

# Kaden Seto

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## EDUCATION

### University of Toronto

*Bachelor of Applied Science (BASc, Engineering Science)*

Toronto, ON

Sep 2024 - 2029

## TECHNICAL SKILLS

**Languages:** Python, Java, JavaScript/TypeScript, C++, MATLAB, HTML/CSS, C

**Developer Tools:** Git, Visual Studio Code, Jupyter Notebooks, Node.js, Firebase, Android Studio, IntelliJ, CLion

**Libraries:** Pandas, NumPy, Matplotlib, Keras, scikit-learn, Gymnasium & SB3, Tensorflow, PyTorch, JavaFX, Next.js

## EXPERIENCE

### Reinforcement Learning Lead Academic Developer

Nov 2024 - present

*University of Toronto Machine Intelligence Student Team (UTMIST)*

*Toronto, ON*

- **Directing** a team of developers to design UTMIST's RL tournament/hackathon for **300+ participants**, and applying **engineering design concepts** to ensure the team understands the scope and timeline of the project
- Researching RL libraries (**SB3**) to develop a custom **multi-agent RL training process** for **self-play PPO** framework that is **simple-to-use** and easily implementable for beginner participants
- Developing a custom platform-fighting game **MARL environment** using **Pygame** and **Pymunk**, designing UI and **Finite State Machines** to handle game logic
- Selected as **one of two 1<sup>st</sup>-year** students ever to be a **project lead**

### FTC Robotics Team Programming Lead

Sep 2022 - Jun 2024

*St. Augustine Catholic High School*

*Markham, ON*

- **Led** a team of **7 programmers** to complete missions in FTC, representing the team in judging presentations. **Qualified** to compete in FTC's **Ontario Provincial Tournament** for two years
- Developed **PID Encoders** for both straight autonomous movement and turning, allowing the robot to accurately reach target positions and **odometry movement** using FTC's RoadRunner library for **trajectory planning**
- Trained **custom object detection models** using **OpenCV** and FTC's **Tensorflow object detection** library to capture videos to create a dataset of images of the custom object in different environments (i.e. adjusting object's orientation, lighting, & backgrounds) to train the model with.

### App Development Team Backend Developer

Sep. 2023 – Jun 2024

*St. Augustine Catholic High School*

*Markham, ON*

- Developed app functionalities in **Typescript** and **Firebase**, integrating **notification functionality** into the app for **1000+** students

## PROJECTS

### OtakuNet (ML) | *Python, NumPy, Matplotlib, Pandas, Tkinter*

Aug 2024 – Sep 2024

- Trained a **content-based recommender system** to recommend animes based on the genres users rate
- Developed a custom **neural network framework from scratch** (i.e. methods such as **back-propagation** and **Adam** made from scratch), only using **NumPy** for linear algebra operations
- Developed **data engineering techniques** such as **Bayesian Ratings** and **normalization** from scratch and applied them to the dataset. Used **Pandas** to organize data and perform data preprocessing tasks

### Mortal Kombat | *Java/Java Swing, Game Development, Object Oriented Programming (OOP)*

June 2024

- Developed a **real-time socket-networked** multiplayer Mortal Kombat game, which can be played between two devices that are connected to the same Wi-Fi
- Engineered an **organized** and **structured** folder structure using **OOP** and **Model-View-Controller (MVC)**
- Utilized Java Swing to create **custom animations**, such as attacks and special moves, and developed hitbox logic

### Honami Ichinose Bot | *Javascript, Backend Development*

Oct 2023 - Nov 2023

- Developed a **Discord Bot** in **Javascript** using *discord.js* API
- Implemented and developed **Spotify music functionalities** into the Discord Bot, utilizing **JSON** to make responses and requests with **Spotify's Web API**. Functions such as playing songs and artist and automatically adding and removing songs from queue whenever new songs are played
- Designed a **Task Manager system** that users can use directly from Discord. Tasks can be easily added, removed, and viewed simply through typing commands on the Discord chat