

FELIX ZHOU

Graph Theorist & Engineer analyzing, transforming, and organizing data using graph-theoretic techniques

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EXPERIENCE

Software Engineering Intern

Google LLC

📅 Jan 2020 – April 2020

📍 Mountain View, CA

- designed and realized **scalable graph-theoretic algorithms** to pinpoint build-breaking commits, reducing time spent on finding bugs
- implemented a **validation framework** to experiment with algorithmic improvements
- documented analysis of algorithmic improvements
- (unable to disclose further details due to a signed NDA)

IOT Engineering Intern

Level Home Inc.

📅 May 2019 – December 2019

📍 Redwood City, CA

- designed and implemented back-end features to support an invisible **smart lock** system, allowing users to remotely control entrance to doors without affecting aesthetics of their home
- Lead an engineering team in implementing a multi-client read-write lock for **mongodb** using asynchronous networking in both **Swift** and **C** with a **Python** interface to prevent data races
- Leveraged **Elliptic-Curve Cryptography** and **Stream Cyphers** to ensure client data security

Software Engineering Intern

Encircle Inc.

📅 April 2018 – August 2018

📍 Kitchener, ON

- Introduced **WebSockets** and **Observables** to load and update data asynchronously in real-time, improving efficiency by **5x**
- Implemented email feature to send reports through **Model-Daemon Method**, removing need to exit app in user workflow
- Improved user experience with **functional React** Components, reducing re-rendering for smoother user experience

PROJECTS

Pleter

📅 May 2019

📍 github.com/felix990302/word_completion

- Designed a concurrent autocompletion engine using a variation of **range trees** consisting of a **compressed trie** and sorted arrays in **C++**
- accounted for race conditions and deadlocks using fine-grained read-write lock hierarchies
- Incorporated **gprof** as profiler for optimizations including a static **fixed-size allocator** to achieve **20x** speedup

VM

CS246E: Objected Oriented Programming (Advanced)

📅 November 2018

📍 github.com/felix990302/vm

- Actualized a **C++14** clone of the command-line text editor **vim**
- Followed **Object-Oriented Principles** and **Design Patterns** like **Decorator** and **Visitor** to produce modular and extensible code
- Implemented undos and redos through the **Command** pattern to minimize space complexity

PROFICIENCIES

C, C++, Swift, Java,
Python 3, Typescript, Scheme, Haskell,
R, MATLAB, LaTeX, MIPS

TensorFlow, XGBoost, Keras,
scikit-learn, SciPy, NumPy,
PostgreSQL, SQLAlchemy, MongoDB,
React, React-Native, Flask,

Linux, Bash, Git, Phabricator, Docker

EDUCATION

B.S. Computer Science

University of Waterloo

📅 Sept 2017 – August 2022

- Triple Major with Combinatorics & Optimization and Computational Mathematics
- Minor with Pure Mathematics
- 3.94 Faculty GPA
- Advanced Math and CS courses

ACHIEVEMENTS

93th Percentile LeetCode

📅 2019

global rankings

Term Dean's Honours List

University of Waterloo

📅 September 2017 – Present

for academic average above 90%

Gold Medal

Burnaby Clef Festival

📅 June 2015

for piano performance of Polonaise in A major

Gold Medal

Basketball BC Zone Championships

📅 April 2014

INTERESTS

Music Theory, Quantum Information, Food