

# Chapter 31

## Literature Survey for Applications of Artificial Neural Networks

**Pooja Deepakbhai Pancholi**

*Ganpat University, India*

**Sonal Jayantilal Patel**

*Ganpat University, India*

### ABSTRACT

*The artificial neural network could probably be the complete solution in recent decades, widely used in many applications. This chapter is devoted to the major applications of artificial neural networks and the importance of the e-learning application. It is necessary to adapt to the new intelligent e-learning system to personalize each learner. The result focused on the importance of using neural networks in possible applications and its influence on the learner's progress with the personalization system. The number of ANN applications has considerably increased in recent years, fueled by theoretical and applied successes in various disciplines. This chapter presents an investigation into the explosive developments of many artificial neural network related applications. The ANN is gaining importance in various applications such as pattern recognition, weather forecasting, handwriting recognition, facial recognition, autopilot, etc. Artificial neural network belongs to the family of artificial intelligence with fuzzy logic, expert systems, vector support machines.*

### CHARACTER RECOGNITION APPLICATION

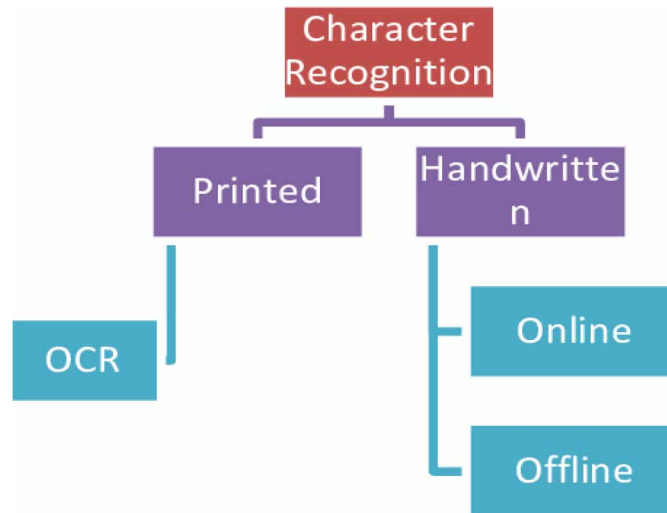
Now a day, character recognition has become important because portable devices like Palm Pilot are becoming more and more famous. NN can be used to identify the latter.

Given the ability of ANN to receive a large amount of information and process them to derive hidden, complex and non-linear relationships, ANNs play an significant role in character recognition.

The classification of character recognition is as shown in Figure 1.

DOI: 10.4018/978-1-6684-2408-7.ch031

*Figure 1. Classification of character recognition*



## **OPTICAL CHARACTER RECOGNITION (OCR)**

OCR is a procedure that converts a printed document or a page scanned into ASCII characters that a computer can identify. Computer systems prepared with such an OCR system improve the input speed, reduce certain person error and allow solid storage space, speedy recovery and additional file manipulations. Accurateness, elasticity and velocity are the major characteristics of a excellent OCR system. Some character recognition algorithms based on feature selection have been developed. The performance of the systems was limited by police dependence, size and orientation. The recovery rate in these algorithms depends on the choice of features. Most existing algorithms involve complete image processing before feature extraction, which increases the calculation time. In this topic, discuss a method of character recognition based on a neural network that would efficiently shrink picture processing time though maintaining effectiveness and flexibility. The parallel computing efficiency of NN ensure big identify rate, which is essential for a mercantile domain. The neural network access has been recycled for character identify, although entire system that beset totally the characteristics of a pragmatic OCR system has not still been developed. The main elements besmeared in the execution are: an optimum collecting of characteristics that indeed define the expansion of the alphabets, the count of characteristics and a reduced image processing time (Mani 1997).

## **HANDWRITTEN CHARACTER RECOGNITION**

Character recognition is an art of detecting, segmenting and identifying characters in an image. One of the main purposes of recognizing handwritten characters is to imitate human reading abilities therefore that the computer can read, perceive and performance in the same way as text. The identity of handwriting has been different majorities like charming and difficult analysis domain in the scope of picture processing and pattern indentity in nearly season. It greatly devotes to progress of the automatism procedure and rectified the interface among person and device in huge applications. Some analysis studies have

12 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

[www.igi-global.com/chapter/literature-survey-for-applications-of-artificial-neural-networks/288981](http://www.igi-global.com/chapter/literature-survey-for-applications-of-artificial-neural-networks/288981)

## Related Content

---

### Application of Higher-Order Neural Networks to Financial Time-Series Prediction

John Fulcher, Ming Zhang and Shuxiang Xu (2006). *Artificial Neural Networks in Finance and Manufacturing* (pp. 80-108).

[www.irma-international.org/chapter/application-higher-order-neural-networks/5350](http://www.irma-international.org/chapter/application-higher-order-neural-networks/5350)

### Investigation of the Attitudes for Environment and Evaluation of Artificial Neural Networks

Semra Benzer, Recep Benzer and Ule Bozkurt (2022). *Research Anthology on Artificial Neural Network Applications* (pp. 987-1007).

[www.irma-international.org/chapter/investigation-of-the-attitudes-for-environment-and-evaluation-of-artificial-neural-networks/288996](http://www.irma-international.org/chapter/investigation-of-the-attitudes-for-environment-and-evaluation-of-artificial-neural-networks/288996)

### Cooperative Control of Unknown Networked Lagrange Systems using Higher Order Neural Networks

Gang Chen and Frank L. Lewis (2013). *Artificial Higher Order Neural Networks for Modeling and Simulation* (pp. 214-236).

[www.irma-international.org/chapter/cooperative-control-unknown-networked-lagrange/71801](http://www.irma-international.org/chapter/cooperative-control-unknown-networked-lagrange/71801)

### Financial Asset Management Using Artificial Neural Networks

Roohollah Younes Sinaki, Azadeh Sadeghi, Dustin S. Lynch, William A. Young II and Gary R. Weckman (2022). *Research Anthology on Artificial Neural Network Applications* (pp. 1359-1380).

[www.irma-international.org/chapter/financial-asset-management-using-artificial-neural-networks/289017](http://www.irma-international.org/chapter/financial-asset-management-using-artificial-neural-networks/289017)

### Analysis of Precipitation Variability using Memory Based Artificial Neural Networks

Shyama Debbarma, Parthasarathi Choudhury, Parthajit Roy and Ram Kumar (2022). *Research Anthology on Artificial Neural Network Applications* (pp. 955-970).

[www.irma-international.org/chapter/analysis-of-precipitation-variability-using-memory-based-artificial-neural-networks/288994](http://www.irma-international.org/chapter/analysis-of-precipitation-variability-using-memory-based-artificial-neural-networks/288994)