Review Test Submission: Quiz 8.1

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Course	EN.605.647.81.SP21 Neural Networks
Test	Quiz 8.1
Started	3/22/21 7:50 PM
Submitted	3/22/21 7:51 PM
Due Date	3/23/21 11:59 PM
Status	Completed
Attempt Score	17 out of 17 points
Time Elapsed	0 minute
Instructions	You should complete this quiz after viewing the recorded lectures 8.1 and 8.2.
Results Displayed	Submitted Answers, Feedback, Incorrectly Answered Questions

Question 1

4 out of 4 points

If one wanted to incorporate a bias in a recurrent network, then the appropriate matrix/vector representation of the dynamical system in such a network is given by:

Selected Answer: $x_{k+1} = F_h [Wx_k + \theta]$ where $\theta^T = (\theta 1, \theta 2, \ldots, \theta n)$

Response Feedback: Correct. Excellent choice!

Question 2

3 out of 3 points

In a recurrent neural network of size *n* with no self-connections and where each arc connects two nodes in both directions (the connections are symmetric), there are how many connections?

Selected Answer: $n(n-1)/2$

Response Feedback: Correct.

Question 3

3 out of 3 points

Hebbian Learning refers to

Selected Answer: the notion that a neuron is affected by nearby neurons and attempts to form a cooperative or reinforcement function for those nearby neurons.

Response Feedback: Correct. You got it!

Question 4

3 out of 3 points

In Hebbian networks, or recurrent neural networks with binary state values, the weight matrix formed by the outer product of an exemplar creates an n x n matrix where n is the size of the exemplar vector. The operation that zeros out the diagonal elements is necessary because

Selected Answer: This prevents self-reinforcement of a node's state.

Response Feedback: Correct.

Question 5

2 out of 2 points

The hard limiting function applied to the result of the multiplication of the weight matrix and the state column vector where this vector is comprised of binary values maps the vector entries to either a 0 or a 1.

Selected Answer: True

Response Feedback: Correct.

Question 6

2 out of 2 points

In a Hebbian recurrent neural network heat death occurs because

Selected Answer: the network provides either reinforcement or the lack of reinforcement.

Response Feedback: Correct.

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