

Columbia University  
IEOR4742 – Deep Learning for OR & FE (Hirsa)  
Assignment 2 – Due 8:40 am on Thursday Oct 24th, 2019

**Problem 1 (Convolutional Neural Networks):** In the sample code code *example\_CNN.jpynb*

- (a) what is the number of parameters we are trying to learn?
- (b) add one more convolutional layer with max pooling and assess the impact of one extra convolutional layer on accuracy

**Problem 2 (Batch Normalization):** In the sample code code *example\_CNN\_Batch\_Normalization.jpynb*, what is the impact of batch normalization on learning (speed & accuracy)?