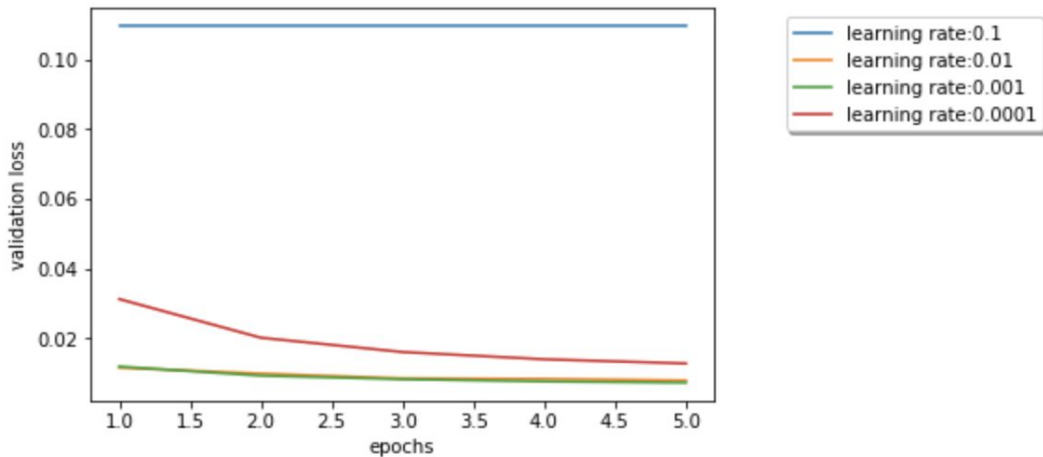


Deep Learning Lab Exercise 3

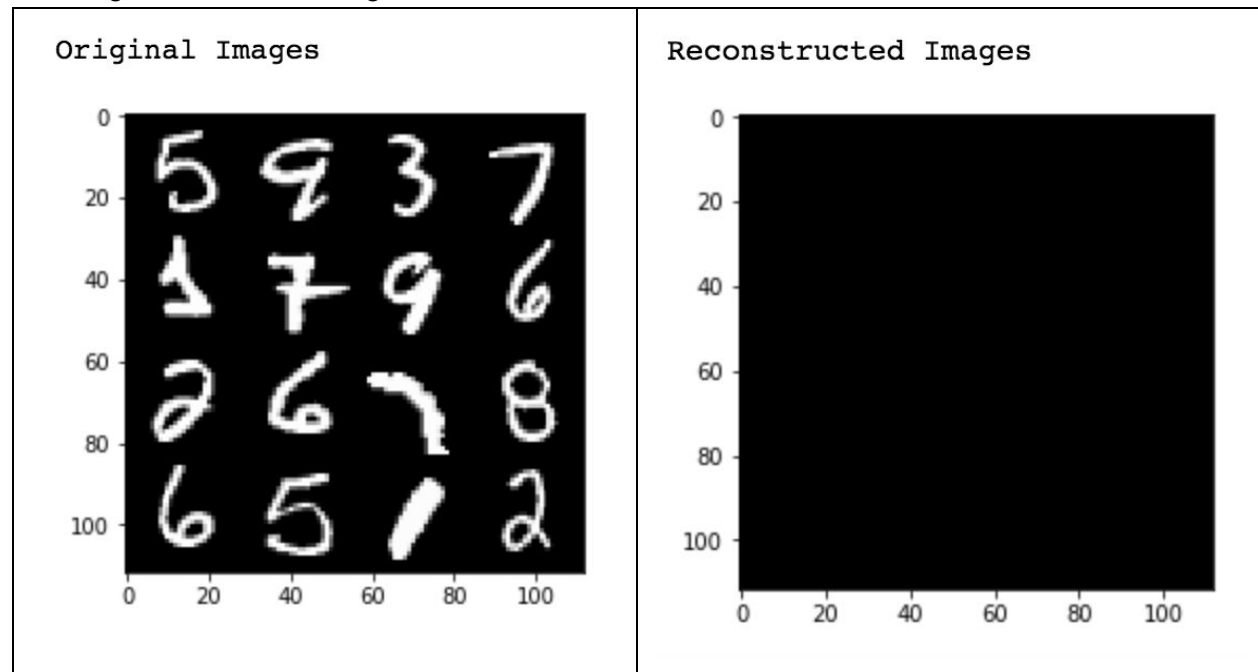
In this exercise, we were supposed to implement a fully convolutional autoencoder on the MNIST dataset. I first generated the neural network according to specifications given in the exercise description. Then I trained the network by optimizing the sum of L2 losses between each pixel of network output tensor and the gray value of the input MNIST image of the corresponding pixel. MNIST image gray values were scaled between 0 and 1. I used batch size of 64 and Adam optimizer.

Loss Graph



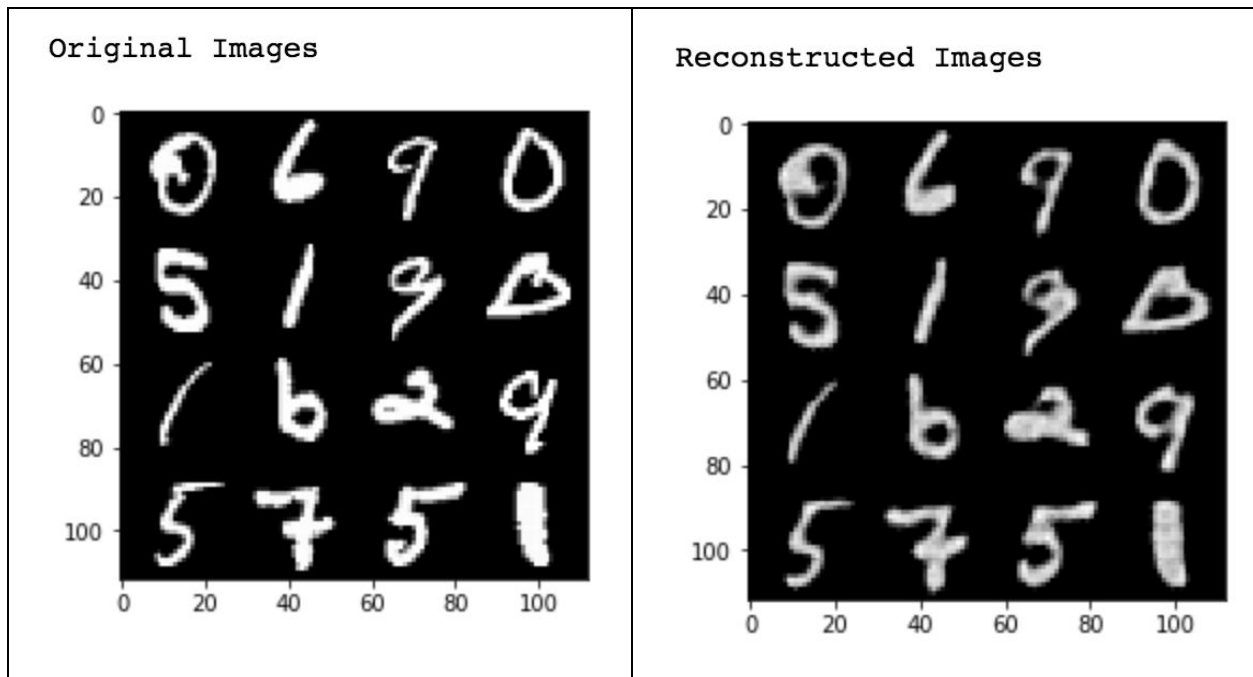
Learning Rate 0.1

The loss didn't decrease for learning rate 0.1 by increasing number of epochs. It means that learning rate is too high for Adam optimizer. The network won't be able to learn anything meaningful with this learning rate.



Learning rate 0.01

The network was able to reconstruct given image quite successfully. The error went down pretty smoothly and it didn't took very long for the network to converge.



Learning rate 0.001

The network loss went down same way as with learning rate of 0.01.

