

Allan Wang

Combined Major in Computer Science & Statistics, 3rd year
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TECHNICAL SKILLS

Programming Languages: Java, C/C++, Python, R, HTML, Swift, JavaScript/React, Ruby on Rails*
Tools: Visual Studio Code, IntelliJ, CLion, Xcode, Microsoft Excel, AWS*
Testing: JUnit, GDB

TECHNICAL PROJECTS

Algorithm Visualizer [\(Video Demo\)](#) Aug 2024 – Present

- Developed an algorithm visualizer that solves mazes in the form of a **multi-state** iOS application.
- Rendered customizable mazes with **SwiftUI**, updated the maze upon user inputs, along with additional features like resetting the maze and randomizing the maze.
- Implemented option to edit the maze by clicking on individual cells to edit where the start, end, and walls are.
- Implemented **BFS and DFS** to solve the maze designed by the user, each step of the search algorithm will be rendered as an animation, achieved by **asynchronous programming**.

2D Platformer Game Mar 2024 – May 2024

- Developed a 2D platformer game in **C++** that keeps track of score, performs **collision testing**, and has dynamic difficulty, using object-oriented programming fundamentals.
- Utilized **SFML** library for visualization and animating sprites in the window upon user input and clock ticks.
- Implemented a state machine and made use of **type hierarchies** to switch between different states of the program and followed proper game development procedures.

BFS Treasure Hunt Oct 2023 – Nov 2023

- Implemented **stack**, **queue**, and **deque**, with a vector and two integers.
- Rendered and encoded map routes onto base images; treated the pixels in images as nodes of graphs and traversed the base image and encoded a pixel if it is also a pixel in the map image.
- Implemented **BFS** in **C++** to traverse through the encoded base images to find the longest encoded path that existed, along with helper functions that would produce neighbouring pixels and check the validity of pixels.

Rubik's Cube Timer Jul 2023 – Aug 2023

- Developed and deployed a cross-platform desktop timer application for speed solvers of Rubik's cubes, which included features such as recording past solves and calculating detailed statistics of a session.
- Designed and implemented a user-friendly graphical interface using **Java Swing**, optimizing user experience.
- Designed an exhaustive test set using **JUnit** to ensure all objects behave as expected.

WORK EXPERIENCE

Course Developer & Classroom Instructor, ROBOKIDS, <https://www.robokids.io/> Aug 2024 – Nov 2024

- Assisted hundreds of students with **LeetCode-style Python questions**; reviewed work of students and **tested** them for bugs and provided insights for optimization and improvements.
- Took responsibility in **troubleshooting** on Windows operating system.
- Led lessons and camps, supervised multiple students and maintained a comfortable and safe environment.

Tutor, Self-employed/One World Learning, [OWL](#) Jul 2021 – Present

- Taught wide variety of students, some are younger kids that were beginners in English, some were high school students needing help in STEM courses.

- Tutored high school students in various subjects with a focus in computer science and physics.
- Maintained effective and consistent communication with students, and students achieved up to 15% increase in grade.

EXTRACURRICULAR ACTIVITIES

SAP Datathon, Vancouver

Mar 2024

- Utilized **stack modelling** to join different models to predict customer churn based on customer attributes.
- Applied machine learning algorithms including **Logistic Regression, Random Forest, SVM and KNN**; implemented **cross-validation** for robust model evaluation.
- Analyzed data distribution patterns by creating boxplots with **tidyverse** and **ggplot2**.
- Created presentation to report findings and ranked top 10 in the case study.

Byte Datathon, Vancouver

Sep 2023 – Oct 2023

- Analyzed a clothing store dataset which was created for this event as a team of four.
- Used multiple tools as a team to tidy analyze the dataset, such as **R, Excel, and Python libraries** such as **Pandas** and **NumPy**, then created visual representations to find relationships within the dataset.
- Presented insights for the clothing store on how to improve their profits based on the data.

Executive of the UBC Cubing Club

Sep 2023 - Present

- Organized and designed internal competitions, experience with designing surveys.
- Organized weekly meetings and room booking, managed club balance, and planned where to invest club funds.

EDUCATION

3rd Year Bachelor of Science, Combined Major in Computer Science and Statistics

University of British Columbia, Vancouver, BC

Expected graduation: May 2027

AWARDS

Trek Excellence Scholarship

- Top 5% of first year students in the Faculty of Science at UBC.

2 Times Science Scholar/Dean's Honour List

- A+ standings in all computer science courses.
- Cumulative 91% average

INTERESTS

- Programming.
- Attending data driven case competitions.
- Over ten years of experience in speed-cubing.
 - Attended ten international competitions held by the World Cubing Association.