Canadian Citizen | Eligible for US TN/J-1
jonathank.ung@icloud.com

Jonathan Ung
jonathanung.ca

linkedin.com/in/jonathankeithung
github.com/jonathanung

EDUCATION

Simon Fraser University   Expected Apr 2027
*Bachelor of Science in **Computer Science**, Minor in **Statistics***   *Burnaby, BC*
Relevant Coursework: Data Science, Computer Vision & Graphics, Artificial Intelligence, Networking, Multimedia Systems, Algorithms

EXPERIENCE

Software Engineering Co-op - Infotainment Applications   May 2025 – Dec 2025
Rivian and Volkswagen Group Technologies 🔗   *Vancouver, BC*
- Accelerated feature development by **20%** by co-designing a scalable, custom **Android MVVM** framework in **Kotlin** with an **event-prop-driven architecture**, enabling faster iteration of new UI features and business logic while **reducing RAM usage by 40%**
- Refactored **LogoutCacheManager** into a unified **AuthenticationCacheManager** to track per-profile authentication events, integrated the Analytics Service to push anonymized VIN-scoped media-source auth events into Databricks for downstream analysis, and expanded unit test coverage to validate the new authentication and analytics pipeline
- Collaborated cross-functionally with UX designers and product owners to iterate on and deliver **10+ production UI screens for 9 media sources**, translating design specs into performant, testable, modular Android views
- Implemented a patched **Bluetooth AVRCP metadata pipeline** that retrieves, caches, and performs content-hash comparisons on remote album-art images, overriding OEM Bluetooth behavior and achieving a **95% increase in artwork accuracy** across heterogeneous phone/head-unit pairs.
- Dropped media app CPU consumption from **40% to 10%** by replacing LottieAnimation-based components with optimized custom views utilizing an FFT-powered frequency spectrum visualizer service, cutting rendering overhead by **75%+**, improving UI responsiveness under load, and displaying real-time audio data to the end user

EXTRACURRICULARS

Software Team Lead & Software Developer   Feb 2024 – Present
SFU Robot Soccer Club 🔗   *Burnaby, BC*
- Directed a **30+ member** software team, establishing workflows and practices that reduced new developer ramp-up time by **40%**
- Spearheaded development of multi-agent robotic soccer software using **C++** and **Behavior Trees**, designing a scalable play-distribution system and architecting a message-driven, multi-threaded execution coordination system to eliminate deadlocks and enable smooth real-time decision-making and path planning for **6 autonomous robots**
- Deployed a **GitLab CI/CD pipeline** with **Docker build caching** and multi-stage testing, cutting average pipeline runtime by **an average of 40%** and standardizing build and test workflows across Ubuntu runners
- Optimized input sanitizer and **Kalman filter** for vision-based localization, reducing orientation jitter by **35%** and interpolating missing detections to maintain smooth robot tracking

PROJECTS

YOLO Traffic Analysis - Vision Model Data Analysis 🔗 | *PyTorch, OpenCV, Pandas, NumPy*   Apr 2025
- Automated benchmarking of 3 **YOLO CNN object detection vision model** versions on **20,000+ labeled images**, evaluating precision, recall, IoU, and F1-score to identify trade-offs and differences between each iteration
- Streamlined modular evaluation pipeline using **OpenCV** for pre-processing, **Pandas/NumPy** for data handling, and **scikit-learn/Matplotlib** for statistical analysis, ensuring reproducibility

WeMote - Game Remote and Service 🔗 | *ESP32, C++, Sensor Fusion, Sockets, PyGame, BLE*   DreamHacks - Mar 2025
- Recognized with the DreamHacks **Technical Excellence Award** for delivering a fully integrated end-to-end system, combining embedded sensor fusion, low-latency data transfer, and seamless game interaction
- Engineered a custom motion-sensing game controller on **ESP32**, integrating **IMU-based sensor fusion** with a serial-to-socket bridge to stream data into PyGame, achieving **sub-30ms real-time interaction**

AutoStop - CARLA Emergency Braking Simulation 🔗 | *Python, OpenCV, CARLA, LiDAR, PID Control*   Dec 2024
- Implemented a fixed-**PID controller** using camera and **LiDAR sensor** input in **CARLA simulator** to detect obstacles and trigger automated emergency braking, demonstrating foundational autonomous vehicle safety logic

BlackjackNN - Q-Learning Agent 🔗 | *Python, PyTorch, NumPy, RL, Matplotlib*   Nov 2024
- Developed an **agent** for Blackjack in **PyTorch**, logging win rate, reward progression, and epsilon decay to track strategy convergence
- Expedited RL training through a **parallelized environment** capable of running **10,000+ concurrent episodes** per epoch

TECHNICAL SKILLS

Programming: Python, C++, Java, JavaScript, SQL, Docker, Bash
Machine Learning: PyTorch, TensorFlow, Keras, scikit-learn, RL, Hyperparameter Tuning
Computer Vision: OpenCV, CNNs, RNN, Object Detection, OCR, Image Pre-processing
Data & Tools: NumPy, Pandas, Matplotlib, Spark, AWS, GitLab CI/CD