

SIMON ZENG

Software Engineer

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in s-zeng1

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EXPERIENCE

TQ Tezos :: Software Engineering Intern (Blockchain)

Blockchain OCaml 📅 Sep 2020 – Dec 2020 📍 New York, New York

- Contributed to Python, Haskell, and OCaml blockchain products
- Authored and formally verified Tezos smart contracts in a Haskell EDSL to automate proprietary applications for permissioned blockchains
- Converted large and fragmented Python-based Kubernetes config generation project 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%
- Responsible for design and implementation of core 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 domain specific language targeted at highly variable telecom network performance evaluation environments, greatly reducing workload for performance team
- Contributed to Python performance testing applications

CENX :: Software Engineering Intern (Test Automation)

Python Security 📅 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 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

SUMMARY

- Professional experience in functional programming (**Haskell, OCaml, Clojure**)
- Competent core development skills (**Python, Java, Ruby, Javascript**)
- Strong background in mathematics

PROJECTS

Board to Latex

github.com/s-zeng/board-to-latex

Turn pictures of math into \LaTeX

Ragtime Generator

github.com/s-zeng/rag-shenanigann

AI-generated ragtime music on demand

OPEN SOURCE CONTRIBUTIONS

dhall-kubernetes

github.com/dhall-lang/dhall-kubernetes

Make 'apiVersion' and 'kind' optional in PersistentVolumeClaim default

telescope.nvim

github.com/nvim-lua/telescope.nvim

Implement shortcut to dynamically use other telescope functionality

repl.vim

github.com/ujihsa/repl.vim

Add support for Racket scheme

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 of Computer Science

📅 2022

📍 University of Waterloo