622 Quiz

This Quiz Will Be Submitted In Thirty Minutes

This is a preview of the published version of the quiz

Started: Jan 20 at 5:33pm

Quiz Instructions

This quiz will cover the perceptron. This quiz will take 10-15 minutes to complete. You have been given 30 minutes in case of technical difficulties. The questions are set up as essay questions so you can type into the box, use equations, and upload images directly into the essay.

Question 1 — 5 pts

Run the perceptron algorithm on the following data and give the final weights and bias.

#	x_1	x_2	y
1	-1	-1	-1
2	-1	1	-1
3	1	-1	-1
4	1	1	1

just indicates the sample number. x_1 and x_2 are the features and y is the label.

Question 2 — 3 pts

The above perceptron did not take very many epochs to converge. This perceptron also represents the AND logical function. (Plot the data above if you're not convinced.) Another way to represent the AND function is with the data below:

#	x_1	x_2	y

1	0	0	-1
2	0	1	-1
3	1	0	-1
4	1	1	1

Training a perceptron on this data take 8 epochs to converge. Why do you think there is such a big difference between the training time for the two datasets if they represent the same function?

Question 3

2 pts

Given a trained perceptron with $w = \begin{pmatrix} 1 \\ -2 \\ 3 \end{pmatrix}$ and $b = -1$, which of the following points lies on the decision boundary?

1. $(-5, 0, 2)$
2. $(3, 2, -1)$

Not saved

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