Deep LearniHng Lab Course Ex3

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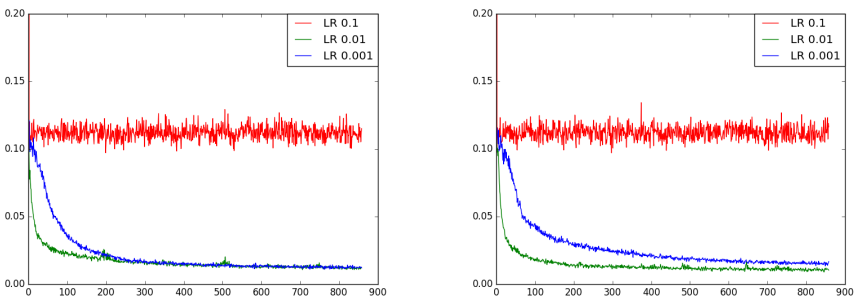
1 Introduction

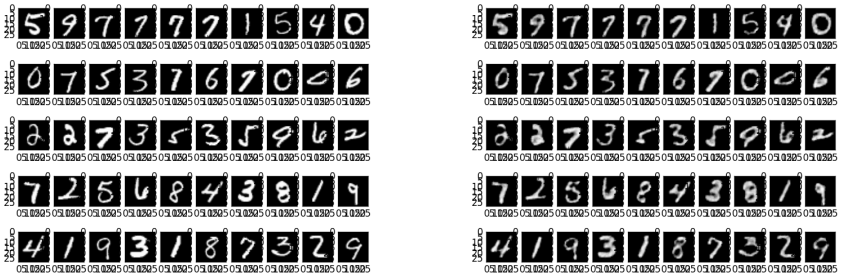
For different learning rates: 0.1, 0.01, 0.001 are the Plots in 1. While the 0.1 learning rate doesn't convert, the other tow do. The 0.001 learning rate converts stable to a minimum but the 0.01 rate deviates slightly in each run.



(a) Run A (b) Run B

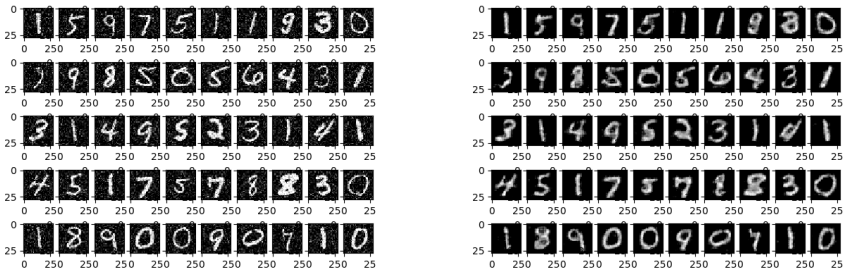
Figure 1: Learning curve of 0.1, 0.01 and 0.001 learning rate

The generated images from the MNIST data set created by the autoencoder is shown in 4, with 4a the Input and 4b the created reconstruction.



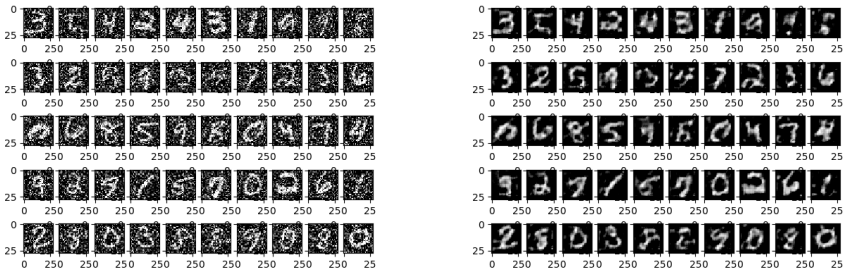
(a) Input (b) Reconstruction

Figure 2: 50 random input numbers and its reconstruction



(a) Input (b) Reconstruction

Figure 3: 50 random input numbers with little noise and its reconstruction



(a) Input (b) Reconstruction

Figure 4: 50 random input numbers with lots of noise and its reconstruction

The more noise are added to the input the squishier gets the reconstruction. The real input image still gets reconstructed to a representative manner. The reason for the quality lose is, that the noise activates random pixel, which can be suppressed by training with noisier images in the beginning.