

Axel Tang

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Education

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| University of Toronto | 2025 - Expected 2027 |
| <i>Master of Engineering (Emphasis on Data Analytics and Machine Learning)</i> | Toronto, Canada |
| • Relevant Coursework: Applied Deep Learning, Intro to Cloud Computing | |
| University of Ottawa | 2020-2024 |
| <i>Honours Bachelor of Science in Computer Science (GPA: 3.51 / 4.00)</i> | Ottawa, Canada |
| • Honours and Awards: Dean's Honour List, International Merit Scholarship | |
| Credentials | 2025 |
| <i>Post Grad Certifications</i> | Remote |
| • Harvard Online: Data Science for Business | |
| • Deeplearning.AI: Machine Learning Specialist | |

Recent Work Experience

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| Sky Dream | Mar 2025 – May 2025 |
| <i>Information Technology Instructor</i> | Hong Kong |
| • Provided coding and aviation related education to top elementary school students | |
| Hong Kong General Chamber Of Commerce | July 2024 – Aug 2024 |
| <i>Information Technology Intern – Software Development & Computer Vision</i> | 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 | Mar 2024 – June 2024 |
| <i>Software Developer Intern</i> | Canada |
| • Ensure smooth transition from one CMS system to another and improved operational efficiency by 95% | |

Academic Projects

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|---|---|
| Retrieval-Augmented Generation (RAG) Adaptive Chunking <i>Python, PyTorch, FAISS, Hugging Face</i> | 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 <i>PyTorch, scikit-learn</i> | 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. | |
| Umpire <i>Java, Internal Language: UML</i> | https://umpire.org |
| • Actively contributed to an open source project (model-oriented programming tool) with 1.78+ million visitors. | |
| • Tasked with implementing and resolving Java and Umpire 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