Assignment 12

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-04-22, 23:59 IST.

1) As discussed in the lecture, most of the classifiers minimize the empirical risk. Which among the following is an exceptional case?
   - Perception learning algorithm
   - Artificial Neural Network
   - Support Vector Machines
   - Both (a) and (b)
   - None of the above

No, the answer is incorrect.
Score: 0
Accepted Answers: Support Vector Machines

2) In the context of Reinforcement Learning algorithms, which of the following definitions constitutes a valid Markov State? (multiple options may be correct)
   - For Chess: Positions of yours and the opponent's remaining pieces
   - For Tic-Tac-Toe: A snapshot of the game board (all Xs, Os and empty spaces)
   - For Chess: Positions of your pieces and the identities of the opponents defeated pieces.
   - For Tic-Tac-Toe: Positions of the ball

No, the answer is incorrect.
Score: 0
Accepted Answers: For Chess: Positions of yours and the opponent's remaining pieces
For Tic-Tac-Toe: A snapshot of the game board (all Xs, Os and empty spaces)

3) You are designing a Reinforcement Learning agent for a racing game. Among the following reward schemes, which one leads to the best performance of the agent?
   - +5 for reaching the finish line, -1 for going off the road
   - +5 for each time that passes before the agent reaches the finish line
   - +5 for reaching the finish line, -0.1 for each second that passes before the agent reaches the finish line, +1 for the agent going off the road.
   - +5 for reaching the finish line, -0.1 for each second that passes before the agent reaches the finish line

No, the answer is incorrect.
Score: 0
Accepted Answers: +5 for reaching the finish line, -0.1 for each second that passes before the agent reaches the finish line

4) Suppose we want an RL agent to learn to play the game of golf. For training purposes, we make use of a golf simulator program. Assume that the original reward distribution gives a reward of +10 when the golf ball is hit into the hole and -1 for all other transitions. To aid the agent's learning process, we propose to give an additional reward of +3 whenever the ball is within a 1 metre radius of the hole. Is this additional reward a good idea or not? Why?
   - Yes, the additional reward will help speed-up learning.
   - Yes, getting the ball to within a metre of the hole is like a sub-goal and hence, should be rewarded.
   - No, the additional reward may actually hinder learning.
   - No, it violates the idea that a goal must be outside the agent's direct control.

No, the answer is incorrect.
Score: 0
Accepted Answers: No. The additional reward may actually hinder learning.

5) You want to toss a fair coin a number of times and obtain the probability of it falling on it's heads by taking a simple average. What is the estimated number of times you'll have to toss the coin to make sure that your estimated probability is within 10% of the actual probability, at least 90% of the time?
   - 400
   - 800
   - 200

No, the answer is incorrect.
Score: 0
Accepted Answers: 200

6) You face a particularly challenging RL problem, where the reward distribution keeps changing with time. In order to gain maximum reward in this scenario, does it make sense to stop exploration or continue exploration?
   - Stop exploration
   - Continue exploration

No, the answer is incorrect.
Score: 0
Accepted Answers: Continue exploration