Virginia Polytechnic Institute and State University

MIDTERM EXAM II
Spring 2018

STATISTICS

Deep Learning and Applications in Survival Analysis

(Due April 24, 2018, 8:00am, hard copy in class)

NOTE:

1. You should work on the exam alone.
2. Submit necessary R code in the appendix of exam.
3. The honor pledge below must be signed, otherwise the exam will not be graded.

HONOR PLEDGE:

I pledge on my honor that I have not given or received any aid on this examination.

SIGNATURE: _____ **DATE:** _____

1. Consider the MNIST dataset. The R code in webpage,

https://tensorflow.rstudio.com/keras/articles/examples/mnist_cnn.html

trains a simple CNN. The code can provide 99.25% test accuracy after 12 epochs. In this take-home exam, you are asked to improve the test accuracy. You can use the code in the link above as a starting point, or develop some models on your own. You can also use models in literature as long as you can train them (i.e., you can not use pre-trained model to generate the results). You must submit your code and evidence of the test accuracy.

Let your final accuracy be x%. You exam score is $ReLU(80 + 50(x - 99.25))$

Here is a reference link for models on this dataset.

http://rodrigob.github.io/are_we_there_yet/build/classification_datasets_results.html

Exam Score: _____