

NEURAL NETWORK BASED EXPERT SYSTEMS

In many cases, the 'know-how' required for an expert system has to be obtained directly from domain experts, which can be a difficult and time-consuming process. If sufficient examples of the problem are available then it may be possible to train a neural network to carry out the same task. If successful, then using a neural network may drastically reduce the development time.

Neural networks are best suited to classification problems where the data is likely to be noisy or incomplete, where rapid response times are required or where a symbolic description of the domain would be too large or complex, eg image processing. They are not suitable for applications that require logical or mathematical precision, or where a decision procedure needs to be clearly represented for verification or archiving.

It must be stressed that selecting a suitable set of examples for training requires considerable care and will require the involvement of a domain expert. Also finding the best network configuration is a trial and error process with only a few 'rules of thumb' for guidance.

In conclusion, neural networks and knowledge-based systems are not mutually exclusive; they can be combined with each carrying out different sub-tasks.