Banana-Collector

Navigate to collect Bananas : This is first project for Udacity Deep Reinforcement Learning Nanodegree.

Objective:

Objective is to Collect Yellow bananas and avoid Blue bananas. There is +1 reward for a yellew banana and -1 is given as penalty if a blue banana is collected.

Environment:

The state space has 37 dimensions and contains the agent's velocity, along with ray-based perception of objects around agent's forward direction.

Permissible Actions:

0 - Up

1 - Down

2 - Left

3 - Right

Episodic Task:

The agent has to learn how to best select actions. To complete the task, agent needs an average score of +13 over 100 consecutive episodes.

Notebook Structure:

Install Packages
Examine the State and Action Spaces
Define QNetwork
Define Agent
Define DQN
Save Model Weights

Plot Rewards

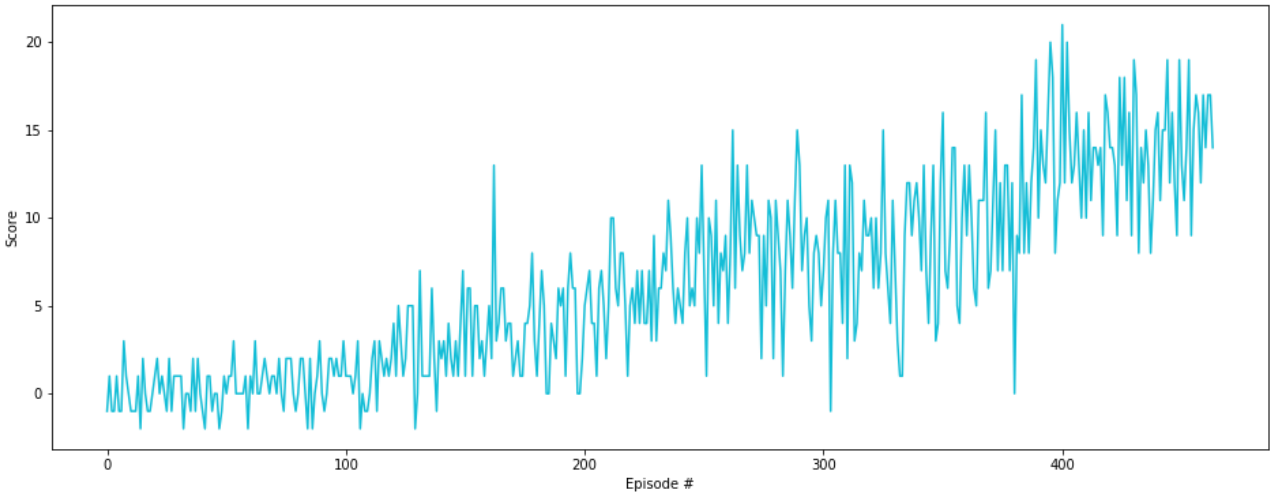
Plot Actions

Plot Environment States

Close Environment

Reward Plot:

The Agent is able to secure an average score of +13 over 100 consecutive episodes in 464 episodes.



Extra Task:

To to get average +16 over 100 consecutove tasks: Agent is able to solve in about **1188** episodes.

Idea for Future Work:

- Tune Hyperparameters
- Try Learn from Pixels

Github Link:

https://github.com/kathakali/Banana-Collector