IE 8990
Spring 2022
Homework #3
Due Date: 04/07/2022 5PM CST
Submission: Please put your answer and code in a PDF file and upload on Canvas

Q1. In LSTM model, why sigmoid or tanh are used? Can we use ReLU to replace tanh?

Q2. For the HW2 CIFAR-10 Base Model (provided in attached Jupyter Notebook file), let's fix the epochs = 10. Please modify the model structure to improve the model performance based on the tips we discussed in DL 10 (target: test error lower then 0.25 in 10 epochs training). Discuss your approach.

Q3. Based on the jena_climate_2009_01.csv data

- Please develop a LSTM model to predict the next 24 hours' temperature (Celsius) based on the previous 24 hours' information. (Note: you can use all 14 climate features or part of them). Hint: here is a link might be useful: link

- Please plot your predicted value and the true value in one plot.

Q4. For the following models AlexNet, ZFNet, VGG, GooLeNet, ResNet, MobileNet, DenseNet, EfficientNet

- Discuss the advantages and disadvantages of each model

- Discuss the motivations of how each model was developed