Audit Access Expires May 25, 2020
You lose all access to this course, including your progress, on May 25, 2020.

5. Parameter Tuning

Effects of adjusting epsilon

0 points possible (ungraded)
Ungrading Note: The problem is now ungraded because there has been a lot of confusion.

In this question, you will investigate the impact of ε on the convergence of Q-learning algorithm. Which of the below do you observe from running the algorithm?

Generating Speech Output

- [x] For very large ε (say $\varepsilon = 1$), the algorithm converges slower compared to $\varepsilon = 0.5$
- [ ] For very large ε (say $\varepsilon = 1$), the algorithm converges faster compared to $\varepsilon = 0.5$
- [ ] For very small ε (say $\varepsilon = 0.00001$), the algorithm converges slower compared to $\varepsilon = 0.5$
- [x] For very small ε (say $\varepsilon = 0.00001$), the algorithm converges faster compared to $\varepsilon = 0.5$

✔

Solution:

A large value of ε means exploring more (randomly), not using much of what we have learned. A small ε, on the other hand, will generate experience consistent with the current estimates of Q-values, but will explore less. For this toy task, however, the state space is small enough that random initalization is enough to induce diversity in the experience collected.

Submit You have used 1 of 3 attempts

Answers are displayed within the problem

Effects of alpha

0 points possible (ungraded)

In this question, you will investigate the impact of α on the convergence of Q-learning algorithm. Fix the exploration parameter $\varepsilon = 0.5$ and do the experiments with different values of the training $\alpha \in [10^{-6}, 1]$. What you have observed?

Generating Speech Output

- [ ] The algorithm converges for all values of α in less than 200 epochs
- [x] The algorithm does not converge for all values of α in less than 200 epochs ✔
- [x] The smaller α, the slower the convergence ✔
- [ ] The smaller α, the faster the convergence

✖

Solution:

For large values of α, learning is too instable. For small values of α, learning is too slow.

Submit You have used 3 of 3 attempts

Answers are displayed within the problem

Discussion

Hide Discussion

Topic: Unit 5 Reinforcement Learning (2 weeks) :Project 5: Text-Based Game / 5. Parameter Tuning

Add a Post

Show all posts by recent activity

? [STAFF] Is the grader wrong on the effects of alpha? 8
Based on charts generated for alpha=0.00010, alpha=0.00005 and alpha=0.00001 (all running...

? Effects of alpha : I ticked the two obvious options, but is marked incorrect. 3

Generating Speech Output

Hints on how to easily perceive the change of Performance

Community TA

1

Effects of alpha

I don't understand the answer for this question... what is the meaning of "too instable"? how ...

2

Generating Speech Output