

# SIMON ZENG

## Software Engineer

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s-zeng

in s-zeng1

## EXPERIENCE

### 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

### University of Waterloo :: Teaching Assistant (Algebra)

Pure Math Teaching Sep 2019 – Dec 2019 Waterloo, Ontario

### 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-shenanigans

Python Torch MIDI

Generate ragtime music with AI

## OPEN SOURCE

### dhall-lang/dhall-kubernetes

Kubernetes Dhall

3367b68 Remove declaration of deprecated python script

### nvim-lua/telescope.nvim

Lua Vim Script

59ef37d Implement shortcut to dynamically use other telescopes

### ujihisa/repl.vim

Vim Script Racket

4910aa7 Add support for Racket

## MISC EXPERIENCE

**Swim Instructor**  
Certified by Red Cross and Life Saving Society

**Accordion Teacher**  
Offering private lessons

**Camp Counsellor**  
For youth robotics camps

## EDUCATION

Bachelor's degree, Computer Science

2022 University of Waterloo