a workshop focusing on 'robotics and the future' to middle school students.

BC Covid-19 3d Printing, Coquitlam, BC   **Mar 2020 – Aug 2020**
COVID-19 PPE Printer
- 3D Printed **'ear-savers'** that made long term mask wearing more bearable for healthcare workers
- 3D Printed **face shield frames**
- Distributed finished product to **healthcare workers in BC and Alberta**

School Bake Sale Fundraiser (SD43), Coquitlam, BC   **2016**
Organizer
- Organized a bake sale and purchased a bike for a Syrian refugee with the proceeds.

INTERESTS & ACTIVITIES

Robotics, philosophy, music, general outdoors, climbing, mountain biking, back-country hiking and camping.