

# SAM LIU

✉ sam.liu512@gmail.com

☎ 647-766-7452

🌐 samliu21

📄 Sam Liu

## EDUCATION

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- **University of Waterloo** 2021 - 2026  
*Candidate for Bachelor of Computer Science* 95% math faculty average

## EXPERIENCE

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- **Super.com** Incoming Jan 2024  
*Software Developer Intern* Toronto, ON
- **Huawei** May - Aug 2023  
*Software Developer Intern (C++)* Markham, ON
  - **Redesigned an FPGA subsystem** by decoupling it into a self-sufficient module, cleaning up the client-facing API, and clarifying memory ownership using smart pointers
  - Refactored a crucial **24-byte class into an 8-byte integer** to reduce memory usage of subsystem by 50%
  - Improved runtime of matching and merging algorithms by over **70%** using **multithreading benchmarks** and **C++ Standard Library** data structures
  - Built features for in-house scripting engine, including support for logging and combining specification files
- **CareGuide** Sep - Dec 2022  
*Full Stack Developer Intern* Toronto, ON
  - Co-led a project that brought the website from North America to **1000+ users in the UK** by extending the sign up flow, refactoring the search directory, and implementing various free trial features
  - Supported **international phone calls for 200+ users** by refactoring the phone number database and phone call APIs with country information
  - Optimized the loading time of various big-data pages by **10x** using Elasticsearch's indexing APIs
  - Built components for in-house design system and modernized the homepage footer and directory
  - **Technologies used:** Ruby on Rails, React, TypeScript, GraphQL, MySQL, Elasticsearch, Kubernetes
- **New York Theological Education Centre** Jun - Aug 2021  
*Software Developer* Markham, ON
  - Developed a React website and app used by **50+ NYTEC members** to access church resources
  - Engineered an email and app-based notification system using Firebase for instant access to church news
- **St. Augustine Catholic High School** Feb 2020 - Jun 2021  
*iOS App Developer* Markham, ON
  - Redesigned the school app from scratch to modernize and clarify the user interface for **500+ students**

## PERSONAL PROJECTS

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- **Chess AI**
  - An ML-powered chess bot rated at **1200 elo** trained using board evaluations from the Lichess dataset
  - Engineered a pair of complementary deep CNNs that evaluate the best square to move out of and into
- **Guitar Song Sheet Creator**
  - A website that allows users to create and share song sheets with the ability to pull lyrics automatically
  - Designed a RESTful API for authentication, song sheet access, user comments, and email verification

## TECHNICAL SKILLS

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**Languages:** C++, JavaScript, Python, Ruby, SQL, GraphQL, Java, Bash, Swift

**Web:** React, Rails, Django, Flask, PostgreSQL, MySQL, Firebase, Kubernetes, Elasticsearch

**Machine Learning:** TensorFlow, PyTorch, Scikit-learn, NumPy, Pandas, Matplotlib