

# Jason Wang

[jjh.wang@mail.utoronto.ca](mailto:jjh.wang@mail.utoronto.ca) | [linkedin.com/in/jason-jh-wang](https://www.linkedin.com/in/jason-jh-wang) | [github.com/wj-jason](https://github.com/wj-jason)

## EDUCATION

### University of Toronto

2027 Graduation

*BASc in Electrical & Computer Engineering, Minor in Artificial Intelligence*

*Toronto, ON*

- **89% Cumulative Average (3.95/4.0)**
- **Extracurriculars:** Machine Intelligence Student Team, Quantitative Finance Lab
- **Competitions:** Hack the Globe 2024, Clarke Student Design Challenge 2024, IEEE MakeUofT 2024
- **Awards:** First Year Research Fellowship (10 recipients of 1400 students)

## EXPERIENCE

### Distributed Systems Researcher

May 2024 - August 2024

*iQua Group - University of Toronto*

*Toronto, ON*

- Developing datacenter coflow routing algorithms for high-speed collaborative edge computing.
- Developed multithreaded application in C to simulate multicast network flows through unicast SDNs.
- Wrote high-speed network switches in C to route network traffic along mathematically optimized routes.

### Machine Learning Engineer

March 2024 - August 2024

*Aercoustics & UofT Machine Intelligence Student Team*

*Toronto, ON*

- Developing end-to-end multi-label audio transformer pipelines, looking to leveraging acoustic tokenizers to train SSL models via knowledge distillation.
- Created data processing modules in Python to parse SQLite databases and extract features from audio snippets.
- Optimized benchmark models by 70% through hierarchical classification motivated by poor class distribution.
- Developing lightweight hierarchical classification library in Python catered to Aercoustics use case.

### Machine Learning Researcher

April 2023 - Ongoing

*National Research Council of Canada & National Oceanic and Atmospheric Administration*

*St. John's, NL*

- Developed deep computer vision models using PyTorch to autonomously classify marine species resulting a conference abstract and journal paper (in progress).
- Improved accuracy by 165% in 1 week with iterative training, hyperparameter tuning, and data augmentation.
- Outperformed all other proof-of-concepts initiating further collaboration between NRC and NOAA.

### Co-founder & CTO

Sept 2022 - Ongoing

*LearnFreely*

*St. John's, NL*

- Co-founded educational charity based in St. John's NL offering educational support to over 50 students.
- Led team to develop generative AI tool to create customizable problem sets from a PDF scan of notes.

## SKILLS

**Languages & Tools:** C/C++, Python, PyTorch, TensorFlow, Hugging Face, Docker, Bash, Git, Linux, Javascript

**Concepts & Coursework:** Computer Vision, ML/AI, Linear Programming, Calculus, Linear Algebra, Topology

## SELECTED PROJECTS

### Lightweight Hierarchical Classification Library in Python | Hierarchical Classification

In progress

- Developing a lightweight hierarchical classification library in Python to be used for classification tasks with high label granularity and poor class distribution.
- Implementing support for hot swappable PyTorch and Tensorflow classifiers at each parent node.

### Deep Learning Framework with NumPy | Neural Networks From Scratch

June 2023

- Used NumPy to created a modular deep neural net framework from scratch.
- Documented mathematical derivations of forward pass, gradient descent, and all other relevant components.

### Topology Evolving Neural Networks in Python

June 2023

- Implemented a genetic topology and weight evolving artificial neural network to play Flappy Bird using Python using the NeuroEvolution of Augmenting Topologies (NEAT) algorithm.