Programming Project: Restricted Boltzmann Machine

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1 Introduction

For this assignment we implemented a generic RBM over binary random variables, trained and tested MNIST example with different settings in order to achieve better result.

Please note, that in the following results, if not stated otherwise, we used following default settings:

- Maximum epochs: 1.000
- Sample data size of 10.000
- Learning rate: 0.1
- Number of random instances: 1.000
- Number of repetition in Gibbs sampling techniques: 5
- Number of visible units: 784
- Number of hidden units: 1000

2 Implement a generic RBM

To implement our generic RBM over binary random variables, those steps have been followed:

1.
2.
3.

3 Train the machine on MNIST data and draw random images

4 Different number of Markov chain