

By: Danny Dean

Supervised Neural Networks

Outline

- Neural Networks
- Supervised Learning
- Supervised Neural Network
- Applications

Neural Networks

- Branch of Artificial Intelligence
- The purpose of a neural network is to *learn to recognize patterns* in data
- Attempt to model low-level structure of the brain

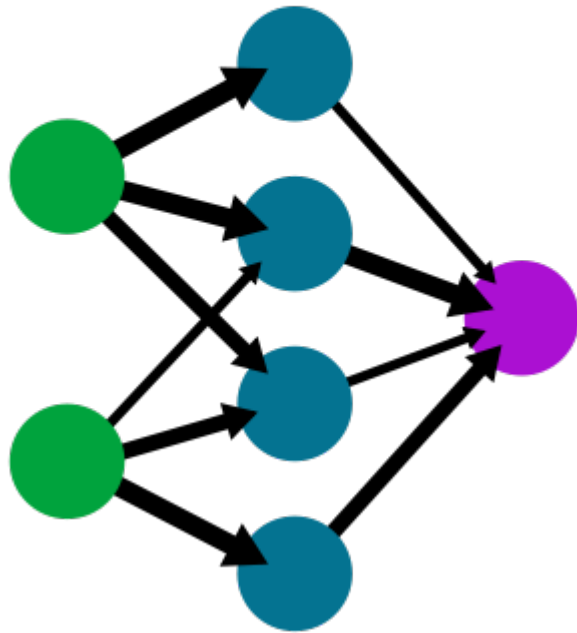
Neural Network

A simple neural network

input
layer

hidden
layer

output
layer



- Weight
- Firing Threshold

Supervised Learning

- Techniques that use example inputs and outputs to learn how to make predictions are known as *supervised learning methods*

Supervised Neural Network

- Must be adequately trained
- If the network is properly trained, it has then learned to model the (unknown) function that relates the input variables to the output variables, and can subsequently be used to make predictions where the output is *not* known

Applications

- Search Engines
- Detection of medical phenomena
- Stock market prediction
- Spam Detection
- Credit assignment
- Monitoring the condition of machinery
- Engine management
- Optical Character Recognition (OCR)

Conclusion

- Neural Networks
- Supervised Learning
- Supervised Neural Network
- Applications

Citations

- (2007). Neural Networks. In T. Segaran, *Programming Collective Intelligence, 1st Edition*. O'Reilly Media, Inc.
- *CorMac Technologies*. (n.d.). Retrieved 10 2, 2009, from Neural Networks: <http://cormactech.com/neunet/whatis.html>
- *Neural Networks*. (n.d.). Retrieved 10 2, 2009, from StatSoft: <http://www.statsoft.com/textbook/stneunet.html>