

Gary Huang

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EDUCATION

University of Waterloo

Bachelor of Software Engineering, Honours (BSE)

Waterloo, ON

Sept 2021 – April 2026

EXPERIENCE

Ford

Sept 2023 – Dec 2023

Software Engineer Intern

- Implemented **dynamic arrays** and thread safe **map** with **iterator pattern** to increase code reuse and eliminate data coherency bugs
- Optimized **C++** code in node addon code base to improve system responsiveness by **125%**
- Reduced serialised data size via **struct packing**, increasing data transfer speed by **30%**

Genellipse

May 2022 – Aug 2022

Data Scientist Intern

- Extracted client information from insurance claim forms with **98% accuracy** by applying a **BERT** machine learning model with **OpenCV**
- Developed core information requesting server to automate client's annuity claims using **Python**, deployed on **AWS Lambda** and **MySQL** server
- Verified server's functionality specification through **Fuzzing Testing** technique

PROJECTS

Chess Engine | C++

<https://github.com/garyhhj/chess-engine-v2>

- Built a chess engine with **minimax algorithm** and **alpha-beta pruning** to increase search depth in the decision tree by **2.5** times
- Increased chess engine speed by over **500** times through the use of **zobrist hashing**, **transposition tables**, and **bit manipulation**
- Boosted chess.com account to over **1500** elo with over **90%** win rate before getting banned

Pathfinding Visualizer | JavaScript, HTML/CSS

<https://github.com/garyhhj/pathfinding-visualizer>

- A pathfinding visualizer for **Dijkstra** and **A*** pathfinding algorithms on a maze generator using **prim's** algorithm

Sorting Visualizer | JavaScript, HTML/CSS

<https://github.com/garyhhj/sorting-visualizer>

- A sorting visualizer for **bubble sort**, **quick sort**, **merge sort**, and **heap sort** algorithms

Chip8 Emulator | C++, SDL2

<https://github.com/garyhhj/chip8>

- Implemented cross platform **CHIP-8 emulator virtual machine**
- Simulated **CPU and video graphics** to execute games written in CHIP-8 Lang

TECHNICAL SKILLS

Languages: C++, Python, JavaScript, HTML/CSS, SQL

Tools: OpenCV, SDL2, AWS, MySQL, Valgrind, Git