

Kai Asaoka

Contact: kaiasaoka@gmail.com | [LinkedIn](#) | Personal Profile: kaiasaoka.github.io

SKILLS

- **Software:** Python Scripting, VHDL, Assembly, Java, C, Git, Linux, MATLAB, Experimental Data Analysis, LabVIEW.
- **Robotics:** Computer Vision (OpenCV, SIFT, Masking), Machine Learning (PyTorch, Keras, TensorFlow), Robotics Control (ROS), Simulation and Reinforcement Learning (Q-Learning, Gazebo), Controls (PID), PLC.
- **Hardware:** FPGA, Microcontrollers (Arduino, STM32), Digital Logic, Circuit Analysis, Soldering, Oscilloscopes.
- **Mechanical:** SolidWorks, Onshape, AutoCAD, 3D Printing, Laser/Waterjet Cutting, Technical Drawings.
- **Optics:** Ansys Lumerical, Waveguides, Amplifiers, Attenuators, Filters, Time Interval Analyzers, Signal Processing.

EXPERIENCE

Quantum Communication Researcher (Co-op)

May 2024 – Dec. 2024

Nippon Telegraph and Telephone Corporation (NTT)

Atsugi, Kanagawa, Japan

- Reduced experiment run time by up to 80% by designing automated experimental procedures using custom self-written Python libraries using PyVISA and PySerial for RS232 protocol, in addition to LabVIEW, to remotely control equipment.
- Improved entangled state fidelity by 10% and fulfilled all research objectives by self-directing optical fiber-based three-photon quantum interference experiments, processing optical data signals and tuning system using optical filtration.

Industrial Engineer - Continuous Improvement (Co-op)

Jan. 2023 – Apr. 2023

VIA Rail Canada

Vancouver, BC

- Oversaw implementation as lead project manager of seven continuous improvement projects, improving workplace task completion rate by 10% by using Kaizen, 5S, Six Sigma, Lean Manufacturing and Visual Management in industrial facility.
- Proposed projects and provided stakeholder consultation and technical documentation to management, communicated with suppliers to procure equipment, organized facility-wide training initiatives, lead implementation from start to finish.

PROJECTS

Machine Learning and Computer Vision Competition

Sep. 2023 – Dec. 2023

UBC Engineering Physics – ENPH 353

Vancouver, BC

- Scored max points and placed 4th out of 18 teams by implementing self-driving and license plate recognition in Gazebo car simulation using OpenCV, PyTorch, Keras, TensorFlow, and ROS in Python on Linux. Used Git for collaboration.

Autonomous Robot Competition

Apr. 2023 – Aug. 2023

UBC Engineering Physics – ENPH 253

Vancouver, BC

- Led mechanical design within team of four, designed and fabricated self-driving all-terrain robot from scratch.
- Designed Ackermann steering geometry and chassis architecture in CAD using Onshape, fabricated using 3D printers, laser and waterjet cutters. Designed and soldered IR amplifier/detector circuit for use with STM32 Microcontroller.

Powertrain Division Member

Sep. 2023 – May 2024

UBC Supermileage Student Design Team

Vancouver, BC

- Developed portable ECU tuning system to implement ultra-wideband O2 sensor for gasoline-powered prototype vehicle.

Flexible Capacitive Sensor Development Research Mentorship

Feb. 2019 – Apr. 2019

Stewart Blusson Quantum Matter Institute (QMI)

Vancouver, BC

- Designed and fabricated flexible capacitive sensor using AutoCAD and SolidWorks, tested using MATLAB and Arduino.

EDUCATION

University of British Columbia

Sep. 2021 – May 2026

BASc, Engineering Physics

Vancouver, BC

- Studying Engineering Physics: UBC's most competitive and academically challenging engineering specialization, combining aspects of electrical and mechanical engineering, advanced physics, and mathematics.
- Awarded Dean's Honor List, Trek Excellence Scholarship for GPA in the top 5% of faculty.