

Hands-on Machine Learning Training

Session 5 – Neural Networks

Preparation

In this session you will, step by step, implement a neural network yourself without using any deep learning libraries. After participating in the previous sessions you should already be familiar with Python as well as NumPy (a Python package for matrix calculations and scientific computing).

In order to prepare for the session you need to work through and understand the following web pages:

- Michael Nielsen: "Neural Networks and Deep Learning", Chapter 1. up to but not including the section "Implementing our network to classify digits" ¹.

After working through the material you should understand:

- the contents
- the structure of neural networks
- the step and sigmoid activation function
- (the formula for) the feed forward pass
- the mean square error criterion
- the idea of mini batches and stochastic gradient descent

¹<http://neuralnetworksanddeeplearning.com/chap1.html>