

Chapter IV: Conclusion

In summary, artificial neural networks are one of the promises for the future in computing. They offer an ability to perform tasks outside the scope of traditional processors. They can recognize patterns within vast data sets and then generalize those patterns into recommended courses of action. And another important thing is neural networks learn, they are not programmed.

Yet, even though they are not traditionally programmed, the designing of neural networks does require a skill. It requires an "art." This art involves the understanding of the various network topologies, current hardware, current software tools, the application to be solved, and a strategy to acquire the necessary data to train the network. This art further involves the selection of learning rules, transfer functions, summation functions, and how to connect the neurons within the network.

Then, the art of neural networking requires a lot of hard work as data is fed into the system, performances are monitored, processes tweaked, connections added, rules modified, and on and on until the network achieves the desired results.

These desired results are statistical in nature. The network is not always right. It is for that reason that neural networks are finding themselves in applications where humans are also unable to always be right. Neural networks can now pick stocks, cull marketing prospects, approve loans, deny credit cards, tweak control systems, grade coins, and inspect work.

Yet, the future holds even more promises. Neural networks need faster hardware. They need to become part of hybrid systems which also utilize fuzzy logic and expert systems, even though neural networks have a huge potential we will only get the best of them when they are integrated with computing, AI, fuzzy logic and related subjects.. It is then that these systems will be able to hear speech, read handwriting, and formulate actions. They will be able to become the intelligence behind robots that never wear out nor become distracted. It is then that they will become the leading edge in an age of "intelligent" machines.