

# Frank Shan

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## Highlights of Qualifications

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- Solid experience with C/C++; developed 2+ large scale projects with modern object-oriented design.
- Designed and implemented efficient solutions in JavaScript, Python, and SQL for data-driven applications and team projects.
- Demonstrated strong learning skills and teamwork skills, contributed to successful project delivery.

## Skills

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**Programming Languages:** C++, C, Python, SQL, JavaScript, R

**Technologies:** MSVC, Git, Linux, VS Code, Visual Studio, Office, Jupyter Notebook.

**Frameworks and others:** Qt, MFC, Pandas, Selenium, Mathplotlib, MVC design

## Education

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### University of Waterloo

*Candidate for Bachelor of Mathematics, Honors Computer Science*

*August 2024 – Present*

**GPA: 92.70/100**

- **Courses:** Object-Oriented Programming, Logic, Algorithm and Data Structures, Software Engineering Tools, Probability, Statistics

### Marianopolis College

*Diploma of College Studies, Honors Health Science*

*August 2023 – 2024*

## Experience

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### Full-Stack Software Developer

*Beijing Goodline Medical Technology Co. Ltd.*

*Remote*

*January 2025 – Present*

- Led a project to modernize a medical imaging and record management system, enabling secure storage of patient data and diagnostic results.
- Integrated image capture from hardware and established seamless connectivity with both local and hospital databases.
- Collaborated with a team to rebuild the entire code base in modern C++ with Qt6, practiced modern software design pattern such as the Signal-Slot pattern and the Observer pattern.

### Part Time High-school and University Tutor

*Self Employed*

*Waterloo, ON*

*May 2025 – Present*

- Taught university-level Calculus, Statistic, and Programming courses, helping students achieve measurable improvements (achieving 90+ final grade).

## Projects

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### Reversi (C++20), Observer Pattern, X11

[github.com/knarfthekant/Reversi](https://github.com/knarfthekant/Reversi) 

- Engineered a full-featured Reversi game in modern C++20, applying the Observer design pattern to decouple board logic, text UI, and X11 graphics for clean, testable architecture.
- Optimized move processing with a custom New, Relay, Reply message protocol, propagating flips across  $N^2$  cells in amortized  $O(1)$  per move.

### Grocery Web Scraper (Python, Selenium)

[github.com/knarfthekant/WebScraper](https://github.com/knarfthekant/WebScraper) 

- Developed a targeted web scraper using Selenium and XPath to collect pricing data from major online grocery retailers including Costco, Loblaws, and Food Basics.
- Parallelized scraping tasks to improve efficiency and cleaned the extracted data using pandas.

## Courses

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### Harvard University's CS50 (edX)

*2023 – December 2024*

- Developed projects including the Tideman voting algorithm, SQL queries for analyzing relational database, and a personal website using HTML, CSS, and JavaScript.