SAT-DL: Programming Assignments: 3

Tirtharaj Dash

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Assignment 3 [15 marks]

Read about unsupervised model pretraining in deep learning. You can read the section 4.7 of NN & DL book by Charu C. Agarwal (our textbook 2) or you can read from `http://www.jmlr.org/papers/v11/erhan10a.html`.

Datasets

D_1 (MNIST): `http://yann.lecun.com/exdb/mnist/`

D_2 (FMNIST): `https://www.kaggle.com/zalando-research/fashionmnist`

Task

1. Construct good denoising autoencoder using dataset D_1. Lets call this constructed model as (M_1).
2. Construct a classification model using dataset D_2. Let's call this constructed model as M_2. Obtain the performance of this model on some unseen testset from D_2. Let's call this performance as P.
3. Use M_1 as a *pretrained* model to learn the new classification problem given in the dataset D_2. What this means is that: use the model M_1 as a base model, and finetune this with the new dataset D_2. Let's call this new model that you built as M_3. Obtain the performance of this new model M_3 using the same test set that you used to evaluate M_2. Let's call this performance as P'.
4. Compare P and P'.

(2+2+4+2)

Results

Your P and P' should be adequate. I am not going to tell what are those. It is your job to figure out what should you measure.

Report

Your report must contain whatever I had said about a 'good report' in your last practical assignment submissions 1 and 2. (5)

Submission

Submit the assignments (code in .zip and your report in .pdf) in zip using Google Classroom. There will be a link activated. The deadline is **April 30, 2020 Noon**.