

Jonathan Ung

Canadian Citizen | US J-1 Eligible
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EDUCATION

Simon Fraser University - Bachelor of Science in Computer Science

EXPECTED APR 2028

Relevant Coursework: Systems Programming, Distributed Systems, Artificial Intelligence, Computer Vision, Robotic Autonomy

EXPERIENCE

Amazon | Vancouver, BC, Canada

SEP 2026 – DEC 2026

Software Development Engineer Intern

Typescript, Java, AWS, React

- Joining the Gift Cards team, Fall 2026

Qualcomm | Markham, ON, Canada

MAY 2026 – AUG 2026

AI Infrastructure Software Engineering Intern

C/C++, Python, ONNX, GenAI, QNN, Hexagon

- Enabled GenAI models exceeding device RAM to run on-device through the **Genie SDK** while minimizing inference latency by designing an **MRU-based graph eviction strategy** which dynamically pages KV-cache graph partitions
- Built and distributed an **internal agentic dev harness** used by **~20 engineers** across AISW Markham after an **80+ engineer** rollout, decomposing epics into linked **JIRAs** and dispatching **worktree** agents that open draft PRs
- Built automated model validation tool for the **Hexagon NPU** graph pipeline, detecting **8+ categories** of ONNX-to-QNN graph compilation defects including quantization mismatches, redundant data movers, and broken connectivity
- Integrated the graph validator into **Jenkins CI** for model-zoo submissions, created an on-demand validation agent for pre-submission models, and exposed an API to the **QAIRT SDK**, enabling model diagnostics across internal/vendor workflows
- Unified **70+ HexNN math and approximation functions** into an accessible library backed by rigorous unit and on-device testing integrated into **Jenkins CI** for automated regression coverage

Rivian and Volkswagen Group Technologies | Vancouver, BC, Canada

MAY 2025 – DEC 2025

Infotainment Software Engineering Intern

Kotlin, Java, Android, Protobuf, QNX

- Owned **12+ user-facing features** across Rivian R2 Media App (browsing, search, playback, shuffle, podcasts), delivering an audio visualizer and vendor integrations for Spotify, Apple Music, and Tidal to production builds
- Migrated Media App from fragment-based architecture to MVVM with view controllers consuming data models, cutting RAM usage **40%** and accelerating feature velocity **30%**
- Resolved critical vehicle safety defects including cold-boot launch crashes, unsafe service data handling, and a radio refactor regression that escaped QA, collaborating across platform and QA teams
- Fixed Bluetooth AVRCP metadata errors via caching and content-hash validation, raising accuracy **from 66% to 99%**

SFU Robot Soccer | Burnaby, BC, Canada

FEB 2024 – DEC 2026

Software Team Lead

C++, Python, Qt6, Protobuf, Docker

- Led **30-member C++** team; redesigned onboarding workflows reducing new developer ramp-up time **40%**
- Engineered Behavior Tree DSL reducing node boilerplate **10:1** and Play Graph state machine with 12-play transitions evaluating **50+ metrics/tick**, coordinating 6 robots at **180Hz**
- Designed Protobuf networking protocol routing commands to **6 robots** with hot-swappable simulator/hardware modes

PROJECTS

Strike - Agentic Coding TUI

Go, Bubble Tea, WebSocket/SSE, Docker, Nix, GitHub Actions

- Architected an **event-sourced** Go engine emitting protocol events to decoupled TUI and web clients over JSONL session logs, shipping **14+ releases** across **660+ commits** with **4 external contributors**
- Designed a **multi-agent** coordination protocol with **compare-and-swap** task claims and boundary-checked message passing

Nasdaq ITCH Aggregator - GPU-Accelerated Market Data Pipeline

C++, CUDA, CMake, Python, zlib

- Built GPU-accelerated Nasdaq ITCH 5.0 pipeline streaming full-day TotalView feeds through a CPU parser into CUDA kernels, computing per-symbol **VWAP**, order imbalance, and bid/ask spread across **16,384 symbols**

Follow-Ahead Robot Navigation - MCTS + RL Motion Planning

C++, PyTorch, ROS2, Stable Baselines3, Gymnasium

- Trained **LSTM** human motion predictor achieving **90% accuracy**, integrated predicted action probabilities into **MCTS** UCB selection for frontal following behavior
- Deployed real-time navigation on **Quanser QBot** with **ZED camera** and **Vicon** localization, running at **5Hz** planning frequency

TECHNICAL SKILLS

Languages: C/C++, CUDA, Python, C#, Java, JavaScript, TypeScript, SQL, Bash

Systems & HPC: CUDA kernels, pinned memory, async transfers, SoA layout, lock-free data structures, IPC, threading, CMake, Ninja

Frameworks: React, Next.js, Node.js, Express.js, FastAPI, .NET, Electron, Qt6, GraphQL, Pytorch, Databricks

Tools & Infrastructure: Docker, AWS (EC2, S3, Lambda), PostgreSQL, MongoDB, Redis, Git, GitHub & GitLab CI/CD, Linux