

CS5260 – Spring 2022

Assignment 6

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Abstract

In this assignment, we will study the use of LR range test, using Colossalai framework. The chosen model and dataset are LeNet5 and MNIST. You will be asked to:

1. Choose one optimizer from SGD, ADAM, ADAMW, RADAM, LARS, LAMB or other optimizer you are interested in. (Note: AdaGrad is not supposed to work with this method).
2. Choose two learning rate scheduling method from Pytorch library. (Including no scheduling) Some possible choice: Multistep, OneCycle
3. Take use of `Colossalai_lr_range_test.ipynb` to conduct LR range test for optimizer you chose. Propose several learning rates for real training.
4. Write your code (either adapt provided code or start from scratch) to train LeNet5 on MNIST with two learning rate scheduling methods you choose and proposed learning rate. A suggested epoch number is 30.
5. Observe the result, and write a brief report about what you find (optimizer and scheduling method you choose, corresponding LR region on LR range test plot. docx, pdf, ipynb are all acceptable). Remember to save necessary images or data during experiments for report writing.
6. Upload your work including requirement.txt to your github. Add the github link to your report.