

Nicholas Carr

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[Portfolio](#) — [GitHub](#) — [LinkedIn](#)

Skills

Prototyping	Designed, built, and tested mechatronics prototypes for course projects using OnShape CAD, 3D printing, soldering, and oscilloscopes
Robotics	Developed robot controllers using ROS, hand-built a robot for course project
Embedded	C/C++/Arduino firmware experience from course projects and hackathons
Automated Testing	Wrote HIL tests in Python and processed data with Pandas, NumPy, and Jupyter in previous internships and physics coursework

Technical Experience

Software Engineer – [Alljoined](#)

Sep 2025 – Oct 2026

- Developed, tested, and integrated system for streaming brain signals to a compute cluster over the network using Python, NumPy, MNE, and LSL, enabling live inference on brain data
- Integrated Next.js-based internal scheduling webapp with Python experiment data management tool using FastAPI and Prisma, eliminating duplicate pre-session data entry
- Owned web codebases and deployments, introduced a staging environment and database migrations to derisk updates, and Zod and TanStack Form to deduplicate validation logic

Steering Software Integration Intern – [Tesla](#)

May 2023 – Aug 2023

- Designed and wrote assembly instructions for a low voltage wiring harness prototype
- Wrote automated hardware-in-the-loop tests to validate CAN interfaces using pytest
- Analyzed CAN signal traces using Vector CANape to verify correct operation between interconnected ECUs
- Updated factory calibration routines to support new ECU interfaces
- Created an automated tool to analyze aggregate data from the fleet using SQL queries

Control Systems Intern – [Bioform](#)

May 2022 – Jun 2022

- Specified and ordered wiring to application spec using component datasheets
- Designed and wired sensor circuits for industrial control systems, allowing signals to be read by a controller and data acquisition system
- Configured and tuned PID control for R&D production facility
- Wrote an application using Python and Qt to run experiments and collect data
- Processed and generated plots for data from dozens of experiments using MATLAB

Coaxial Ducted Indoor Delivery Drone – [Capstone Project](#)

Sep 2022 – Apr 2024

- Selected an autopilot, rangefinder, optical flow sensor, and propellers for the drone
- Wrote Arduino test stand firmware to command motor controller using serial protocol, read load cell readings over serial, and sample ADCs for voltage and current sensors
- Wrote Pandas data aggregation code to compare test stand data in Jupyter notebooks
- Configured ArduPilot firmware for sensors, coaxial motors, and TVC vanes ([GitHub](#))

Education

Engineering Physics – [Bachelor of Applied Science](#) – [UBC](#)

Sep 2019 – May 2024

Course selection included numerical methods, automatic control, signals and systems, software construction, machine design, quantum mechanics, and differential equations