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 I (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 graceful degradation of motor control systems
- Leveraged CAN simulation tools to add SIL coverage for battery, temperature, and oil pump failures

Netgear Aug 2018 – May 2019
Software Developer Co-op (Aircard) *Richmond, CA*

- Developed features for the firmware validation suite to expedite delivery of the 5G flagship mobile router
- Worked extensively with iPerf to facilitate throughput validation capabilities across different providers

Projects

Statsugiri | *Python, TypeScript, AWS (CDK), Docker, Github Actions* Dec 2022 – Present

- Leading development of open-source competitive Pokémon data tools, serving a peak of 100k+ visitors
- Built a data pipeline to schedule daily replay data ingestion with AWS Lambda and Step Functions
- Integrated the Twitter API as a lightweight solution to distribute analyses, serving 300+ users per day
- Configured Github Actions workflow to automate AWS ECR image builds on merged pull requests
- Built a Chrome Extension to streamline batch downloading and exporting of replay URLs

UBC Thunderbots Robotics | *C++, C, Python, Bazel* Jun 2018 – Jun 2021

- Contributed to software and firmware development for open-source autonomous soccer robotics
- Wrote a custom primitives testing framework using Gtest to achieve 78% coverage in previously untested codebase
- Implemented a firmware circular buffer to store recent difference equation values for the motion controller
- Rewrote the control layer firmware abstraction to support grSim's Protobuf format for virtual RoboCup

Distributed Hash Table | *Go, Docker, Bash, GCP (Compute Engine)* Feb 2021 – Apr 2021

- Collaborated on a fault-tolerant and scalable key-value store based on Chord's consistent hashing design
- Implemented three-way replication and keyspace partitioning to mitigate key losses on node failures
- Streamlined GCP Compute Engine deployment using Docker, gcloud SDK, and Bash scripts

PyVPN | *Python (PyQt)* Oct 2020

- 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 Graduated November 2021
Bachelor of Applied Science in Electrical Engineering (Co-op Program)