Jessica Tang

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EDUCATION

University of Toronto **Sep 2022 – Apr 2026**

- *BASc in Engineering Science (Machine Learning Major), Dean's Honours List*
- **Relevant Courses**: Probability & Statistics, Fundamentals of Biomedical Engineering, Object Oriented Programming, Data Structures & Algorithms, Vector Calculus, Linear Algebra, Ordinary Differential Equations, Digital & Computer Systems, Human Nature

EXPERIENCE

Machine Learning Research Assistant **May 2023 – Present**

University of Toronto Cognitive Neuroscience Lab

- Investigated robotic hand object classification and grasp predictions as biological control systems
- Led CNN interpretability and impact analysis effort using Neuron Shapley, activation maximization, representational similarity matrices, and principle component analysis, reached a test accuracy of over 78% on novel CNN architecture
- Designed an automated MATLAB experiment to compare EEG data from 15 participants with CNN kernels
- **Highlights:** Accepted into Society of Neuroscience Conference 2023 and Cognitive Neuroscience Society Conference 2024

Mapping Software Developer **Sept 2022 – Jun 2023**

aUToronto – University of Toronto Self Driving Car Design Team

- Built a self-driving car with a team of 100+ members
- Programmed a codebase to automatically convert XML file of ~10,000 disjoint nodes to a fully connected semantic map
- Designed logic scripts, maintained and unit-tested large Python codebase, revamped documentation for future developers
- **Highlights:** Awarded **2nd Place Overall** at SAE International Autodrive Challenge 2022

Founder, Co-President **Oct 2020 – Present**

Illuminaite Academy – Canadian Non-Profit Organization

- Founded organization to increase accessibility to interdisciplinary CS & AI education
- Led a team of 12, organized 10 events, garnered 275+ participants from 42 cities and 11 countries, pioneered organizing the first high school AI Ethics Competition in North America
- **Highlights:** Received $500+ in grant awards and expanded to 5 Canadian universities

PROJECTS

Speech to Sign Language Translator **Mar 2023**

- Trained 6 NLP models to recognize, detoxify, and translate sentences to bridge barriers for the hearing-impaired
- Translated speech to text, filtered the text, then generated sign language video and sentiment analysis in real time, using TKinter and Cohere
- **Highlights:** Received **1st Place Overall** at NSBE Hackathon 2023 and **Best Cohere Project**

Cervical Spine Fracture Detection **Feb 2023**

- Detected cervical spinal fracture from CT scans and predicted fracture location through segmentation masks, to reduce hospital wait time for patients
- Trained on real-world data from the T-CAIREM Health Data Nexus
- **Highlights: 1st Place Winner** at Toronto Health Datathon 2023

Deep Reinforcement Learning Indoor Farm Controller **Jun 2021**

- Implemented and trained a Deep Q-Learning Neural Network to autonomously control irrigation and indoor farm conditions to optimize plant growth, employing the experience replay memory technique
- **Highlights**: **Conference-published paper** and **Best Presenter** at the International Student Conference on Artificial Intelligence 2021, **National Finalist** at Ingenious Innovation Competition, **Top 5 Finalist** at BC Science Fair 2022

SKILLS

Programming Languages: Python, C/C++, HTML, CSS, JavaScript, Assembly, MATLAB
Frameworks & Tools: PyTorch, TensorFlow, NumPy, Pandas, Git, Colab, JOSM