Exercise 1

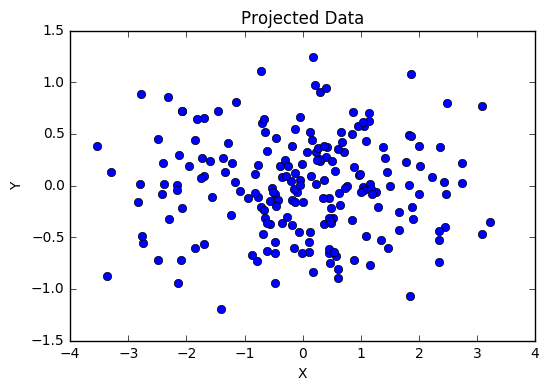
Hou, Jue

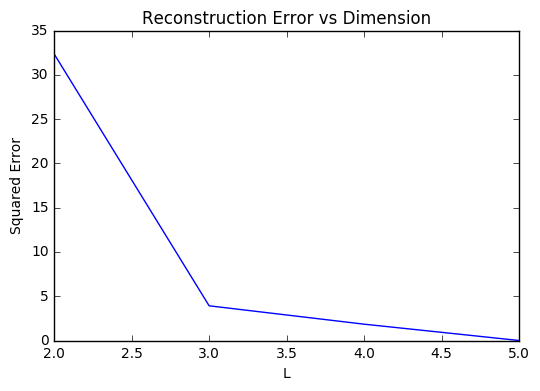
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1. Background
   1. Introduction to Machine Learning, Probabilistic model
   2. Statistics: 4
   3. Linear Algebra: 4
   4. I am interested in machine learning and would like to learn more.
   5. I hope to learn some more machine algorithms and have chances to actually implement some of them. Besides all the definition and algorithm, I would like to see some example of neural network.
2. Expectations
   1. ,

, Therefore,

1. Eigen-value decomposition
   1. N=200, D=5
   2. Eigen value = (2.01264957, 0.22286198, 0.14290211, 0.01042867, 0.00925912)





From the plot above, we can notice that the error rate is relatively high when L=2. When L=5, there is no error but no reduction at all as well. I think we can choose L=3 in this case if we actually want to reduce the dimension of original data. It not only has a lower dimensionality but also a reasonable error rate can be obtained if compared to other situations.

1. Derivatives, gradients and all that

Estimated Completion Time: 3 hours