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SCS 3030 Big Data Tools and Techniques: Mining Financial, Operational and Social Networks Data Assignment 08

1. The author dislikes the term multilayer perceptron even though it’s often used to refer to a modern neural net. Why is the term actually misleading or wrong?  
     
   The author dislikes the term and finds it misleading or wrong because this multilayer perceptron is made up of sigmoid neurons and not perceptron neurons.
2. If the neural net didn’t have the property that a small change in inputs results in a small change in outputs, why would it make training difficult?

If the neural net didn’t have this property, it would make it difficult because in this case a small change in the weight or bias will flip the output of the perceptron and this flip can change the behaviour of the network in the subsequent layer of the neural net.

1. Define the following:
   * Epoch is a measure of the number of times all of the training vectors are used once to update the weights.
   * Hyper-parameters are global parameters that are defined prior to the machine learning.
   * deep neural net are networks that consist of multiple hidden layer, that is a layer of perceptron that answer simple question and many layer that follow that are more complex and abstract.
2. Every time you start over and run the IPython notebook from the beginning the images produced by net.show\_weights() are completely different. Why is that?  
     
   Every time you run over the Ipython notebook codes, the images produced by net.show\_weights() are completely different because the weights and the bias are generated at every epoch from a random distribution. Thus, the learning and the output would be different.