






FELIX ZHOU

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EXPERIENCE

Undergraduate Research Assistant



University of Waterloo

 May 2021 – August 2021  Waterloo, ON

- Developed novel **linear programming rounding** methods towards **approximation algorithms** for NP-hard problems
- Explored the **minimum norm matroid median** problem which generalizes the k -medians and k -center problems

Undergraduate Research Assistant

University of Waterloo

 August 2020 – April 2021  Waterloo, ON

- Designed a **scheduling algorithm** to allocate office time under distancing constraints based on **3-dimensional matchings** modeled with **integer programming** in **Gurobi**
- Proved results on the computational complexity of nucleolus within **cooperative games** (*manuscript under review*)

Software Engineering Intern

Google LLC

 Jan 2020 – April 2020  Mountain View, CA

- Improved a **distributed graph algorithm** which pinpoints build breaking commits, reducing debug time by to **50%**
- Created a generalized **validation framework** in **C++** to quantify the performance of bug finding services with statistical methods like **cross entropy**, **rank probability score**
- Implemented a data pipeline using **BigQuery** and **MapReduce** to support the framework with testing data

IOT Engineering Intern

Level Home Inc.

 May 2019 – December 2019  Redwood City, CA

- Built backend features for a discreet **smart lock**, allowing users to remotely unlock doors without affecting aesthetics
- Lead the creation of a **MongoDB** network semaphore with asynchronous networking in **Swift** to prevent data races

PROJECTS

VM

 github.com/felix990302/vm

- Created a **C++14** clone of the text editor **vim** from scratch
- Followed **Object Oriented Principles** and **Design Patterns** like **Decorator** and **Visitor** for modular and extensible code

PROFICIENCIES


C, C++, Python 3
LaTeX, MATLAB, Gurobi

Approximation Algorithms
Computational Game Theory

EDUCATION


Honours Bachelor of Mathematics

University of Waterloo

 Sept 2017 – August 2022

Double Major in Computer Science
and Combinatorics & Optimization
Minor in Pure Mathematics
94% Average

PUBLICATIONS

 "On the Complexity of Nucleolus Computation for Bipartite b-Matching Games". *Submitted for Review*

COURSEWORK

Probability, Statistics, Graph Theory
Real Analysis, Linear Algebra 2
Lebesgue Integration & Fourier Analysis

Advanced Algorithm Design
Combinatorial Optimization
Semidefinite and Convex Optimization

ACHIEVEMENTS

Mathematics Undergraduate Research Award (\$6000)

 May 2021

for outstanding research capacity

NSERC Undergrad Student Research Award (\$4500)

 September 2020

for exceptional research aptitude

Howard and Marita Boyd Scholarship (\$1500)

 September 2020

for academic excellence and demonstrated commitment to volunteerism