EE239AS, Winter 2018 **Homework #4**
Neural Networks & Deep Learning Prof. J.C. Kao
University of California, Los Angeles; Department of ECE TAs: T. Xing & C. Zheng

Due Wednesday, 14 Feb 2018, by 11:59pm to Gradescope.
100 points total.

1. (35 points) **Implementing different optimizers for a fully connected network.** Complete the Optimization.ipynb Jupyter notebook. Print out the entire workbook and relevant code and submit it as a pdf to gradescope. Download the CIFAR-10 dataset, as you did in HW #2 and #3. optim.py

2. (35 points) **Implementing batch normalization for a fully connected network.** Complete the Batch-Normalization.ipynb Jupyter notebook. Print out the entire workbook and relevant code and submit it as a pdf to gradescope. layers.py, layer_util.py, fc_net.py

3. (30 points) **Implementing dropout for a fully connected network, and optimizing it.** Complete the Dropout.ipynb Jupyter notebook. Print out the entire workbook and relevant code and submit it as a pdf to gradescope. layers.py, fc_net.py