

Thanh Nguyen

Software Engineer

Email : thanh@timweri.me

Skills

- Proficient: C++, C, Python, AWS
- Familiar: NodeJS, Golang

EDUCATION

- **University of Waterloo** Waterloo, ON, Canada
Bachelor of Computer Science (Dean's Honour); GPA: 3.9 *Sep 2017 – Apr 2022*

EXPERIENCE

- **Capital One** Toronto, ON, Canada
Software Engineer *Sep 2021 - Dec 2021, Jun 2022 - Current*
 - **Quick Check:** Quick Check is an **AWS** Serverless application to assess credit card applicants' eligibility using soft credit checks. Implemented new features and improved error reporting using **Golang**.
 - **One Email:** One Email is an **AWS** Serverless application to send automated emails to customers, triggered by **Kafka** streams. One Email allows teams to replace near-identical email infrastructures with one unified email infrastructure through pure YAML configurations. Built a proof of concept One Email from scratch.
- **Huawei** Markham, ON, Canada
Compiler Software Engineer Co-op *May 2021 - Aug 2021*
 - **GPU Compiler Optimization:** Optimized a proprietary **LLVM**-based GPU Compiler written in **C++**: Implemented stack spill to different types of memories to make use of faster memories when possible. Worked with **LLVM** intermediate representations in the Analysis and Transform phases.
- **Wayfair** Boston, MA, USA
Software Engineer Co-op *Jan 2020 - May 2020*
 - **Monolith Segmentation:** Designed and implemented a codeowner-based CI/CD build filter to improve the experience of configuring CI/CD pipelines for different projects in the monolith. Removed redundant build jobs by 33%. Enabled efficient static analyses of projects.
 - **GCP Autoscale:** Configured **GCP** compute clusters using **Terraform** and custom metric services to autoscale according to CI/CD workload to save cost and to reduce build wait time during peak hours.
- **BlackBerry** Mississauga, ON, Canada
Student Software Developer *May 2019 - Aug 2019*
 - **APK Threat Model in SDK:** Implemented a new feature in the SDK to allow developers to scan APKs for threat using an internal Machine Learning Model. Optimized scanning jobs with caching. Designed and built a proof-of-concept **Android** application to demo the APK scanning feature of the API.
 - **Threat Model Endpoint:** Designed and implemented a mock internal test API endpoint using **ExpressJS** for development environments. This facilitated teams to iterate faster and avoid using the restrictive external production Threat Model API for development.
- **Trend Micro** Ottawa, ON, Canada
Software Engineer Co-op *Sep 2020 - Dec 2020*
 - **Single Sign-On:** Maintained **AWS** Serverless API to manage Single Sign-On tokens.

PROJECTS

- **Solidity (Open-source):** Optimized the official compiler for **Solidity**, the popular **Ethereum** smart contract programming language. Improved gas cost by optimizing the generation of **Yul** intermediate representation. Improved error reporting and fixed compiler crashes.
- **Microkernel:** A multi-threaded microkernel for a single core ARM chip. The microkernel syscalls, message passing, await event and such without any external libraries.
- **Joos Compiler:** A compiler for simplified Java built from scratch. The compiler supports inheritance, function overloading and external module import.
- **Volumetric Reconstruction:** Implemented a blend of two space-carving algorithms to generate an interactive 3D cloud-point object from 2D images of an object from various angles.