

# ELLIOT SONES

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Personal Website

## EDUCATION

**Bachelor of Computer Science** Sep 2025 – Present  
*Toronto Metropolitan University* GPA: 3.7

**Bachelor of Commerce (1st year)** May 2024 – Sep 2025  
*Athabasca University*

## EXPERIENCE

**NTangible** July 2025-Present  
*Machine Learning - Work Study Project*

- Supporting the technical team on exploring real-world applications of AI/ML in sports psychology, combining technical development with performance analytics.

**AI<sup>2</sup> Reinforcement Learning competition** October 2025  
*University of Toronto*

- Developed a transformer-based model that encodes opponent strategies into a 256-dimensional embedding space, enabling reinforcement and unsupervised learning agents to map and adapt to any opponent strategy.

**Metropolitan Undergraduate Engineering Society Hackathon** October 2025  
*1st place - Across Greater Toronto Area*

- Built and hosted a full-stack JavaScript web app with an interactive drawing canvas that converts sketches into playable worlds, featuring real-time multiplayer drawing via Supabase Realtime WebSockets.

**10 day Pond Hackathon** July 2025  
*Educational Interactive Crypto Literacy Platform*

- Built and deployed an interactive learning platform that received 20,000+ votes during the competition.

**Professional Academy Soccer Player** Aug 2023 – May 2024  
*Lank Vilaverdense Soccer Club (U19)* Vila Verde, Portugal

- Developed high-performance discipline, focus, and teamwork through professional training and competition.

## PROJECTS

**Neural Networks Classifier — MLP, CNN, RNN** | *Source + Demo* Python (NumPy)  

- Convolutional Neural Network:** Stride-1 convolutional network for paired-MNIST (00-99) using label smoothing and gradient clipping — reached **90% dev accuracy** without libraries.
- Multi-Layered Perceptron:** Fully-connected classifier for MNIST (60k/10k) with ReLU, He init, AdamW, L2, and dropout — achieved **97% test accuracy** without libraries.
- Recurrent Neural Network:** 2-layer bidirectional GRU with Google Quick, Draw! stroke sequences — **91% top-1 / 98.6% top-3** validation accuracy.

**Machine Translator (Transformer Model)** | *Source + Demo* Python (NumPy)  

- Built from scratch a encoder-decoder transformer-based sequence-to-sequence model for neural translation.
- Implemented custom multi-head attention, token embeddings, and positional encoding mechanisms.

**Educational Lesson platform (Pond Hackathon)** | *Source* Next.js | FastAPI | Python | SQL | Google Cloud  

- Developed a full-stack learning platform delivering AI-personalized crypto education using FastAPI and Next.js.
- Architected a modular microservice backend with scalable infrastructure and integrated user progress tracking.

## CERTIFICATES & COURSEWORK

**Machine Learning Certificate** NumPy | scikit-learn | TensorFlow  
*Coursera - Stanford Online and DeepLearning.AI*

- Project base learning: Supervised learning; Advanced learning algorithms; Unsupervised learning; Recommenders; Reinforcement learning.

**Python for Everybody Certificate** Web Scraping | SQL | DB cleansing/processing  
*Coursera - University of Michigan*

- Python data structures; Web scarping; SQL ; Data retrieval, processing, and visualization.

**Front-End Dynamic Websites Courses** JavaScript | HTML5 | CSS3  
*Coursera - University of Michigan*

## TECHNICAL SKILLS

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**Languages:** Python, JavaScript, TypeScript, HTML5/CSS3, SQL

**Frameworks & Libraries:** React, Next.js, FastAPI, NumPy

**Developer Tools:** Git, Google Cloud Platform, Supabase

**Core Concepts:** LLM integration, Semantic Search, JWT Authentication, Data Processing

## LANGUAGES

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**Canadian and French citizen, fully bilingual (English and French)**