Sarvan Gill

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Education

University of Victoria 2024 – 2026 (Expected)
MASc Mechanical Engineering - Safe Reinforcement Learning ***Current GPA: 97/100***
University of British Columbia 2017 – 2022
BASc Engineering Physics ***GPA: 87/100***
Graduated with Distinction

Experience

Amazon September 2022 - August 2023
Software Development Engineer (L4) *Java, Javascript, GraphQL, Git, CI/CD*

- Improved public endpoints for buyer experiences on AWS Marketplace
- Increased filter support and maintained the sidebar filters used by customers to browse products
- Mitigated and solved any customer impacting and internal facing bugs at any time while on-call

Safe Software May 2021 - August 2021
C++ Software Development Intern *C++, C++17, Git*

- Worked with a small Agile team on implementing features relating to the manipulation of geometric data
- Worked with modern C++ features including smart pointers, move semantics, variant logic etc
- Implemented a new algorithm that improved user run time from the order of hours to seconds (1627x improvement)
- Created multiple integration, unit and regression tests

Intel May 2020 - Dec. 2020
Firmware Engineering Intern *C++, C, Python, Assembly, Git, NAND SSDs*

- Contributed to firmware production as a part of a small scrum team following Agile methodology
- Wrote production firmware for Intel solid-state drives
- Implemented support for interrupt driven I2C
- Reviewed and advised on a machine learning model to automate signal waveform recognition

TRIUMF Jan 2019 - April. 2019
Research Intern *C++, MATLAB, Solidworks, COMSOL*

- Optimized reflector geometry on photomultiplier tubes for Hyper Kamiokande, JPN
- Designed a large permanent magnet spectrometer (up to 2 Tesla) for a new experiment in FERMILAB, USA
- Ran large simulations using a local cluster and Compute Canada Servers

Research and Projects

Safe and Stable Reinforcement learning Sept. 2024 - May 2025
Off-Policy Lyapunov Stability in Reinforcment Learning *Python, PyTorch, Gymnasium, MUJOCO*

- Conference on Robot Learning (CORL 2025, 35.77% Acceptance Rate)
- Learning the control theoretic Lyapunov function using off policy data to provide stability guarantees in reinforcement learning problems.

Photon Mediated Spin Qubits Sept. 2021 - April 2022
Modeling Silicon Photonic Qubit System

- Worked with a team at the Quantum Matter Institute to model and analyze the interactions and errors in silicon photonic qubit systems
- Designed error metrics to understand how system parameters impact errors

Kaon Classifier Nov. 2020 - April 2021
Machine learning model to recognize extremely rare particle decay *Python, PyTorch*

- Created a machine learning model to reject specific backgrounds for an experiment at CERN
- Implemented two classifiers: a boosted decision tree and a neural net
- Collaboration with physicists at TRIUMF