Assignment Instructions: Assignment 4

Purpose

The purpose of this assignment is to apply RNNs to time-series data

Directions

In this assignment, you will accomplish the following:

1. Apply RNNs to time-series data
2. Demonstrate how to improve performance of the network, especially when dealing with time-series data
3. Apply different deep-learning layers to time-series data

Use any or all of the methods we discussed in class to improve weather time-series forecasting problem discussed in class. These methods can include:

1. Adjusting the number of units in each recurrent layer in the stacked setup
2. Using layer_lstm() instead of layer_gru().
3. Using a combination of 1d_convnets and RNN.

Don't forget to eventually run the best-performing models (in terms of validation MAE) on the test set!

Learning Outcomes

CLO 1: Understand what we mean by deep learning
CLO 2: Know the mathematical foundation and structure of neural networks
CLO 4: Understand recurrent neural networks (RNN) and its application to text analysis and sequence data
CLO 5: Understand deep-learning models for time series data

Requirements

All due dates are included in the Assignment Schedule.

General Submission Instructions

All work must be your own. Copying other people's work or from the Internet is a form of plagiarism and will be prosecuted as such.

You will upload the following to your github account.

1. Your R code (as RMD), and well-documented knitted output as html/pdf/word.
2. A summary, graph/table of your results.

3. Your final grade will be a combination of validation accuracy and your presentation of the results. The best three performers over baseline performance of 0.29 get extra points.

You should adhere to the following:

- Remember to use the same repository for the class that you used in Assignment 1.
- Create a new folder under that repository. Call it Assignment 4.
- Upload all files (R, html, doc, etc.) to that folder.
- Provide the link to your git repository in Blackboard Learn for the assignment. The git link should end in **.git**.