The recognition of visual characters - one of the most primitive applications of Artificial Neural Network

Artificial neural networks are biologically motivated. It is spare functions of the human brain. Neural networks are parallel computing devices, which is mainly trying to build a computer model of the brain. Parallel processing is the capacity of the brain to perform several things at once. For example, when a human being sees an object they don't observe just one thing, but rather lots of diverse aspects that together help the person recognize the object as entire. The main purpose is to extend a system to do diverse computational tasks quicker than the traditional systems. These tasks consist of pattern recognition and classification, approximation, optimization, and data clustering. Neural networks are successfully applied to broad scale of data-intensive applications. There are several categories namely Financial, Energy, Industrial, Science, Data Mining, Sales and Marketing, Operational Analysis, HR Management and Medical. Pattern Recognition is comes under the Science category. Character recognition is a fascinating dilemma which comes under the common area of Pattern Recognition.

The recognition of visual characters is known to be one of the most primitive applications of Artificial Neural Network, which somewhat imitate human thinking in the domain of Artificial Intelligence. Many neural networks are developed for automatic detection of handwritten typescript, either letters or numerals. Multilayer neural networks such as Backpropagation neural networks, Neocognitron are several ANNs which are used for character recognition. The neocognitron is a hierarchical multilayered artificial neural network proposed by Kunihhiko Fukushima in 1980. Backpropagation is an efficient method used in artificial neural networks to estimate the fault contribution of every neuron after a set of data is processed. It is used for training multilayer artificial neural networks. Rumelhart, Hinton and Williams (1986) presented a clear and crisp explanation of backpropagation algorithm. Though back-propagation neural networks have numerous concealed layers, the pattern of connection from one layer to the next is localized. Likewise, neocognitron also has several hidden layers as well as its training is complete layer by layer for such kind of applications.

OCR (Optical Character Recognition or Optical Character Reader) is usually an "offline" process, which analyses a static deed. Calligraphy movement analysis could be used as input to handwriting recognition. Instead of simply using the shapes of glyphs and words, this method is able to capture gestures, such as the order in which segments are drawn, the direction, and the pattern of putting the pen down and lifting it. This supplementary information can create the end-to-end process more perfect. This technology is also known as "on-line character recognition", "dynamic character recognition", "real-time character recognition", and

“intelligent character recognition”.