Background material for optional preparation to the Summer Camp

Part 1: Textbooks, reading and supplementary exercises.

Part 2: Installation of Theano and Lasagne (for Mac and Linux, NOT Windows)

Part 1, Textbooks, reading and supplementary exercises

Textbooks:

- Michael Nielsen, Neural networks and deep learning (NNDL). Available online here.
- Ian Goodfellow, Yoshua Bengio and Aaron Courville, Deep learning (DL). Online version here.

Details on reading for each lecture are given below.

Reading for each lecture:

NNDL=Neural networks and deep learning book and DL=Deep learning book. Chapters in () are optional.

1. Introduction to deep learning, NNDL Chapter 1, DL Chapter 1
2. Training feed-forward neural networks, NNDL Chapter 2, ([http://neuralnetworksand deeplearning.com/chap3.html]3, 4 and 5), (DL Chapter 6, 7 and 8)

3. Convolutional neural networks, NNDL Chapter 6, DL Chapter 9
4. Recurrent neural networks DL Chapter 10, (Alex Graves book)
5. Unsupervised learning (DL Chapter 14 and 20.10.3)
6. Frontiers in deep learning

Supplementary exercises

Each lab is quite short. Links to longer approximately 3-4 hour Ipython notebook exercises covering material for some of the labs are provided below.

1. Lab 1 Feed-forward neural networks
2. Lab 2 Convolutional neural networks
3. Lab 3 Recurrent neural networks

Part 2: Installation of Theano and Lasagne

Note that installation of Theano on Windows is possible but in our experience is a big hassle. So we don't recommend it. This installation guide is for Mac and Linux only.

This file contains information on installation of Python, Theano, Lasagne and Ipython notebook for Mac and Linux.