

Nick Hamilton

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EDUCATION

University of British Columbia

Bachelor of Applied Science in Computer Engineering

- Dean's Honour List — 3.85 GPA

Vancouver, BC

Sept. 2018 – May 2023

EXPERIENCE

Tesla

Feb. 2024 – May. 2024

Software Engineer

Fremont, CA

- Owned, designed, and implemented features for internal timekeeping/scheduling system for various platforms using **React.js/React Native/Electron** and **Node.js/Express.js**.
- Implemented push notifications and subsequent deep-linking on internal mobile app for **35,000+ employees**.
- Assisted deploying to devices in a Gigafactory, supporting **80,000 employees** and up to **200 transactions/sec**.

Borealis AI (Royal Bank of Canada)

Jan. 2022 – Aug. 2022

Machine Learning Software Engineering Co-op

Vancouver, BC

- Built object-oriented **Python FastAPI** service responsible for serving ML inference results.
- Spearheaded creation of **Jenkins DevOps** pipeline utilizing **Docker/Kubernetes** and **OpenShift Container Platform**.
- Refactored **Airflow** ML inference pipeline, enabling use of configurable models.
- Lead engineering-wide discovery, presentations, and onboarding of **Helm Chart** technology.

Realtor.com

May 2021 – Dec. 2021

Software Engineering Co-op

Vancouver, BC

- Independently built **React.js** front-end for award-winning new collaboration feature (<https://www.realtor.com/homemade/realtor-com-collaboration-tools-win-google-user-experience-awards/>).
- Re-implemented product's login page to achieve accessibility (**ADA**) compliance.
- Designed/implemented full-stack profile picture upload functionality, integrated with **AWS S3/Lambda**.

PROJECTS

Distributed Key-Value Store | *Java, AWS, Protocol Buffers*

Spring 2023

- Designed distributed DB with **40+ nodes**, able to handle **2048+ concurrent clients**, deployed on **AWS EC2**.
- Implemented consistent hashing, sequential consistency, epidemic protocol, and replication/fault-tolerance. Built on top of **UDP sockets**, utilizing Google's **Protocol Buffers** and **Guava Cache**.

Efficient Localized Vision Transformer | *Python, PyTorch, timm, LaTeX, Google Cloud Provider*

Spring 2023

- Implemented locality and curriculum learning on top of existing **timm's Vision Transform** through the addition of a convolution layer and epoch-based image resizing, improving accuracy of baseline model by **7.7%**.

3D Mapping Smart Glasses | *Objective-C/C/C++, CMake, React Native, Swift*

Spring 2023

- Analyzed software techniques and hardware sensors for 3D map generation to help vision impaired users navigate.
- Added support to **SLAM** iOS application to generate 3D maps from images stored in the phone's file system.
- Integrated POC **React Native** project with an **Objective-C/C++** native module.

Cybersecurity Chrome Extension for Twitter | *JavaScript, Node.js/Express.js, MongoDB, OAuth*

Fall 2022

- Wrote scripts/functions leveraging **JS crypto** library to generate **ECDSA** key-pairs and create/verify signatures.
- Developed **Node.js/MongoDB** back-end to manage public keys, allowing for end-to-end tweet verification.

OS161 Kernel Development | *C, GDB*

Fall 2020

- Implemented synchronization primitives (locks and condition variables), system calls, and virtual memory for a **multi-threaded operating system** running on the System/161 hardware simulator.

TECHNICAL SKILLS

Languages: Python, JavaScript/TypeScript, Java, C/C++, HTML/CSS, Verilog, LaTeX

Frameworks/Libraries: React Native, Electron, React.js, Node.js/Express.js, FastAPI, PyTorch, Keras, OpenGL

Databases: MongoDB, MySQL

Developer Tools: Docker, Kubernetes, Helm, Jenkins, TravisCI, Airflow, AWS, GCP, OpenShift Container Platform, Git/GitHub, Quartus, ModelSIM