

Update_21st_March

1. Gave an inference run over 4 test images using the pre-trained model *nyu_5000_e15.h5* and observed the results. (the training was done on 5000 images, 15 epochs, lr=0.0001)

(a) Inference results using approximate model in the **decoder.conv2** layer

```
time_taken for 300 conv in 1101 / 1104 = 12.338353872299194
time_taken for 300 conv in 1102 / 1104 = 12.370011568069458
time_taken for 300 conv in 1103 / 1104 = 12.308685541152954
100%|████████████████████████████████████████████████████████████████████████████████| 1/1 [15:20:42<00:00, 55242.71s/it]
      a1,      a2,      a3,      rel,      rms,      log_10
      0.6122,    0.8262,    0.8896,    0.2542,    0.7091,    0.1298
Test time 55243.421884298325 s
```

(b) Inference results using accurate model

```
D:/customConv_MBM/for_denseNet_161/Pytorch_for_161$ python evaluate_py.py
Loading test data...Test data loaded.

Testing...
100%|████████████████████████████████████████████████████████████████████████████████| 1/1 [00:01<00:00, 1.88s/it]
      a1,      a2,      a3,      rel,      rms,      log_10
      0.6026,    0.8197,    0.8884,    0.2543,    0.7175,    0.1322
Test time 1.8786110877990723 s
```

It can be observed yet again that the error metric values are comparable between the accurate and the approximate model.

2. **Request for provision of access to TU Dresden's Server to perform Inference over larger batch of images:**

While running the inference on my local machine, the time taken for 1 iteration increases by upto ~1-2 seconds even if I have to open a browser window and hence increasing the inference time significantly (~2.5 hrs). Also as we go deeper into the decoder layers to perform inference, the time for each iteration would increase.

So if I am given access to the university server/ VM, I would be able to give inference runs for larger batches of images and not worry about increasing the inference time while working in parallel.

As mentioned earlier in my Update_18th_March.pdf, use of Google Colab has been unreliable in my previous 3 runs.

3. The following are the required dependencies and packages I'm using, as of now, on my local machine to run inferences.
 - a. Pytorch built from source - 1.9.0a0+gitdc29604
 - b. Torchvision built from source - 0.9.0a0+afc502b

- c. Nvidia Driver version - 460.32.03
- d. Cudatoolkit version - 10.2.89; cudnn version - 7.6.5

The complete installation procedure is provided in the ENVIRONMENT SETUP.pdf that I have provided as an update last week. If provided with access to server I will be downloading the following dependencies and start the inference over larger batches of images.