CAP5625 - Introduction to AI

Project 2: Reinforcement Learning for Aiming

Part 3: Deep Q-Learning

Task:

In the previous part of the project, you have implemented the Q-Learning algorithm to develop the Q-table. For most problems, it is impractical to represent the Q-function as a table containing values for each combination of state and action. Because of that, in this part, you have to train a Deep Q-Network agent.

Submission:

- Submit your training and testing code
- Submit a video that shows mixing of the objects after you run your code
- Submit a .txt file that contain the log of the training, including the accumulated rewards for each episode, TD errors for each DQN update
- Submit a .txt file with the following result:
    - How many times the objects were mixed successfully in 100 trials when using your agent trained on Deep Q-learning and how long they took.

This part of the project is worth 40% of your project's grade.