Institute for Computer Science VI, Autonomous Intelligent Systems, University of Bonn

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http://www.ais.uni-bonn.de/WS/4204_L_NN.html

Exercises for module
Technical Neural Networks (MA-INF 4204), WS24/25

Programming Assignments F, due: Monday 13.1.2025

16.12.2024

Programming assignment PA-F (10 Points, Due date: Mon 13.1.2025)

The task is to apply your neural network knowledge and use and train a neural network for pattern classification.

Choose and use one of the four data sets:
`PA-F_data-1.txt` with P=194, N=2, M=1, $IR^2 \to IB^1$
`PA-F_data-2.txt` with P=150, N=4, M=1, $IR^4 \to 3^1$
`PA-F_data-3.txt` with P=1372, N=4, M=1, $IR^4 \to IB^1$
`PA-F_data-4.txt` with P=4898, N=11, M=1, $IR^{11} \to 8^1$

Give and visualize (if possible) the final result: how many of the data points have been classified correctly and how many have been misclassified during training?
What are the data points that have not been learned correctly?
Depict, interpret and discuss the learning curves from training.

To solve this task you are completely free in using the tool. You may use a program of your own, or a library or even a neural network toolbox.

I all cases, explain what you have done, give scientific references and correct citations. Explain what you have used, and motivate your choice, including the tool, the type of network, the error function or loss function, the neural architecture, number of layers and neurons, the learning paradigm, the learning rate, etc.