ME 793 - Assignment 6

Department of Mechanical Engineering, IIT Bombay

Spring 2021

Due Date: 10:30 AM, Apr 07, 2022, Marks 20

Assignment Date: 10:30 AM, Thu, Mar 31, 2022

Objective and Instructions

1. The objective of this assignment is to use Tutorial 11 (NN for Optimizers) for analyzing the effect of type of Optimizer, learning rate and number of units in the first layer. Note that this tutorial is not for writing your own Jupyter notebook but for analyzing using the Jupyter notebook given in Tutorial 11.
2. This assignment needs to be performed using Jupyter Notebook or Google Colab Notebook or only.
3. Submit Jupyter Notebook and your data file to Moodle.

Q 1. For learning rate 0.001, epochs 20000 and other default setup, run the model for RMSProp, Adam and Gradient Descent and compare the accuracy vs. epochs.

Q 2. For epochs 20000 and other default setup, run the model for Gradient Descent Optimizer for learning rate 0.01, 0.001 and 0.0001 and compare the accuracy vs. epochs.

Q 3. For learning rate 0.01, epochs 20000 and other default setup, run the model for Adam Optimizer for 16 units, 32 units and 64 units in the first layer and compare the loss vs. epochs.

Q 4. For learning rate 0.01, epochs 20000 and other default setup, run the model for Adam Optimizer for ReLU, tanh and softmax activation functions in the hidden layer and compare the accuracy vs. epochs.

Your Jupyter Notebook must show various decorated plots as appropriate for clearly understanding the problem setup, methodology and model outcome.

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