John Liao

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Education

University of Waterloo Waterloo, ON

Bachelor of Computer Science; Cumulative GPA: 4.0 (97.4%) *Expected Graduation, April 2030*

- **Mathematics National Scholarship:** Selected as one of the **top 15** incoming undergraduates in math/CS.
- Relevant Coursework: Advanced Algorithm Design & Data Abstraction, Advanced Calculus II

Technical Skills

Languages: Python, C, C++, JavaScript, Java, Bash, SQL
Machine Learning: TensorFlow, PyTorch, Keras, Scikit-Learn, Pandas, NumPy, Stable Baselines, LangChain
Frameworks & Tools: Git, VS Code, Vim, Postman, Django, Flask, React, Vite, Next.js

Experience

Machine Learning Researcher (WAT.AI) Jan. 2026 – Present

University of Waterloo *Waterloo, ON*

- Conducted a literature review of state-of-the-art architectures integrating Vision-Language Models (VLMs) and RLHF to design preference-learning strategies for embodied robotic manipulation.
- Engineered a data collection pipeline for MuJoCo 'Pick and Place' simulations, visualizing temporal trajectory data onto final image states using color gradients for VLM preference learning.

Machine Learning Instructor (Zero To ML) Jan. 2026 – Apr. 2026

University of Waterloo *Waterloo, ON*

- Designed and instructed weekly **2-hour** workshops on Machine Learning to **100 first year students**.
- Facilitated hands-on coding sessions to bridge theoretical calculus and practical ML implementation for undergraduates.

Robotics Club Member Sep. 2022 – June 2025

Lo-Ellen Park Secondary School *Sudbury, ON*

- Collected image data and trained a **TensorFlow Lite** classification model for real-time cone detection.
- Contributed to the team's **provincial qualification** by optimizing vision processing for autonomous navigation.

SHAD Fellow (Engineering & Research) July 2024

Ontario Tech University *Oshawa, ON*

- Led a team of **8 students to research** wood-based batteries to improve Canada's access to green energy.
- Attended multiple AI lectures delivered by university professors on topics such as the **KNN algorithm**.

Projects

Six Seven Game AI | ***Reinforcement Learning, Stable Baselines, Gymnasium***

- Developed a numeric puzzle game inspired by 2048 and integrated a Reinforcement Learning environment.
- Trained agents using PPO, DQN and A2C to optimize game strategy and achieve high win rates.

Spaceship Titanic (Kaggle Competition) | ***Keras, Tensorflow, Scikit-Learn, Pandas***

- Engineered a deep learning classification pipeline to predict passenger survival.
- Conducted comparative analysis between Random Forest boosters and Deep Neural Network architectures to determine optimal classification boundaries for high-dimensional tabular data.

Awards & Achievements

Lloyd Auckland Invitational Math Workshop: Selected as one of the **top 70 Grade 11 students in Canada** (Fermat Contest) for an intensive week of advanced problem solving at UWaterloo.

Regional Gold (COMC): Achieved the **highest** score in Northern Ontario in the Canadian Open Math Challenge.

Silver Medal (Skills Ontario): Secured **2nd place provincially** in the competitive Coding category.

Leetcode Knight Badge: Ranked in the top **25%** of global users based on consistent contest performance.