

William Gao

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Seeking a challenging and dynamic internship in the field of ML or web development, where I can leverage my strong academic background, hands-on project experience, and passion for research to contribute to cutting-edge projects.

EDUCATION

University of Waterloo

B.S. in Computer Science, Finance

2 Time Recipient of CFM Outstanding Academic Achievement Award

Expected: April 2025

GPA: 92/100

EXPERIENCE

SickKids Hospital — Centre for Computational Medicine

Apr. 2023 - Sept. 2023

ML Engineer

Python, TensorFlow, Keras, Slurm

- Focused on Machine Learning in Neuroscience to diagnose and predict stroke in children using 3D MRI images
- Built and deployed image processing pipelines and convolutional neural networks (CNN) to perform segmentation and classification tasks
- Proposed a universal patient ID system to tackle patient duplication when they move between healthcare facilities. After gaining support at the managerial level, presented the idea to an international executive committee representing 100+ hospitals across 30+ countries.

PointClickCare

Sept. 2022 - Jan. 2023

Software Engineer

Java, Spring, React, Docker, GCP

- Used Java Spring and React to develop multiple backend API's for mission-critical microservices
- Pitched and got approval to build a generic React front-end stepper component for use across the entire organization
- Worked independently with the DevOps team to create a centralized dashboard to view security risks and overall health of services

OMERS

Jan. 2022 - May 2022

Software Engineer

Java, Spring, React, Docker, GCP

- Used Java Spring to develop multiple microservices for internal pensions processing
- Worked with the architecture team to integrate a more modern third-party email service into the backend tech stack
- Led a team of 8 interns to design and build a Slack application that automatically connects co-workers together for coffee chats to boost networking during the COVID pandemic. Presented our design and prototype to upper management at the senior VP level

The Co-operators

May. 2021 - Sept 2021

Software Engineer

Node.js, React, Docker, AWS

- Worked in an agile team to develop several MERN/PERN full stack web applications for 200+ users each
- Corresponded with DevOps to diagnose and fix issues in production

RESEARCH

University of Waterloo — Computer Science

Sept. 2023 - Current

Generative AI: Diffusion Models

Python, PyTorch, C, Linear Algebra, Differential Equations

- Investigated ways to decrease training time and generation by implementing a Sparse Gaussian Elimination solver
- Tested a time-stepping PDE solver for the Kolmogorov-Fokker-Plank equation to improve the speed of the forward stochastic diffusion process
- Collaborated with the research team to author a research paper, detailing the methodology, results, and implications of the diffusion model study

University of Waterloo — Applied Mathematics

May. 2023 - Current

Modelling and Control Theory

Python, C++, Scikit-Learn, Linear Programming, Statistics

- Modelled the dynamics of the spread of COVID-19 and Influenza in schools using an Agent Based Model with emphasis placed on the impact of control measures
- Collaborated with professor from psychology faculty to study the effects of COVID pandemic on mental health using feature selection techniques such as LASSO Regression, Decision Trees, Forward-Backward Selection

PROJECTS

Skribbl.ai — Play Demo

Dec. 2023 - Current

Fun drawing and guessing game with AI

Python, JavaScript, TensorFlow, Socket.io

- One player draws while the others guess. However, there is a neural network guessing as well - if the network guesses before the players, they lose
- Used Google Quick, Draw! dataset to train a recurrent neural network (LSTM) as well as a CNN built in TensorFlow
- Deployed production TF-Lite model with Node.js and Socket.io backend on Heroku