edX

5. Temperature

We will now explore the effects of the temperature parameter in our algorithm.

You will be working in the files `part1/main.py` and `part1/softmax.py` in this problem

Effects of Adjusting Temperature

0.0/1.0 point (graded)

Explain how the temperature parameter affects the probability of a sample $x^{(i)}$ being assigned a label that has a large θ. What about a small θ?

☐ Larger temperature leads to less variance

☑ Smaller temperature leads to less variance ✔

☑ Smaller temperature makes the distribution more uniform

✖

Solution:

Smaller temperature parameter means that there is less variance in our distribution, and larger temperature, more variance. In other words smaller temperature parameter favors larger thetas, and larger temperature parameter makes the distribution more uniform.

| Submit | You have used 3 of 3 attempts |

ℹ   Answers are displayed within the problem

Reporting Error Rates

2.0/2.0 points (graded)

Set the temperature parameter to be 0.5, 1, and 2; re-run `run_softmax_on_MNIST` for each one of these (add your code to the specified part in **main.py**).

$\text{Error}\big|_{T=0.5} =$ | 0.08399999999999996 | ✔ **Answer:** 0.084

$\text{Error}\big|_{T=1} =$ | 0.10050000000000003 | ✔ **Answer:** 0.1005

$\text{Error}\big|_{T=2} =$ | 0.1261 | ✔ **Answer:** 0.1261

| Submit | You have used 1 of 20 attempts |

ℹ   Answers are displayed within the problem

Return the `temp_parameter` to be 1 before moving on to the next section.

Discussion

Add a Post

Hide Discussion

Topic: Unit 2 Nonlinear Classification, Linear regression,
Collaborative Filtering (2 weeks):Project 2: Digit recognition (Part
1) / 5. Temperature

Show all posts   by recent activity

☑	**Calculation with temperature = 0.5** Hello, Nobody seems to have precision problems, I get error results of this kind 0.0xxx00000...	6
?	**not sure if i understand the function of temperature parameter** Higher temperature should make the probabilities more uniform, but why it is done? We are ...	6
?	**where to add what code for error rates?** I got the answers correct by changing tempparameter where it was required, but I still have t...	2
?	**Effects of Adjusting Temperature** I am a little bit confused here. I understand that larger temperature will make the distributio...	7
💬	**Memory Error** Somehow can't run Softmax without getting "Memory error" so it is imposible to get this que...	6
?	**PyCharm question** I'm struggling a bit with the IDE, trying to get my head around the quirks and features. Questi...	6
💬	**[STAFF] Memory error on softmax** How do we go on with the project?	2

Learn About Verified Certificates

2020-03-25, 7:31 p.m.