

Neural Networks

Jerome SCHWINDLING

IRFU, CEA Saclay

Abstract

This course presents an overview of the concepts of the neural networks and their application in the framework of High energy physics analyses. After a brief introduction on the concept of neural networks, the concept is explained in the frame of neuro-biology, introducing the concept of multi-layer perceptron, learning and their use as data classifier. The concept is then presented in a second part using in more details the mathematical approach focussing on typical use cases faced in particle physics. Finally, the last part presents the best way to use such statistical tools in view of event classifiers, putting the emphasis on the setup of the multi-layer perceptron.

The full article (15 p.) corresponding to this lecture is written in french and is provided in the proceedings of the book SOS 2008.