SIMON ZENG

Software Engineer

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EXPERIENCE

Jane Street Capital :: Software Engineering Intern

`OCaml` `Quantitative`   📅 Jan 2022 – Apr 2022   📍 New York, New York

Tesla :: Software Engineering Intern (Firmware Tooling)

`Haskell` `Firmware` `C`   📅 May 2021 – Aug 2021   📍 Remote

- Continued development work on Haskell firmware tooling code base
- Implemented network scheduler for custom Cybertruck communications protocols in Haskell using novel functional techniques
- Designed and implemented C API code generation tools for embedded real-time vehicle transmissions in the Cybertruck

TQ Tezos :: Software Engineering Intern (Blockchain)

`Blockchain` `Haskell`   📅 Sep 2020 – Dec 2020   📍 New York, New York

- Authored Tezos smart contracts in a Haskell EDSL to automate proprietary applications for permissioned blockchains
- Converted fragmented Python-based Tezos Kubernetes deployment script to idiomatic Dhall, greatly improving readability and maintainability
- Constructed peer-to-peer staking topology monitoring and visualization infrastructure with Python

Tesla :: Software Engineering Intern (Firmware Tooling)

`Haskell` `Python` `Java`   📅 Jan 2020 – Aug 2020   📍 Palo Alto, California

- Developed and maintained large Haskell code base responsible for automated firmware documentation, code, and signal generation
- Improved Haskell products' performance and runtimes by over 20% by identifying laziness-related space leaks and rewriting hot code paths
- Responsible for design and implementation of firmware verification infrastructure employed by entire organization

Ericsson :: Software Engineering Intern (Performance)

`Clojure` `Python`   📅 May 2019 – Aug 2019   📍 Kanata, Ontario

- Developed pure functional Clojure metrics infrastructure to monitor complex JVM architectures, allowing for discovery of multiple performance issues
- Implemented a parser and interpreter for an internally designed performance-testing DSL

CENX :: Software Engineering Intern (Test Automation)

`Python` `Systems`   📅 Jul 2017 – Sep 2017   📍 Ottawa, Ontario

- Created custom implementation of IETF RFC socket protocols to debug non-standard network stacks
- Discovered and provided patches for multiple security issues, including cryptography weaknesses, via automated fuzzing

inBay Technologies :: Software Engineering Intern (Full Stack)

`Ruby` `Rails` `Javascript`   📅 Jul 2016 – Aug 2016   📍 Kanata, Ontario

PROJECTS

○ s-zeng/dhall-python

`Rust` `Python` `Dhall`

Python bindings for Dhall, a functional configuration language

○ s-zeng/board-to-latex

`Flask` `OCR` `Latex`

Turn pictures of math into LaTeX

○ s-zeng/rag-shenanigann

`Python` `Torch` `MIDI`

Generate ragtime music with AI

OPEN SOURCE

○ nvim-lua/telescope.nvim

`Lua` `Vim Script`

`59ef37d` Implement shortcut to dynamically use other telescopes

○ kyazdani42/nvim-tree.lua

`Lua` `Vim Script`

`9aa8be6` Fix crash from glibc bug

○ dhall-lang/dhall-lang

`Dhall` `Haskell`

`b22cce1` Add support for Dhall v19

MISC EXPERIENCE

🎓 **Teaching Assistant**
Number theory and algebra

🔭 **Camp Counsellor**
For youth robotics camps

🎵 **Accordion Teacher**
Offering private lessons

EDUCATION

Bachelor's degree, Computer Science

📅 2022   📍 University of Waterloo