

# Kelvin Koon

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## TECHNICAL SKILLS

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

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

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

## EXPERIENCE

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### Amazon

Feb 2022 – Present

*Software Development Engineer II (Customer Service Security)*

*Toronto, CA*

- Engineered a detection rule registration mechanism to enable cron-based Athena job scheduling with AWS DynamoDB Streams, Lambda, and EventBridge
- Extended access control infrastructure to process hiring events, eliminating dwell time for 10k+ employees with AWS Lambda, SNS, and Java
- Architected a self-hosted Maltego service to provision and allocate sandboxed EC2 instances for security engineers with AWS Lambda, EC2 Auto Scaling Groups, EventBridge, DynamoDB, and Python
- Spearheaded the control layer for a self-service data lake, automating data ingestion from 3+ weeks to 1 hour

### 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 to expedite the Nighthawk M5 launch with C, C++, and iPerf

## PROJECTS

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

- Leading development of a competitive Pokémon data platform, serving a peak of 100k+ visitors [demo][repo][media]
- Built a data pipeline to reliably schedule and ingest replay logs daily with AWS Lambda, Step Functions, S3, and EventBridge [post]
- Developed a serverless back-end for filtering high-ranked teams with AWS Lambda, DynamoDB, and API Gateway [post]
- Built a responsive UI for vending team data with Next.js (React), CloudFlare, and DigitalOcean App Platform
- 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 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 bootstrap primitive mocking, 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]
- Spearheaded STEM outreach and external/internal sponsorship efforts as an administrative lead

### 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

## EDUCATION

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### University of British Columbia

*B.A.S.C. in Electrical Engineering*

Graduated November 2021

APSC Rising Star Award [media]