

TX00DH43-3001

# Introduction to Deep Learning

[peter.hjort@metropolia.fi](mailto:peter.hjort@metropolia.fi)

# So what did we do?

**Dense, convoluted, and recurrent networks.**

**Training and validation (and test) split and analysis.**

**Data normalization.**

**Regularization, dropouts to control training.**

Text processing and embeddings.

Autoencoders and GAN.

Some application examples.

# What did we not do?

Python.

Math. Especially statistics.

A project.

Reinforcement learning.

Load of other topics. Applications: face recognition, games and AI, voice recognition, anything related to video.

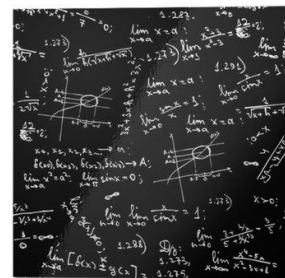
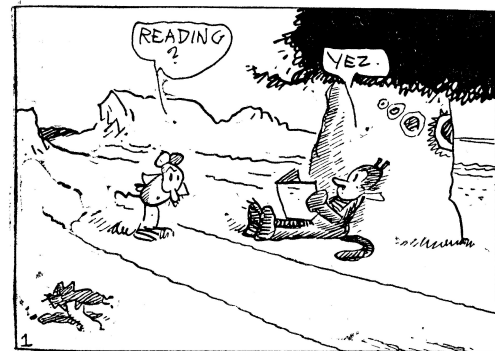
What we should have done and what not?

# What next?

Follow what some of bigwigs are doing (Geoff Hinton, Yoshua Bengio, Ian Goodfellow, Christian Szegedy, Andrej Karpathy, Yann LeCun...).

Read. Don't be afraid to at least scan some research papers (often available from arxiv). Reading papers is a learnable skill. Scan/read [deeplearningbook.org](http://deeplearningbook.org), it is a great overview covering almost everything current (one omission is reinforcement learning, though).

Try out keras on problems you invent/find. Or take a look at tensorflow for more control on what's happening. Or look at other frameworks (caffe2, theano, etc).





Would be nice if you drop me a line if you get involved in a machine learning endeavours. Would be nice to know what you are doing!