

Group 15 - LAB 4

Mustafa Al-Janabi | Einar Lennelöv



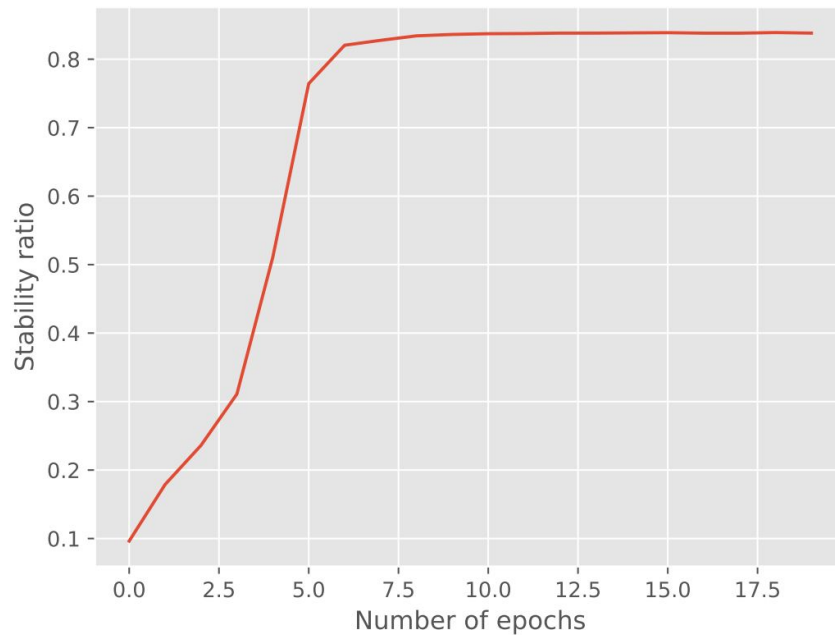
4.1

RBM for recognising MNIST images



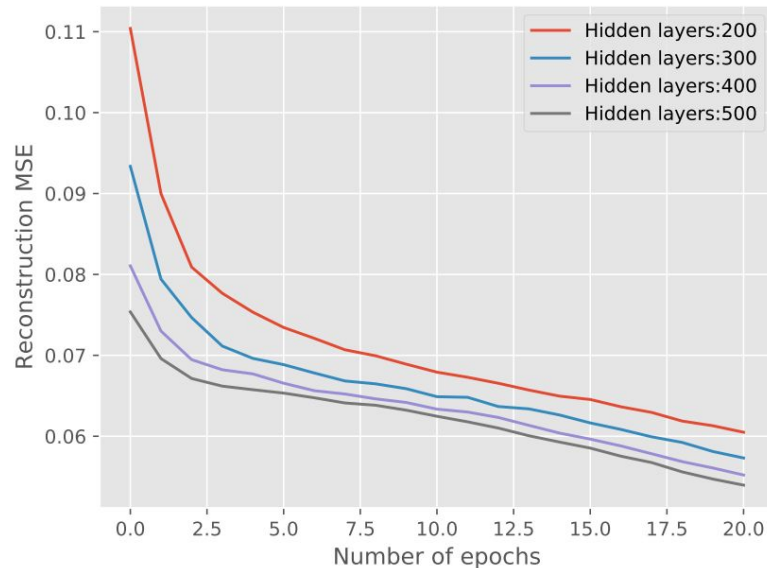
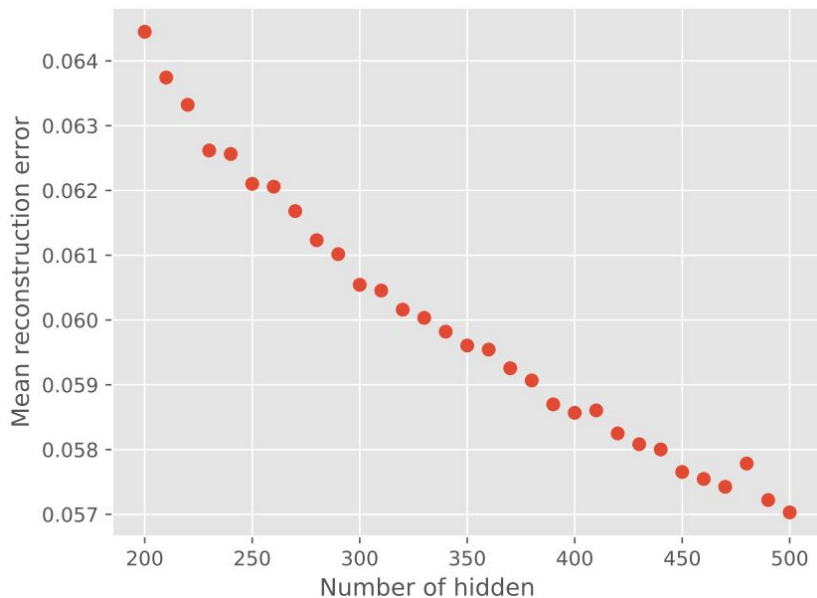
Stability analysis

Text





Reconstruction loss

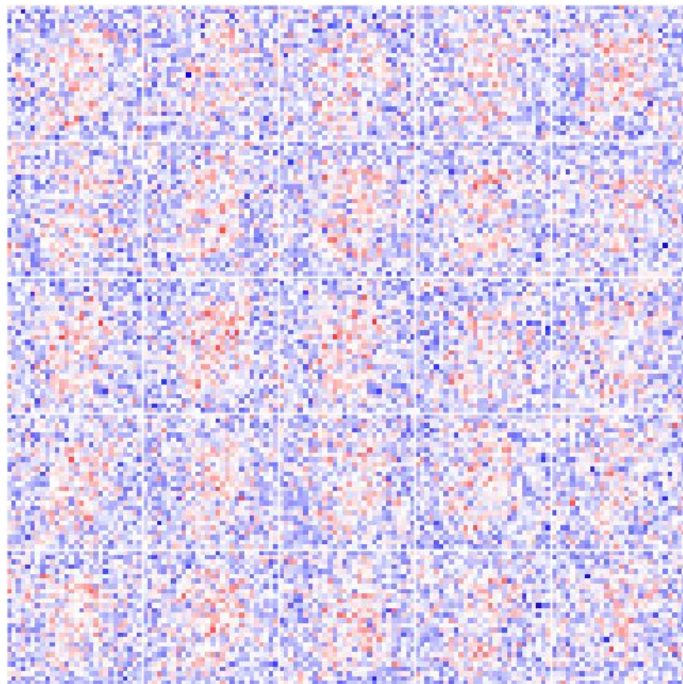


Gives us a plot showing the reconstruction error on the training data as a function of the number of hidden nodes after completing a learning sequence of 20 epochs with the reconstruction error calculated every 5 epochs. 500 hidden nodes gives a better MSE

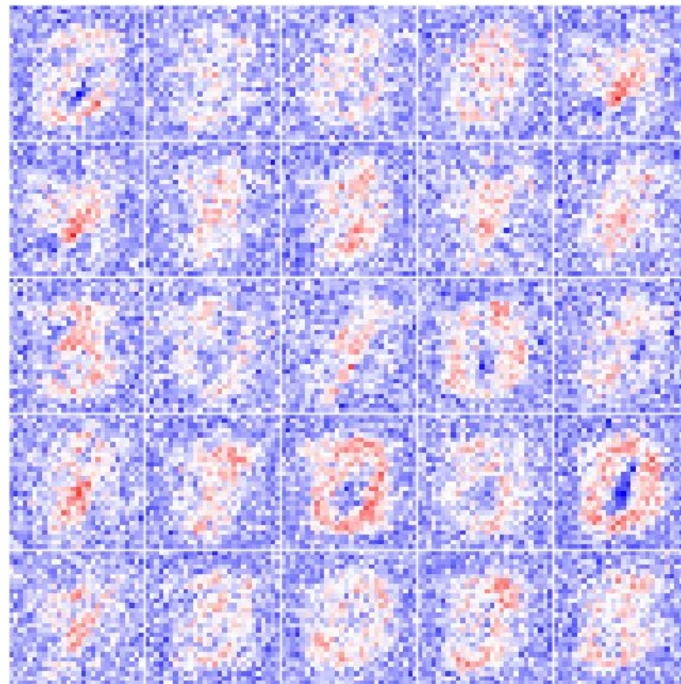


Fidelity of reconstructed images

0 epochs



20 epochs



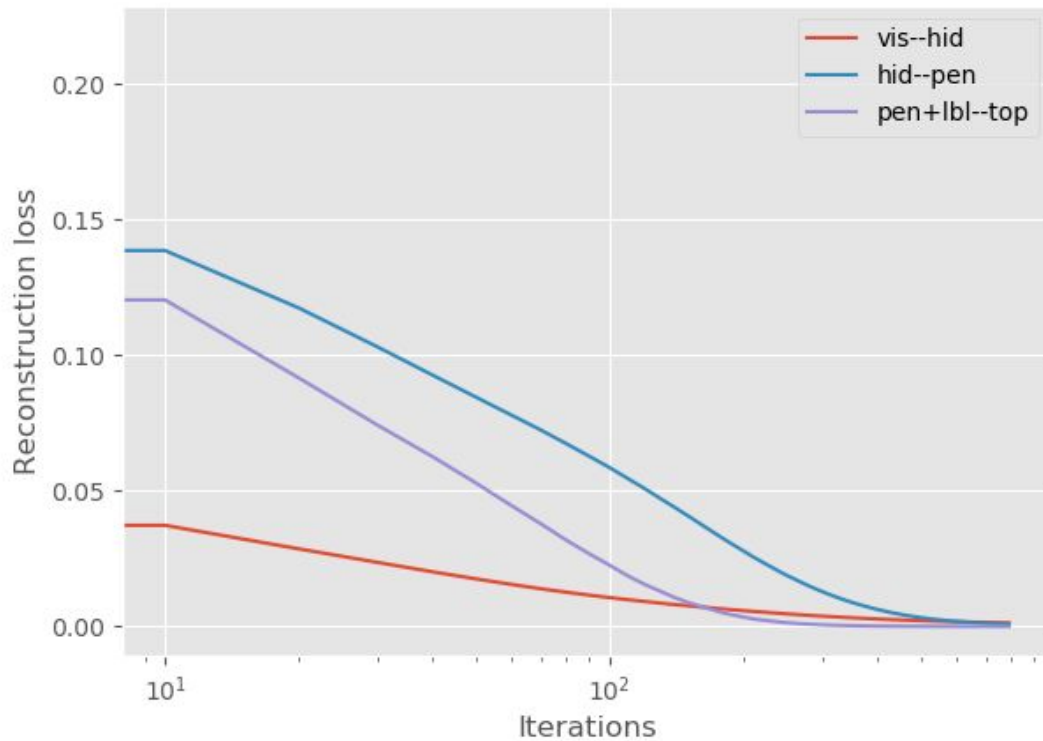
4.2

Towards deep networks - greedy layer-wise pretraining



Reconstruction loss

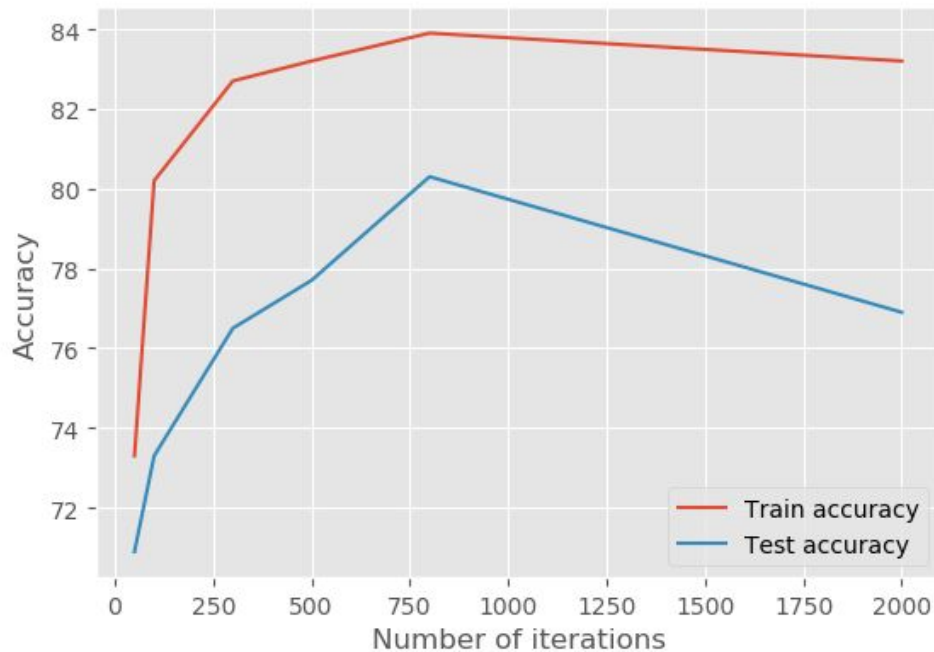
For the three layers, with 600 training samples.





Recognition and classification accuracy

With 600 training samples.

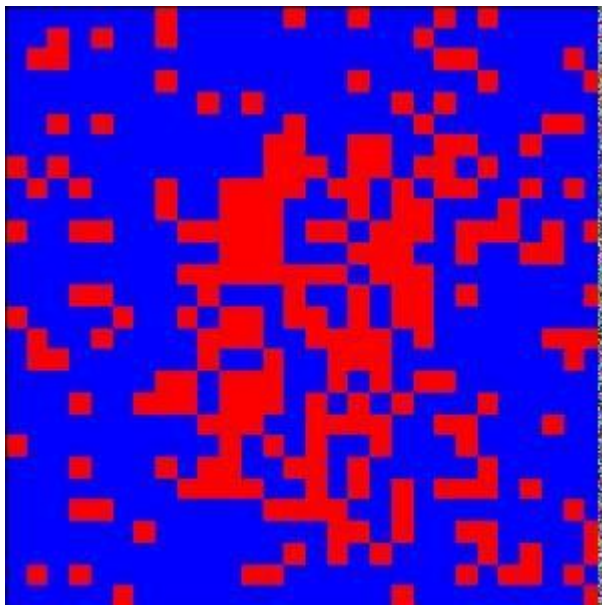




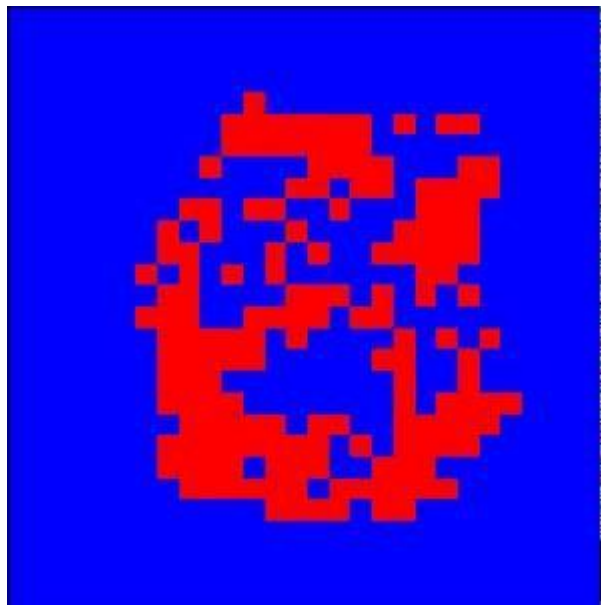
Attempt at generation

With 600 training samples.

0



9



4.3

Supervised fine-tuning of the DBN



Fine-tuning in a wake-sleep algorithm

For some reason the fine-tuned algorithm gave us a worse model

	Training	Test
Greedy learning	83.92%	79.00%
	↓	↓
Wake sleep	65.68%	63.30%

