SIMON ZENG

Software Engineer

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EXPERIENCE

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 large and fragmented Python-based Tezos Kubernetes deployment 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
- Designed and developed robust firmware signal inspection architecture with Java and modern statically typed Python

University of Waterloo :: Teaching Assistant (Algebra)

`Pure Math` `Teaching`   📅 Sep 2019 – Dec 2019   📍 Waterloo, Ontario

- Tutored classes of over 1000 students in number theory and abstract algebra
- Prepared individual tutoring lesson plans to ameliorate understanding in advanced topics such as quadratic reciprocity or interactive theorem proving

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

- Developed robust automated Python framework for load-testing web apps
- 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

- Created internal use development tools backed by Ruby on Rails and Javascript to monitor and debug specialized production systems

PROJECTS

⌂ 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 CONTRIBUTIONS

⌂ 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

COURSEWORK

- Functional Programming (Haskell, Scala, Scheme)
- OOP Programming (C++)
- Formal Logic and Interactive Theorem Proving (Coq)
- Compilers and Interpreters

EDUCATION

Bachelor's degree in Computer Science

📅 2022   📍 University of Waterloo