Kai Asaoka

Contact: kaiasaoka@gmail.com | LinkedIn

SKILLS

- **Software:** Python, VHDL, Assembly, Java, C, Git, Linux, MATLAB, CAD (Onshape, SolidWorks).
- **Hardware:** FPGA, Microcontrollers (Arduino, STM32), Digital Logic, Circuit Analysis, Soldering, Oscilloscopes.
- **Robotics:** Computer Vision (OpenCV, SIFT, Masking), Machine Learning (PyTorch, Keras, TensorFlow), Robotics Control (ROS), Simulation and Reinforcement Learning (Q-Learning, Gazebo), Controls (PID).

EXPERIENCE

Nippon Telegraph and Telephone Corporation (NTT) **May 2024 – Dec. 2024**
Quantum Communication Researcher (Co-op) *Atsugi, Kanagawa, Japan*

- Self-directed optical fiber-based three-photon quantum interference experiments to calculate HOM dip visibility and JSI purity, with the aim of increasing fidelity of time-bin entangled qubits in GHZ state.
- Developed automated experimental procedures using self-written Python libraries using PyVISA and PySerial to shorten experiment run time from ~12 hours to ~2 hours by optimizing analysis and data collection processes.

VIA Rail Canada **Jan. 2023 – Apr. 2023**
Industrial Engineer - Continuous Improvement (Co-op) *Vancouver, BC*

- Designed and led implementation of seven projects using Kaizen, 5S, Six Sigma, Lean Manufacturing and Visual Management to improve average workplace task completion time by 10% in industrial facility.
- Proposed projects and provided stakeholder consultation and technical documentation to upper management, communicated with suppliers to procure equipment, organized facility-wide initiatives to implement projects.

PROJECTS

Machine Learning and Computer Vision Competition **Sep. 2023 – Dec. 2023**
UBC Engineering Physics – ENPH 353 *Vancouver, BC*

- Implemented self-driving and image recognition of a simulated vehicle using OpenCV, PyTorch, Keras, TensorFlow, and ROS in Python, as well as Git and Gazebo on Linux, placing fourth out of eighteen teams.

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 steering geometry in CAD, designed and soldered IR amplifier/detector circuit for use with STM32.

Powertrain Division Member **Sep. 2023 – May 2024**
UBC Supermileage Student Design Team *Vancouver, BC*

- Developed portable ECU tuning system for fuel-efficient gasoline-powered prototype vehicle.

Stewart Blusson Quantum Matter Institute (QMI) **Feb. 2019 – Apr. 2019**
Flexible Capacitive Sensor Development Mentee *Vancouver, BC*

- Designed and fabricated 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 in 2023 for GPA in the top 5% of faculty.