

Hector Chen

Undergraduate Student, Prospective NLP Researcher

hectorchen0728@gmail.com | [linkedin.com/in/hector-chen-ch4/](https://www.linkedin.com/in/hector-chen-ch4/) | github.com/enahtem | enahtem.github.io

SUMMARY

Methodical programmer with a strong background in using Python for data science and machine learning. Deep, rigorous understanding of machine learning architectures. Experience in training, deploying, and evaluating AI models. Passionate about enhancing human knowledge and understanding with AI.

TECHNICAL SKILLS

Languages: Python, C, C++, JavaScript, MATLAB
Libraries: NLTK, Pandas, Matplotlib, spaCy
Frameworks: Scikit-learn, PyTorch, TensorFlow, Keras
Developer Tools: Git, Google Cloud Platform

EXPERIENCE

NLP Researcher

May 2024 – September 2024

Computational Linguistics, University of Toronto

Toronto, Canada

- Researching 'Sequential Knowledge Graphs of Fictional Literature'
- Allow writers to improve the structure and flow of their work by visualizing it in a sequential graph
- Uses spaCy, NLTK, scikit-learn, keras

Machine Learning Destriping Sub-Team

September 2023 – Ongoing

University of Toronto Aerospace Team

Toronto, Canada

- Developing a denoising machine learning model for hyperspectral datacubes for FINCH mission
- Field Imaging Nanosatellite for Crop residue Hyperspectral mapping (FINCH) mission projected to launch 3U CubeSat in Q4 2025
- Python, Tensorflow, PyTorch, MATLAB, Machine Learning, Convolutional Neural Networks

Data Science Teacher

June 2021 – September 2021

Coderlab

Toronto, Canada

- Taught data science methodology to grade 6-9 students in 8-week summer program
- Prepared weekly two-hour PowerPoint lessons with homework questions
- Data Science Methodology: Data Collection, Preparation, Modelling, Deployment
- NumPy, Pandas, Matplotlib, Scikit-learn, SAS

Software Developer

June 2019 – September 2019

Information Technology Solution Providers Inc.

Toronto, Canada

- Helped develop an interactive chatbot with speech recognition and synthesis
- Tested implementation on the company website
- Python, PyAudio, eSpeak, JSON, Chatbox

PROJECTS

Vector Bias | *Vertex AI, Gemini API, Google Cloud Platform, Flask, Node.js, React, Vite, HTML, CSS*

2024

- Created for Canada's largest AI Hackathon, GenAI Genesis
- Webapp that employs web scraping and connection Gemini API to analyze input links for bias
- Helps people navigate potential biases in the articles they read

NLP Sentiment Analysis | *NLTK, spaCy, regex, Recurrent Neural Networks*

2023

- Analyzes and classifies sentiment from textual data of Amazon reviews

Genetic Neural Networks | *Neural Networks, pygame, numpy*

2022

- Simulated environment of predator and prey creatures that uses sight lines passed through a neural network to calculate movements able to produce offspring and mutate.
- Inspired by Evolving AIs - Predator vs Prey, who will win?

EDUCATION

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| University of Toronto <i>Bachelor's of Applied Science, Engineering Science + PEY</i> | Toronto, Canada <i>September 2023 - April 2027</i> |
| Marc Garneau Collegiate Institute <i>High School Diploma, TOPS Program</i> | Toronto, Canada <i>September 2019 - June 2023</i> |
| University of Waterloo <i>Quantum School for Young Students Summer Program</i> | Toronto, Canada <i>August 2022</i> |

CERTIFICATIONS

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|---|----------------|
| Python NLP Certificate | September 2023 |
| Team Canada Gold in 2021 International Olympiad on Astronomy and Astrophysics | November 2021 |
| 1st Place in 5th Canadian Astronomical Olympiad | September 2021 |
| AP Physics C: Electricity and Magnetism (5) | May 2020 |
| AP Computer Science A (5) | May 2020 |
| AP Calculus BC (5) | May 2019 |
| AP Physics C: Mechanics (5) | May 2019 |
| CaYPT Asadi Lari Leadership Award | March 2019 |