Pattern Recognition

02d CNN

The aim of the task was to run the Convolutional Neural Network established in part 02c on a permutated set of images of the MNIST dataset used in 02c. In this setup we could set the learning rate to 0.01 and still could steadily improve the model without getting exploding losses. Furthermore, the accuracy curve is much smoother compared to the model with the smaller training set in 02c. We also observed, that there were no big fluctuations in the beginning, instead the accuracy curve evolved smoothly over the range of epochs. Same holds true for the loss curve, which evolved even smoother. As an explanation for what accounts for this improvement, we remember that the goal of a training set is to cover the feature space as densly as possible without generating redundancy. As there are more training samples available, the feature space is more densly populated and therefore the algorithm is able to make better predictions.