Denton Liu

DevOps and Infrastructure Engineer

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Technical Skills

- Proficient in C, C++, Python, Go, Bash and Java
- Experienced with using Git, CMake, GDB, Valgrind and Coccinelle.
- Well-versed in DevOps and infrastructure tools such as Jenkins, Travis and Docker.
- Longtime Arch Linux user with extensive POSIX shell scripting experience.
- Knowledgeable in FPGA development using Verilog including bringing up a RISC-V core.

Experience

Sep 2018 – Now **Git Project**, *Contributor*.
- Contributed over 300 patches to the Git project in C and POSIX shell script.
- Improved Git user experience by adding requested features, such as `git rebase --keep-base`.
- Enhanced code quality by increasing the coverage of static analysis in continuous integration pipeline with Coccinelle.

Sep – Dec 2019 **Salesforce.com, Inc.**, *Software Engineering Intern*, San Francisco, California.
- Automated the build and deployment process by leading the creation of a CI/CD pipeline.
- Spearheaded the Python 2 to 3 conversion effort and refactored the result to be more Pythonic.
- Leveraged Git expertise to develop a new streamlined workflow for team collaboration.

Jan – Apr 2019 **Marconi Protocol**, *Blockchain and Networking Software Engineering Intern*, San Francisco, California.
- Identified and patched a security vulnerability resulting in overpayment on servers running open-ethereum-pool.
- Decreased build time of Docker image from 20 to 4 seconds by parallelising and caching each component build.
- Debugged and fixed a complex race condition causing clients to disconnect because of duplicate work being sent.

Apr – Aug 2018 **Bose Corporation**, *Embedded Systems Engineering Intern*, Framingham, Massachusetts.
- Programmed I^2C support in new products allowing slave chips to be reflashed from master processor.
- Integrated Python debugging tool into the C++ manufacturers' test library.
- Improved codebase quality by integrating linters and warning checks into the continuous integration system.

Jan – Apr 2018 **University of Waterloo**, *Undergraduate Research Assistant*, Waterloo, Ontario.
- Implemented timing attack-resistant, efficient multiplication and reduction cryptography primitives in AVR assembly.

Sep – Dec 2017 **ESCRYPT - Embedded Security**, *Embedded Security Developer Intern*, Waterloo, Ontario.
- Reverse-engineered messages on car's CAN bus to create demo that could lock and unlock doors.
- Fixed race conditions and memory leaks in embedded C++ codebase, removing all warnings in the build system.

Jan – Apr 2017 **Cask Data**, *Engineering Intern*, Palo Alto, California.
- Designed and implemented optimiser to remove unnecessary operations by building and analysing graphs.
- Reduced memory usage of searches by 50% which stopped YARN containers from running out of memory.

May – Aug 2016 **Ledger Labs**, *Blockchain Engineering Intern*, Toronto, Ontario.
- Made multiple contributions to the Solidity compiler in C++.

Projects

Based Connect
- Reverse-engineered Bluetooth protocol between official Bose Connect app and headphones using Wireshark.
- Analysed compiled binaries to discover addresses of servers used to serve firmware updates.
- Implemented command line application in Linux using C to control headphones over Bluetooth using BlueZ.

Cryptocurrency Algorithm Trading
- Developed a reliable algorithm-trading application using Python 3 with 8.8% average monthly return.
- Implemented a market making algorithm, taking advantage of the volatile cryptocurrency market.
- Emulated and reimplemented Poloniex exchange API endpoints locally to accurately backtest algorithm.

Education

2015 – 2020 **University of Waterloo**, *Candidate for Bachelors of Software Engineering*, Waterloo, Ontario.

Interests and Hobbies

- Avid unicyclist.
- Devoted Vim user.