SIMON ZENG

Software Engineer

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EXPERIENCE

Tesla Inc :: Software Engineering Intern (Embedded Systems)

`Haskell` `Python` `Java`

📅 January 2020 – April 2020   📍 Palo Alto, California

- Developed and maintained large Haskell code base responsible for automated firmware documentation and code generation
- Instrumented and completed an extensive porting undertaking from legacy Haskell codebases to modern statically typed Python

Ericsson :: Software Engineering Intern (Performance)

`Clojure` `Python`

📅 May 2019 – August 2019   📍 Kanata, Ontario

- Developed a pure functional Clojure metrics library to monitor complex JVM architectures
- Implemented a parser and interpreter in Python for an internally designed domain specific language tailored for specific performance test environments

CENX Inc :: Software Engineering Intern (Test Automation)

`Python` `Networking` `Security`

📅 July 2017 – September 2017   📍 Ottawa, Ontario

- Developed robust automated UI-testing Python framework for load-testing web applications
- 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` `HTML/CSS`

📅 July 2016 – August 2016   📍 Kanata, Ontario

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

University of Waterloo :: Algebra Teaching Assistant

`Number Theory` `Abstract Algebra` `Formal Logic`

📅 September 2019 – December 2019   📍 Waterloo, Ontario

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

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

COURSEWORK

- Functional Programming and Lambda Calculus [Haskell, Scala, Scheme] (CS 145, CS 146, CS 241E)
- Compilers and Interpreters (CS 146, CS 241E)
- Formal Proofs, and Proof Assistants [Coq] (MATH 145, CS 245E)
- Number Theory and Cryptography (MATH 145, PMATH 340)
- Object Oriented and Imperative Programming [Java, C, C++] (CS 146, CS 246E)

EDUCATION

Honours Computer Science, Co-op

University of Waterloo

📅 September 2018 – May 2023 (expected)

2nd Year | Major Average: 88.5%