

# Davis Toth

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## Education

**BASc in Engineering Physics** | *University of British Columbia* Expected Graduation 2027  
• [Wesbrook Scholar](#), Dean's Honour List, Men's Ultimate Frisbee Team — Captain

## Work Experience

**R&D Engineering Intern** | *MKS Photon Control Inc.* May - Aug 2025

- Built a multithreaded Python GUI application to streamline instrument control and data logging, enabling precise experiments on novel optical prototypes
- Designed and implemented a modular, scalable software architecture, integrating device APIs (serial, TCP/IP) and JSON-based state management, cutting future feature development time by ~ 50%
- Enhanced hardware usability by designing mounts/adapters for optical components in SolidWorks

**Hardware Engineering Intern** | *Microchip Technology Inc.* May - Dec 2024

- Delivered tape-out-ready 3nm layouts using Cadence EDA tools to perform place-and-route, static timing analysis, and signoff verification (DRC, LVS, EM/IR)
- Developed and automated a QA flow for third-party IP with Bash scripting, cutting verification runtime by 30% and deploying it on NASA's High Performance Space Computing project
- Taped-out a 6nm chip revision, auditing and resolving 50+ violations to ensure fabrication readiness

**Research Assistant** | *Capilano University & Hynes Group* Jan - Apr 2023

- Built a CFD model of a 1,000 sq.ft. data centre housing 250+ servers using SolidWorks and Ansys Fluent
- Modelled server heat output in MATLAB to analyze airflow and optimize air-conditioning energy use

## Projects

**Wirelessly Powered Drone** | *R&D, Electromagnetism, Passive Control* Feb 2025 - Present

- Designed and fabricated a custom test stand, 3D printing and soldering various RX circuit architectures
- Designed and executed experiments with the test stand to characterize the resonant inductive coupling, using the data to tune the system and achieve wirelessly powered flight

**Simulated Detective Robot** | *Python, Linux, ML/AI* Jan - Apr 2024

- Developed a fully autonomous agent in a Gazebo simulation using a state machine architecture, ROS, and computer vision based PID control to publish real-time velocity and steering commands
- Trained a convolutional neural network to interpret alphanumeric characters with 90% accuracy

**Mario Kart Themed Robot Competition** | *Robotics, CAD, Rapid Prototyping* May - Aug 2023

- Designed and fabricated a custom laser-cut chassis using press-fit joinery, housing embedded electronics and supporting a zipline mechanism capable of holding the robot's full weight
- Implemented collision avoidance logic into the PID driving algorithm using ultrasonic sensors, reducing navigation errors by 67% in a multi-agent environment

For more projects, visit my [project portfolio](#)!

## Technical Skills

**Electrical:** LTspice, Verilog/VHDL, Assembly, Cadence Innovus, Oscilloscopes, Soldering

**Mechanical:** SolidWorks, OnShape, 3D Printing, Laser Cutting

**Programming:** C, Python, Bash, MATLAB, Git, Linux, OpenCV, Tensorflow, ROS, Gazebo