

## EE 526X Deep Machine Learning: Theory and Practice — Homework 3

Assigned: 10/11. Due: 10/18

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### Problem 1.

- (a) Use Tensorflow to construct a computation graph that performs training and prediction for the MNIST dataset, with the following specifications:
  - (i) Single layer, 10 neurons, softmax + cross entropy objective function.
  - (ii) Three layers, [(50, ReLU), (50, ReLU), (10, Linear)], softmax + cross entropy objective function. Use Stochastic Gradient Descent with minibatch size of 500.
- (b) Use Keras (either plain Keras or tf.keras from Tensorflow 2.0) to redo the above two exercises.

Submit your final codes. Report both training and testing errors for different number of iterations.

Note that you cannot take code verbatim from the Internet and submit it as your own code. Any code you used from others (including from online sources) should be clearly indicated, with the source of code given.

END OF ASSIGNMENT