



**Open your mind. LUT.**

Lappeenranta **University of Technology**

LUT School of Engineering Science

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BM20A6100 Advanced Data Analysis and Machine Learning

Lasse Lensu

Exercise: Deep learning

1. Activation functions (1 point): Implement a simple multilayer perceptron (MLP) which has to option to use rectified linear unit (ReLU) as the activation function. Experimentally compare and visualise the convergence behaviour. You can use the given implementation to start with, or use your own.

*Additional files:* `mlp.m`.

2. Avoiding overlearning (1 point): Implement a simple MLP which has to option to use dropout, random turn-off of a proportion of the network units during the iterative learning process. Experimentally compare and visualise the convergence behaviour. You can use the given implementation to start with, or use your own.

*Additional files:* `mlp.m`.