Hei Shing (Hayson) Cheung

https://haysonc.github.io/My_Website/

Education

University of Toronto Sept. 2024 – Present
Bachelor of Applied Science in Engineering Science - GPA: 3.73 *Toronto, ON*

Relevant Experience

Yannes Solution Ltd. Jun. 2024 – Aug. 2024
Engineering Intern *Hong Kong*

- Developed a Python-based system using **OpenCV** and **TensorFlow** to organize and process on-site images, optimizing project documentation and tripling document processing speed..
- Designed an efficient pipeline for installing client- and equipment-end software, doubling installation speed and reducing costs for the installation of 500+ CCTV Cameras

University of Toronto Machine Intelligence Student Team (UTMIST) Jan. 2025 – May 2025
Academic Lead *Toronto, ON*

- Led weekly paper-reading sessions on LSTMs, Encoder-Decoder models, and Transformers, improving team knowledge for 10+ members.
- Developed an LSTM Encoder-Decoder model in **TensorFlow** for Neural Machine Translation, demonstrating sequence-to-sequence learning using CUDA-based machine learning
- Optimized RL infrastructure applying **PyTorch** and **SB3** to create high-performing agents, gaining experience in large projects and **object-oriented programming** (OOP) development.

Projects and Awards

MapMatch

- Developed a backend algorithm to analyze roommate descriptions by extracting keywords and assessing compatibility using the **AWS Titan API**, enhancing the roommate-matching process.
- Improved matching efficiency and accuracy, streamlining the process of pairing roommates with similar preferences and habits, and featured the project for potential deployment at UofT.
- Utilized a robust development pipeline, leveraging **AWS**, **Python**, and **NLP techniques** to optimize backend performance and ensure scalability.

Krackle

- Implemented a CNN AI algorithm and compute eigenfaces to analyze emotions, enhancing responsiveness.
- Deployed AI models through **TensorFlow** and **Flask**, enabling real-time emotion detection via web applications.
- Full-stack development pipeline for integration of AI models with user interfaces, ensuring optimal user experience and model performance.

Smash Bros. RL Agent Project

- Developed a reinforcement learning agent for a Smash Bros.-style platformer game using **rPPO**, **NEAT**, and **Stable-Baselines3** for policy optimization and agent training.
- Implemented a recurrent neural network using **RecurrentPPO** from **SB3**, combining **LSTM** with reinforcement learning to improve agent decision-making.
- Used **NEAT** for evolving network topologies, allowing the agent to adapt and improve its performance across various competitive scenarios.

ESROP-Global Scholarship Jan. 2025
Machine Intelligence Research *Bangkok, Thailand*

- Awarded a $3,500 scholarship from UofT for a research position in KMUTT, thailand, focusing on machine intelligence with an emphasis on neural networks and robotics.

Node-Based Machine Learning Model Builder Nov. 2024 – Present

- Developed a **Django** app to automatically generate relevant machine learning script templates based on user-defined pipelines.
- Built script builders for creating **PyTorch** models and statistical machine learning models, streamlining the model-building process.
- Optimized the application for scalability and ease of use, enabling users to quickly implement and test custom machine learning models.

+1 (647) 894-4228 | hayson.cheung@mail.utoronto.ca