Arnav Saraf

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Education

University of Waterloo Sept. 2025 – Present
Bachelor of Applied Science (Electrical Engineering) *Waterloo, Ontario*

Rockridge Secondary School Sept. 2020 – Jun 2025
Graduated Honors with Distinction *West Vancouver, BC*

- Math Award, Design Award. Founded the 3D Design Club.

Skills

Languages: Python, C++, MatLab, Java
Software: Fusion360, Onshape, AutoCad, Xtools, Cura, Altium, VScode
Tools: 3D printing, Laser Cutting, Arduino, Woodshop Tools, Soldering iron

Experience

Electrical Team Member Sept 2025 – Present
Waterloo Aerial Robotics Group *Waterloo, Ontario*

- Designing and fabricating PCBs in Altium (voltage regulators, CAN loggers) suitable for aerial drones, ensuring safe power input/output.
- Selecting electrical components from DigiKey and Mouser using data sheets and product specifications.

Robotics Team Lead/Member Sept 2020 – June 2025
West Vancouver School District, Vex Robotics Competition, First Robotics Competition *West Vancouver, BC*

- Designed and prototyped competition-ready robots using **Fusion 360**; optimized mechanical layout through simulation.
- Built and troubleshooted complex electrical system using **Kraken X60** motors.
- Programmed autonomous functions using **C++** and implemented **PID** control to enhance sensor and motor precision.
- Manufactured gussets, wheels, and channels using **3D printer, laser cutters, CNC machines, and power tools.**
- Collaborated with 15+ teammates and mentors to design and build an internationally competitive FRC robot while maintaining a safe workspace.

VEX Tournament Volunteer Sept 2020 – June 2025
West Vancouver School District *West Vancouver, BC*

- Judged and mentored at local robotics tournaments (elementary/middle school level); provided design and coding feedback while drafting detailed reports on each team.
- Used tournament management software to manage logistics, improving organizational skills and time management.

Projects

Altium LDO Sept 2025

- Used DigiKey to find components and created symbols from datasheets.
- Calculated trace width (15mm) sufficient for expected current.
- Added ground pours and stitching vias to reduce resistance between ground connections.

Arduino RC car Aug 2025 – Sept 2025

- Designed chassis in Fusion 360 with dynamic joints to simulate mechanics.
- Built and programmed a wireless controller in C++; debugged code errors.
- 3D printed chassis and soldered connections for a robust, economical build.

Electromagnetic Rail-gun | *Fusion360, AutoCad, Prusa Slicer* May 2025 – Aug 2025

- Constructed alternating series of magnets to launch a current-carrying copper coil.
- Designed and prototyped assemblies in Fusion 360 collaboratively in a team of 2.
- Soldered connections and 3D printed parts, achieving a 10m launch distance.