



Take Test: Problems 4 - 7

Remaining Time: 06 minutes, 15 seconds.

⌵ **Question Completion Status:**

attachment and use the data therein (the data can be embedded into an Excel spreadsheet for convenience

Timed Test This test has a time limit of 30 minutes. You will be notified when time expires, and you may continue or submit. Warnings appear when **half the time, 5 minutes, 1 minute, and 30 seconds** remain.

Multiple Attempts This test allows 3 attempts. This is attempt number 1.

Force Completion Once started, this test must be completed in one sitting. Do not leave the test before clicking **Save and Submit**.

This test does not allow backtracking. Changes to the answer after submission are prohibited.

⚠ Moving to the next question prevents changes to this answer.

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Question 3

15 points

Save Answer

Andy Analyst wants to increase the probability of reconstructing the visible vector $[0,1]$ without changing any of the weights. He has decided that his best approach would be to modify the visible layer biases. Using the method of steepest ascent where $\eta = 1$, he has defined what a change in the bias values should be using the expression below.

$$\Delta a_i = \eta \frac{\partial \ln p(\mathbf{v})}{\partial a_i}$$

Derive a proper expression based on Contrastive Divergence. Using the attached spreadsheet data, calculate the change in the bias value of visible layer node 1, that is, determine the value Δa_1 based on the equation above in order to increase the probability of the visible vector $[0,1]$? Answer to 4 significant decimal places.

⚠ Moving to the next question prevents changes to this answer.

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