


Axel Tang

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Education

University of Toronto

Master of Engineering (Emphasis on Data Analytics and Machine Learning)

2025 - Expected 2027

Toronto, Canada

- **Relevant Coursework:** Applied Deep Learning, Intro to Cloud Computing

University of Ottawa

Honours Bachelor of Science in Computer Science (GPA: 3.51 / 4.00)

2020-2024

Ottawa, Canada

- **Honours and Awards:** Dean's Honour List, International Merit Scholarship

Credentials

2025

Post Grad Certifications

Remote

- **Harvard Online:** Data Science for Business
- **Deeplearning.AI:** Machine Learning Specialist

Recent Work Experience

Sky Dream

Information Technology Instructor

Mar 2025 – May 2025

Hong Kong

- Provided coding and aviation related education to top elementary school students

Hong Kong General Chamber Of Commerce

Information Technology Intern – Software Development & Computer Vision

July 2024 – Aug 2024

Hong Kong

- Implemented a **motion detection** and **face recognition system** using **Python OpenCV contour detection**, enabling security camera monitoring.
- Used fuzzywuzzy algorithm to compare data from SQL database to extract abbreviated names.
- Re-designed intranet webpages with ASP.net & CSS and data entry into system.

InteractHealthPro

Software Developer Intern

Mar 2024 – June 2024

Canada

- Ensure smooth transition from one CMS system to another and improved operational efficiency by 95%

Academic Projects

Retrieval-Augmented Generation (RAG) Adaptive Chunking | Python, PyTorch, FAISS, Hugging Face

2025

- Implemented a **Retrieval-Augmented Generation (RAG)** pipeline using fixed-size chunking as a baseline and multiple **adaptive chunking strategies**.
- Integrated **FAISS vector database** and **Transformers** for dense passage retrieval and semantic search.
- Evaluated performance on **TriviaQA** and **NaturalQuestions**, analyzing retrieval quality and token efficiency.
- Achieved up to **17% improvement in retrieval relevance** and reduced token redundancy across test datasets.

Feedforward Neural Network Classifier | PyTorch, scikit-learn

2025

- Built and trained a **3-layer neural network (64-32-1)** using PyTorch for binary classification on synthetic datasets.
- Implemented full **forward/backward propagation** and optimized using the **Adam optimizer**, achieving **82+% accuracy**.
- Visualized **training/test convergence** and analyzed gradient behavior over 300 epochs.

Umple | Java, Internal Language: UML

<https://umple.org>

- Actively contributed to an open source project (**model-oriented programming tool**) with 1.78+ million visitors.
- Tasked with implementing and resolving **Java** and **Umple** issues while ensuring effective version control and **CI/CD pipeline**.
- Submitted multiple **Pull Requests**; such as extraneous bracket detection with **Regex** and **Batch Scripts** for Windows Development

Technical Skills

Frameworks: PyTorch, TensorFlow, Hugging Face, Scikit-learn

Tools: FAISS, Docker, Jupyter, Google Colab, Git

Concepts: Deep Learning, Neural Network, NLP, RAG, Information Retrieval, Adaptive Chunking