Luke Tao

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🐙 https://github.com/tao-luke

Summary of Qualifications

Skills
– C++, C, Python, JS, PHP

Tools and Frameworks
– OpenSSL, MbedTLS, (Matlab, openCV, Pytorch, Scikit-learn), (React, Express, Node, MongoDB), (Laravel, 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 to validate run-time correctness, consistency, and performance within different OS
– Took leading initiatives to examine, fix, and document delivery critical bugs using **Valgrind** and **GDB**, recovering code drop stability

Kaleidescape, Systems Engineer Intern   04/2021 – 09/2021
– Assembled a user-facing global movie search system in **C++11** that is concurrent actionable and provides efficient content navigation on present cinema playback systems
– Analyzed and resolved internal caching issues within the web **JSON** configurations, decreasing average content loading time from internal queries by 15%

Research

High-Performance User-level Threading, Undergraduate Research Assistant   04/2022 – Present
– Researching the effect on lock retention when using N:M user level threading to handle stateless sessions

Personal Projects

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**

Vm   10/2020 – 11/2020
– Developed a custom version of Vim in **C++** to support over 50 commands, along with flexibility for extension maintained (program wide low coupling and high cohesion following MVC pattern)
– Implemented a complete terminal interface using **Ncurse** library to support cursor, text-wrapping, screen movement, and smart **C** syntax highlighting

Education

Honours Bachelor of Computer Science, **University of Waterloo**   09/2019 - 04/2024
– **Relevant Courses**: Operating System, Data-Structures and Algorithms (Enriched), Object-Oriented Software Development (Enriched)
– **Awards**: Duke of Edinburgh's Award Gold, President's Scholarship of Distinction, President's Research Award