

What, How and When to Use Knowledge in Neural Network Application

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ABSTRACT

Neural network is one of the well-known artificial intelligence techniques. Neural Networks attempt to bring computers a little closer to the brain's capabilities by imitating certain aspects of information processing in the brain, in a highly simplified way. These disciplines formulate a formula to form a brain like function, called artificial neuron. Artificial neuron comprises of large number of computational processing elements called units, nodes or cells. Neuron connected to each other with an associated weight. The weight represents information being used by the network to solve a problem. In understanding neural network one may think of three main questions: What is knowledge in neural network?; How to use this knowledge?; and When to use this knowledge? Knowledge is simply the weights that connect each neuron in neural networks. These weights are assigned randomly or generated using other procedures such as Nguyen-Widrow initialization algorithm. After training, the weights are stored and recalled in application phase. Thus, one needs to understand these three questions in applying the neural network methods. The aim of the study is to describe the general methodology that normally applies in any neural network based application. The methodology comprises five steps namely variable selection, data collection, data preprocessing, training & validation, and testing.