

Jayden Randhawa

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- Experienced with CAD, 3D printing, programming, microcontrollers, and automation.
- Passionate about electric and autonomous vehicles, robotics, automation and product optimization.
- Self-starter and focused learner. Built a delta-style 3D printer and learned SolidWorks and Fusion 360 to design 3D models for work, school and personal projects.
- Seeking a hands-on engineering internship to apply and develop my technical skills and contribute to cutting-edge projects.

Experience

Quanser Consulting | Junior Mechanical Engineer

Summer 2025

- Designed and modeled four custom gearboxes in SolidWorks using COTS (McMaster-Carr) and custom components to demonstrate torque and rotational speed transmission for Quanser's Mechatronics Actuators Trainer product.
- Validated mechanical designs using rapid 3D printing prototyping, evaluating Design for Manufacturability (DFM) and verifying multi-part assembly fit and function.
- Created detailed production documentation, including component engineering drawings, bill of materials (BOM), and exploded-view assembly guides.
- Engineered custom 3D printer hardware upgrades, integrating a high-temperature polycarbonate-carbon fiber (PC-CF) extruder assembly and Raspberry Pi web-based monitoring/control.
- Developed custom firmware routines and wiring harnesses for real-time filament runout sensing and automated printer state recovery.
- Assembled, wired, and tested electro-mechanical components, including actuator PCBs and product housings with heat-set inserts.

SETZ Fitness – Co-Founder & Lead Engineer | setzfitness.com

2023 – Present

- Lead inventor on a pending patent (with additional filings underway) for a wearable biomechanical tracking system designed to deliver real-time feedback on exercise execution.
- Designed and built a 9-node wearable hardware system using ESP32 microcontrollers and BNO085 IMUs housed in custom PCBs and 3D-printed enclosures.
- Constructed a real-time kinematic skeleton model in Python, streaming orientation data to compute joint angles, angular velocities, and full-body spatial positioning.
- Developed a mobile companion app to deliver real-time feedback and movement insights, serving as an automated personal coaching platform.

SHAD Canada, University of Prince Edward Island

July 2023

- Accepted into highly competitive national STEM program for high school students with high aptitude for technology and entrepreneurship.
- Led the CAD sub-team of a design project group developing low-cost housing.
- Implemented the engineering design process to iteratively design and model a long-term transition community for Indigenous youth aging out of foster care.
- Actively participated in academic and entrepreneurial training session led by experienced mentors based on their perspectives and experiences.

The STEAM Project - Leadership and Counsellor Training Program

Summer 2022

- Accepted into a competitive leadership training program at a STEM based summer camp.
- Learned technology design and implementation, leadership, teaching and conflict resolution skills.
- Counsellor for children aged 10-14 for various STEM projects and activities.
- Previously attended as a student.

Education and Awards

Bachelor of Engineering - Mechatronics Engineering

September 2024 - Present

Toronto Metropolitan University, Toronto, ON

- Dual specialization in autonomous robots & vehicles and management sciences

Toronto Metropolitan Formula Racing – Formula SAE

- General Member – Focus on Vehicle Dynamics

Canadian National Champion, Future Business Leaders of America

2023

- Won first place in business plan competition at the FBLA - Canadian National Leadership Conference (High School Competition). Represented Canada at FBLA NLC - International Level

Thornhill Secondary School, Thornhill, ON

2020 – 2024

Executive Member, Technology Club

- Team leader responsible for configuring, setting up and repairing audio-visual equipment and computer equipment throughout the school, including arranging equipment to optimize sound and lighting for assemblies, performances and other events.
- Led implementation of event specific scene and equalizer shape presets to allow for quicker setup and transition between events.
- Managed club members in stage department.

Founder, Cycling Club

- Founded a cycling club at my high school for both experienced and novice cyclists.
- Organized weekly meetings and group bike rides for road and mountain bike riders.

Executive Member, Investment Club

- Researched and created lesson plans regarding investment types, strategies, and theories using my knowledge and experience with stock market investing.
- Organized weekly meetings where I presented the information and took questions.

Personal Projects

RC Car

- Designed and built a remote-control car as a demo for students at a summer camp.
- Designed and 3D printed parts with Fusion 360 and Cura.
- Built controller and car with Arduino using Bluetooth to communicate.

Fan Controller - Home Automation

- Modified ceiling fan remote to be controllable using HTTP requests.
- Integrated a Raspberry Pi and relays into fan remote PCB to replicate button presses, handle HTTP requests, and host a web page to control the fan.
- Created an IFTTT automation to connect fan remote to voice assistants.

Powered Blinds - Home Automation

- Motorized my window blinds to allow remote operation and automation from phone and by voice.
- Custom designed and 3D printed housing, mounts and other parts.
- Used a NEMA 17 stepper motor for its sufficient torque and precise control over blind position.
- Used ESP32 microcontroller to control stepper motor.
- Used HomeSpan library to create a service discoverable by Apple HomeKit.

Laser Tag

- Created a laser tag game with Arduino and custom designed and 3D printed parts.
- Made a 3D printed IR emitter and wearable array of sensors to detect IR signals.
- Used Arduino to encode, send and decode unique identifiers in the IR signal for each player, allowing multiple players to be uniquely tracked during game play.

Skills & Expertise

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|----------------|--------------------|--------------------------|------------------------|
| • Arduino | • SolidWorks | • C/C++ | • Microsoft Excel |
| • Raspberry Pi | • Fusion 360 | • Java | • Microsoft Word |
| • MATLAB | • System Modelling | • Python | • Microsoft PowerPoint |
| • AVR Assembly | • GD&T | • Motivated self-starter | • Time Management |