

Neural Network Computations using Mathematica

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This tutorial is for:

- anyone who would like an introduction to neural networks
- professors teaching neural networks at a university
- professionals who wish to use neural networks in their work

Wolfram Research will soon release an application package for neural network computations to be used in the general computational environment Mathematica. This package has been written by Jonas Sjöberg, who is teaching this tutorial.

The tutorial gives an overview of different neural network models and to what kind of problems they can be used. Differences and similarities to other model structures and linear data fitting are discussed. Which are the pitfalls? Which are the possibilities? Then neural network models are introduced and advantages and disadvantages compared to traditional methods are discussed. It is explained why neural networks often give better models than traditional methods.

In the lectures and in the hands-on computer exercises the Neural Network package is used to illustrate the theory. Using the package, you will have the opportunity to solve small illustrative problems, as well as challenging problems using real data.