Deep Learning Exercise 3 Report

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November 24, 2017

1 Task 1: Implementation of an Autoencoder in Tensor-flow

See jupyter file. There were no big issues, but for some time I was thinking my architecture was wrong, when actually the learning rate was just too high when testing.

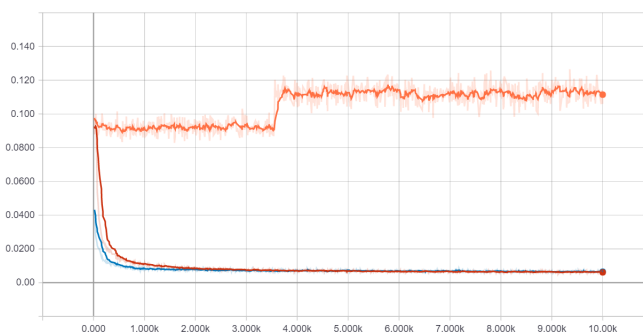## 2 Task 2: Implementation of an Autoencoder in Tensor-flow

Figure 1: Loss development with different learning rates. orange=0.1, blue=0.01, red=0.001

By comparing the results for different learning rates, we can see that high learning rates do nothing at all because they jump around too much. It seems as if each new small learning step cancels out the last few, resulting in a completely useless learning process. Other than that, once again lower learning rates seemed to result in better final results, but more time needed to train them.

When feeding in noisy images, we can see that the net performs pretty well with them aswell. I could imagine this being due to the first layers identifying

low level features, which noise does not have a big influence on, since lines, dots etc. are not changed in a big scope.