Assignment 4, Applied ML

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1 Your Challenge

Your mission is to train a computer to play an Atari video game, other than Breakout, of your choosing using the tf_agents python package. I will rank your submission by combining two factors:

1. The performance it achieves in playing the game, as roughly determined by watching your network play as well as measuring the reward it earns.
2. The relative level of difficulty of the game you select as measured by its position in Figure 3 of `https://homl.info/dqn2`.

2 Training and Testing your Learning Agent

You will use a game simulator from the open AI gym to train and test your algorithm. The *Breakout* example from Chapter 18 and its notebook `https://github.com/ageron/handson-ml2/blob/master/18_reinforcement_learning.ipynb` may be helpful.

3 What you must submit

You will upload to bblearn a file assignment4.zip or assignment4.tgz containing the following files

1. buildAndTrainAgent.py – Code which builds and trains your model, then saves it, and creates an animated gif of it playing your game. It should both
   (a) save the policy (eval_policy) using the PolicySaver class so that the agent you learned can be used elsewhere, and
   (b) save the model using tf.train.Checkpoint to enable resuming training later.
2. myAgentPlays.gif – An animated gif of your agent playing the selected game.
3. lastModelCheckpoint The last saved checkpoint model.
4. savedPolicy The saved policy from PolicySaver.
5. resumeTraining.py – Code which demonstrates loading your saved checkpoint model and resuming training.
6. deployGamePlayer.py – Code which demonstrates loading your saved policy and playing the game using it.