

Kelvin Koon

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TECHNICAL SKILLS

Languages: C++, C, Python, Go, Java, Bash

Technologies: AWS (CDK), Docker, Bazel, Scons

Coursework: Distributed Systems, Security, Machine Learning, Networking, Control Systems

EXPERIENCE

Amazon

Feb 2022 – Present

Software Development Engineer II (Customer Service Security)

Toronto, CA

- Spearheaded the control layer for a self-service data lake, automating data ingestion from 3+ weeks to 1 hour
- Extended access infrastructure to process employee status events, eliminating dwell time for 30k+ terminations

Tesla

Sep 2021 – Dec 2021

Firmware Engineering Intern (Vehicle Software)

Palo Alto, US

- Developed software-in-loop (SIL) infrastructure for battery, temperature, and oil pump graceful degradation to provide safety-critical validation of real-time systems with Python and CANape

Netgear

Aug 2018 – May 2019

Software Developer Co-op (Aircard)

Richmond, CA

- Built throughput validation features across various providers and network protocols for the Software Quality team, expediting delivery of the Nighthawk M5 flagship router

PROJECTS

Statsugiri | *Python, TypeScript, AWS (CDK), Docker, Github Actions*

- Leading development of a competitive Pokémon data platform, serving a peak of 100k+ visitors [repo][media]
- Built a data pipeline to reliably schedule and ingest replay data daily with AWS Lambda, Step Functions, S3, and EventBridge [post]
- Developed a serverless back-end for filtering high-ranked metagame teams with AWS Lambda, DynamoDB, and API Gateway [post]
- Configured Github Actions workflow to run tests, check formatting, and automate AWS ECR image builds on merged pull requests [commit]
- Built a Chrome Extension to streamline batch downloading and exporting of replay URLs [extension]

UBC Thunderbots Robotics | *C++, C, Python, Bazel*

- Contributed to software and firmware development for open-source autonomous soccer robotics, winner of 2021 and 2022 RoboCup Small Size League Div B [repo][media]
- Wrote a custom testing framework with Gtest and fff to streamline firmware primitive mocks, achieving 78% coverage in the previously untested module [commit]
- Implemented a circular buffer to store recent difference equation values for the motion controller [commit]
- Rewrote the control layer firmware abstraction to support grSim's Protobuf format for the virtual RoboCup 2021 competition simulator [commit]

Distributed Hash Table | *Go, Docker, Bash, GCP (Compute Engine)*

- Collaborated on a fault-tolerant key-value store featuring three-way replication and consistent hashing
- Streamlined GCP deployment using Docker, gcloud SDK, and Bash scripts for up to 50 nodes

PyVPN | *Python (PyQt)*

- Developed a VPN with threaded sockets using AES-GCM encryption for message confidentiality and integrity
- Implemented key establishment and mutual authentication using Diffie-Hellman and private key cryptography

EDUCATION

University of British Columbia

B.A.Sc. in Electrical Engineering

Graduated November 2021

APSC Rising Star Award