

SIMON ZENG

Software Engineer

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in s-zeng1

s-zeng

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 an OCaml-based DSL to automate proprietary applications for private blockchains
- Developed and instrumented automated deployment of test and private chains on Linux machines over Kubernetes
- 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 specifically tailored for 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

React web app that transcribes photos of chalkboards and whiteboards to latex source, with OCR handled by a Python and Flask backend

Ragtime Generator

github.com/s-zeng/rag-shenanigann

A suite of Python scripts that fully automates the entire pipeline of AI-based ragtime generation, covering everything from automatically sourcing its own training data to outputting ragtime MIDI files on demand

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)
- Formal Logic and Interactive Theorem Proving (Coq)
- Object Oriented and Imperative Programming (C, C++)
- Compilers and Interpreters
- Number Theory and Cryptography

EDUCATION

Bachelor's of Computer Science

2023

University of Waterloo