# Zixin **Wei**

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## Education

**University of Toronto**　　　　　　　　　　　　　　　　　　　　　　*Toronto, Ontario, Canada*
HONOURS BACHELOR OF SCIENCE IN COMPUTER SCIENCE AND MATHEMATICS　　　　　　　　*Sep. 2020 - Jun. 2024*

- **Cumulative GPA: 4.00/4.00,　Average: 94%** (where ≥85% is 4.00 GPA for each course)
- Relevant courses: Neural Networks and Deep Learning, Machine Learning, Natural Language Computing, Probabilistic Learning, Algorithms, Artificial Intelligence, Operating Systems, Web Programming, Databases, Data Structures, Software Design, Computer Organization

## Skills

**Languages**　Python, Java, C, C++, HTML, CSS, JavaScript, SQL, Shell, LaTeX, Assembly, R

**Others**　PyTorch, Numpy, Pandas, Matplotlib, Scikit-learn, LightGBM, React, Django, Unix, Git, Spring MVC, JUnit, Spring Batch, Vim

## Experiences

**Vector Institute, Machine Learning and Computational Healthcare Lab**　　　*Toronto, Ontario, Canada*
STUDENT RESEARCHER　　　　　　　　　　　　　　　　　　　　　　　*Sep. 2023 - Present*

- Analyzed histopathology slides and patient information from 4 cohorts using advanced machine learning techniques
- Employed large models (HIPT, QUILT, UNI) to embed slides, followed by running a vision transformer for specific tasks
- Implemented attention rollout on large models to identify areas of focus during embedding generation
- Applied causal inference techniques to assess treatment effects across cohorts

**The Goldman Sachs Group, Inc.**　　　　　　　　　　　　　　　　　*Toronto, Ontario, Canada*
ENGINEERING ANALYST　　　　　　　　　　　　　　　　　　　　　　　*Sep. 2024 - Present*

- Interned from June 2023 – August 2023, obtained a return offer to work as full-time engineering analyst
- Worked on multiple tax engineering projects using **Java/SQL/Spring Batch**
- Automated the process of data lake ingestion, polling, and reconciliation of tax data, allowing reusability and easy modification
- Rewrote legacy code into new project to enforce business logic correctness and make code more understandable, flexible, and maintainable

## Projects

**"An Image is Worth One Sentence": Fast Textual Inversion with Supreme Initialization**　*University of Toronto*
NEURAL NETWORKS AND DEEP LEARNING COURSE PROJECT　　　　　　　　　　　　　*Jan. 2023 - Apr. 2023*

- Improved textual inversion, a state-of-the-art image personalization method, by increasing its convergence speed from 5000 steps to 100 steps
- Image personalization is dynamically customizing the given image(s) to match the user's prompt
- Pioneered the multi-token initialization method and the class/caption initialization method

**Predicting Student's Correctness on Questions**　　　　　　　　　　　　*University of Toronto*
MACHINE LEARNING COURSE PROJECT　　　　　　　　　　　　　　　　　　*Nov. 2022 - Dec. 2022*

- Designed a neural network with **PyTorch** for predicting whether a student could correctly answer a question
- Used an autoencoder, augmented with pretrained item response theory (IRT) parameters injected to its latent
- Achieved an accuracy that is ranked top 3 among all students from the course (assessed on Kaggle)

## Awards

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| Oct. 2024 | **Daniel Berlin Scholarship** University of Toronto | *Award for top AI student* |
| Jun. 2024 | **Regents Graduating Scholarship** University of Toronto | *Award for 4.00 cGPA* |
| Sep. 2023 | **John David Stewart Scholarship** University of Toronto | |
| Every Year | **Dean's List Scholar** University of Toronto | *June of 2021, 2022, 2023* |
| Nov. 2022 | **Lecily (White) (Johnston) Hutcheson Scholarship** University of Toronto | |
| Sep. 2021 | **Mrs F N G Starr Scholarship** University of Toronto | |
| Nov. 2019 | **Top 75 in British Columbia** Canadian Open Mathematics Challenge | |

## Interests and Activities

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| Volunteering | **Hosted monthly concerts at the Senior's Centre,** The Maple Residences, Richmond BC | *Sep. 2015 - Jun. 2020* |
| Music | **ARCT in Piano Performance, First Class Honours,** The Royal Conservatory of Music | *Jun. 2020* |
| Hobbies | **Playing piano, playing badminton, swimming, skiing, listening to classical music** | *Ongoing* |