RL vs Deep-RL in a Games Application

## Introduction

### RL and Deep-RL

Agent-Environment interaction

Q-learning

Rainbow

### Mariokart Wii

Emulator

Restrictions

Choices

## What I have done

### Emulator

RL

Environment

Agent

Training

Parameter Tuning

Deep-RL

Environment

Socket setup

Frame processing

Agent – adapted version based on (https://github.com/benjaminjmiddleton/mkw\_ai\_env/blob/main/README.md)

## What I have to show

Agent running with Q-Learning

Graph with x = episode, y = (episode length, reward)

## How it works

What happens each frame

## Evaluation

Value-based evaluation – reward

Time-based evaluation – total frames

Data processing of logs

## Next steps

State-space alterations – less accurate but quicker learning