Luke Tao

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Summary of Qualifications

Skills
- C++, C, Python, JS, PHP

Tools and Frameworks
- GDB, CMake, OpenSSL, MbedTLS, LTTng, Matlab, OpenCV, Pytorch, Scikit-learn, MySQL

Work Experience

Huawei Canada, Software Engineer Intern 09/2021 – 12/2021
- Researched modern cryptographical frameworks from **NIST** and implemented various data authentication modules integrated into **MbedTLS** using **OpenSSL** and **C**
- Designed debug contexts in **C** and built functional unit test scripts in **Bash** for ciphers/hashes to validate run-time correctness, consistency, and performance within different OS
- Took leading initiatives to examine, resolve, and document delivery-critical vulnerabilities using **GDB** and **Valgrind**, recovering production stability

Kaleidescape, Systems Engineer Intern 04/2021 – 09/2021
- Assembled a user-facing, efficient movie search system in **C++11** that is concurrent actionable and provides secure, cache-optimized content navigation on a modern cinema playback system
- Analyzed and resolved internal caching conflicts within the icon image fetching protocol, decreasing average content loading time from internal queries by **15%**

Digital Extremes, Full-Stack Developer Intern 05/2020 – 09/2020
- Created **Google Cloud** integrated scripts in **Python** to automate news parsing and content deployment, eliminating manual throttles in the sprint cycle

Research

High-Performance User-level Threading, Undergraduate Research Assistant 04/2022 – Present
- Researching lock contention statistics using **LTTng** when applying N:M user level threading to handle massively concurrent sessions

Personal Projects

Waterloo Rocketry, Intercollegiate Rocket Engineering Competition 04/2022 – Present
- Embedded various **CAN**-bus msg sanitizing procedures on PIC micro-controllers using **C** and assembly

FlexiPress 03/2021 – 04/2021
- Prototyped an algorithm-flexible compression program in **C++**, with a custom file format, to support a combination of modern deflation algorithms
- Constructed to permit fully data-tailored encoding operations, improving certain compression ratios by up to 3% in comparison to **BZIP**

Education

Honours Bachelor of Computer Science, **University of Waterloo** 09/2019 - 04/2024
- **Relevant Courses**: Computer Security and Privacy, Computer Networks, Operating Systems, Data-Structures, Algorithms
- **Awards**: Duke of Edinburgh's Award Gold, President's Scholarship of Distinction, President's Research Award