

# ALAN LIU

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## SKILLS

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- Languages: Bash, C, C++, Python, Racket
- Tools: Git, Linux, macOS, Vim, Visual Studio

## EDUCATION

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**University of Waterloo, Waterloo, ON**

Sept. 2018 - Current

Candidate for Bachelor of Computer Science, Co-operative Program

- Cumulative Average: 94.3%; Faculty Average: 94.4%

## EMPLOYMENT

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**Imagine Communications, QA Developer, Waterloo, ON**

Sept. 2019 - Dec. 2019

- Designed and implemented end-to-end flow for testing play-out of growing video clips using Python
- Implemented a Python tool to ease the process of test result validation
- Decreased the duration of static play-out test suite by 50% through optimizing channel configuration processes
- Refactored the FTP test suite to adhere to OOP design principles to improve extensibility and maintainability

## PROJECTS

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**Sorcery | C++**

July 2019

- Designed and implemented a strategy card game with command line I/O and graphic display using the MVC design pattern
- Implemented the board and abstract card classes with decorator and strategy design patterns so new cards with varying abilities can be easily added to the game
- Utilized the visitor design pattern to encapsulate the logistic of deploying different card type to be within the board class to allow for new card type to be added into the game easily

**Sudoku Solver | C**

Apr. 2019

- Designed and implemented an efficient backtracking Sudoku solver
- Produced an efficient repeated digit checker in  $O(n)$  time
- Modularized the code to achieve a maintainable, reusable design

**2048 Game | Python**

May 2018

- Designed and implemented a version of the popular game 2048
- Minimized code complexity by selecting appropriate data structure for different tasks

## AWARDS

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**Governor General's Bronze Academic Medal, Governor General of Canada**

Dec. 2018

- Awarded for having the highest grade point average from a Canadian high school

## ACTIVITIES

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**FIRST Robotics Club, Team Member**

Sept. 2014 - Jun. 2015

- Traveled to Calgary with team members to compete in the 2015 FIRST Robotics Competition
- Assisted in the design and construction of the robot, and participated in fundraisers