Deep Q-Network Ping Pong Agent
02456 - Deep learning

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2019 November 6

1 Introduction

Learning from errors is something everyone can relate to. Reinforcement learning consists of an "agent" utilizing the concept of a system of reward and penalty or make the agent learn by itself. This will teach the agent to maximize a reward given by doing a "right" action and less frequently doing a "wrong" action that would penalize the agent. Thus, the agent will hopefully be able to perform precise and consistently when dealing with its intended purpose.

From these concepts the purpose of this project is to create a self learning agent that can play the game Pong versus the computer and put up a great fight.

2 Motivation

Creating an AI-agent that can play the game of Pong can inspire other people to come up with different problems that reinforcement learning might be able to solve. Additionally, it is fun to implement artificial intelligence into the game of Pong.

3 Objectives

We have set up a list of goals we would like to achieve in this project:

- Setting up reward system for agent

- Implement a network that learns from images to play Pong

- Decrease training time (Scale images, Grey scale images)

- Have an agent that can outplay the computer 9/10 times

Hopefully this list will be accomplished by the end of the project.