Richard Huang

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Education

McGill University **Expected Graduation: May 2027**

Major in Computer Science 3.5 GPA

Technical Skills

Programming Languages: Javascript, Typescript, SQL, GraphQL, Ruby, Python, Java, C#, C++, C

Frameworks/Tools: Git, Jest, Flask, Pytorch, Grafana, Unity, Pandas, NumPy, Pygame

Skills: Frontend Development, Fullstack development, Automated Testing, Deep Learning, Reinforcement Learning (RL), Game Development, Artificial Intelligence, Data Structures and Algorithms, Object-Oriented Programming (OOP

Work Experience

Shopify – Fullstack Engineering Intern **Jan 2025 – Aug 2025**

- Contributed to the migration of Shopify's customer checkout systems, impacting **1M+ daily transactions**
- Developed and shipped **20+ React/TypeScript components** reaching **500k+ monthly active users**
- Implemented real-time event tracking for **40+ critical user actions**, leveraging **Kafka** data pipelines to measure engagement across **2M+ monthly sessions**
- Created **5 dashboards** to surface engagement metrics, leveraged weekly by **10+ designers, PMs and engineers**
- Implemented **100+ automated tests**, improving product reliability and reducing regression issues
- Collaborated with **designers, PMs, and senior engineers** across **4 product teams**, aligning technical implementation with product goals and accelerating delivery timelines by over **20%**

Projects

Multi-Agent Reinforcement Learning Maze Explorer **August 2024**

- Trained agents to traverse randomly-regenerated 2D mazes rendered with **Pygame** using **Proximal Policy Optimization (PPO)**, resulting in a 99% exit rate.
- Created dynamic sized **neural networks** with single-headed **self-attention mechanisms** using **Pytorch**.
- Improved upon the PPO baseline with implementations of **mini-batch updates**, **learning rate annealing** and **generalized advantage estimation**.
- Optimized the performance of RL agents through **hyperparameter tuning** and **reward shaping**.
- Extracted agent observations under **partial observability**, mimicking the sensory systems of humans or robots.
- Trained a **multi-agent** system using **Centralized Training with Decentralized Execution**.

Deep Q-Learning Pong Agent **July 2024**

- Trained agents to play the game of Pong using neural networks created from scratch with **NumPy**.
- Implemented the **Deep Q-Learning** algorithm, including **experience replay** and **target networks**.
- Created an accurate Pong model using **Pygame**, enabling agents to interact with the environment and gather useful observations.

Unity Game Resume **May 2024**

- Designed an interactive game using the **Unity** game engine, allowing users to explore and interact with an environment serving as a display of my own projects.
- Used **C#** for **Unity Scripting**, implementing game mechanics, interactions, and object behaviors.
- Implemented core **management game objects** such as menu managers, music managers and dialogue managers, ensuring readable and organized game creation.