WESTERN UNIVERSITY
FACULTY OF ENGINEERING
DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

ECE 9603/9063b – Data Analytics Foundations

Assignment 2: Neural Networks

Deadline:

Wednesday, November 7th, 2018

In this assignment you will build and tune deep neural network for the problem you worked on in Assignment 1.

1. If you have used a limited number of features in Assignment 1, you should add new features. One independent variable is not acceptable. If you have been working with time series data, you need to engineer features from dates and time. If you think that your data set from Assignment 1 is not suitable for this assignment, please contact me about the possibility to change the data set.
2. Select deep learning architecture suitable for your problem. Consider different architecture styles for your problem.
3. Tune the selected network(s). At minimum, tune number of layers, number of neurons, and two other parameters. Depending on your problem, you should consider tuning additional parameters. Some of the networks you consider should have five or more hidden layers.
4. Assess the accuracy of the tuned deep learning model(s) and compare its accuracy with accuracy achieved with other models in Assignment 1.

Deliverables:

- Report submitted in OWL (total 20 points):
    - Description of the forecasting problem and data. This is the same as in Assignment 1. If there were issues with these sections, you should fix them. (2 points)
    - Overview of the network architecture(s) you have used including important parameters that affect the network operation. Make sure you include parameters you will tune for your problem. (4 points)
    - Description of the process you have used including data pre-processing, feature generation, model training, and evaluation. (7 points)
    - Results. This should include accuracy measures (more than one) achieved through the training process, graphs demonstrating final accuracy as well as the accuracy through the tuning process. (7 points)
    - Code. Although there are no marks for the code itself, marks will be deducted if the code does not match the rest of the report.