LITERATURE SURVEY

A NOVEL METHOD FOR HANDWRITTEN DIGIT RECOGNITION SYSTEM

A various methodologies that are all used are discussed as follows:

MALOTHU NAGU[1]: Character recognition plays an important role in the modern world. It can solve more complex problems and makes humans' job easier. An example is handwritten character recognition. This is a system widely used in the world to recognize zip code or postal code for mail sorting. There are different techniques that can be used to recognize handwritten characters. Two techniques researched in this paper are Pattern Recognition and Artificial Neural Network (ANN). Both techniques are defined and different methods for each technique is also discussed.

SANDHYA ARORA[2]: In this paper a method for recognition of handwritten devanagari characters is described. Here, feature vector is constituted by accumulated directional gradient changes in different segments, number of intersections points for the character, type of spine present and type of shirorekha present in the character. One Multi-layer Perceptron with conjugate-gradient training is used to classify these feature vectors. This method is applied to a database with 1000 sample characters and the recognition rate obtained is 88.12%.

DEEPILA AHUJA[3]: This paper presents a new approach to off-line handwritten numeral recognition. Recognition of handwritten numerals has been one of the most challenging task in pattern recognition. Recognition of handwritten numerals poses serious problems because of high variability in numeral shapes written by individuals. This paper concerns with offline handwritten numeral recognition based on MLP and SVM classifiers.The performance of character recognition system depends heavily on what kind of features extraction techniques are being used.

MONJI KHERALLAH[4]: The handwriting is one of the most familiar communication media. Pen based interface combined with automatic handwriting recognition offers a very easy and natural input method. The handwritten signal is on-line collected via a digitizing device, and it is classified as one pre-specified set of characters. The main techniques applied in our work include two fields of research. The first one consists of the modeling system of handwriting., we developed a novel method of the handwritten trajectory modeling based on elliptic and Beta representation.

MARCUS LIWICKI ALEX GRAVES[5]: In this paper we introduce a new connectionist approach to on-line handwriting recognition and address in particular the problem of recognizing handwritten whiteboard notes. The approach uses a bidirectional recurrent neural network with long short-term memory blocks. We use a recently introduced objective function, known as Connectionist Temporal Classification (CTC),that directly trains the network to label unsegmented sequence data.

JAAFAR M.ALGHAZO[6]: Automated handwritten script recognition is an important task for several applications. In this article, a multi-language handwritten numeral recognition system is proposed using novel structural features. A total of 65 local structural features are extracted and several classifiers are used for testing numeral recognition. Random Forest was found to achieve the best results with an average recognition of 96.73%. The proposed method is tested on six different popular languages, including Arabic Western, Arabic Eastern, Persian, Urdu, Devanagari, and Bangla.

A.RATNA RAJU[7]: Classification methods based on learning from examples have been widely applied to character recognition from the 1990s and have brought forth significant improvements of recognition accuracies. A Neural network is a machine that is designed to model the way in which the brain performs a particular task or function of interest. The network is usually implemented by using electronic components or is simulated in software on a digital computer.The results are quite encouraging in terms of percentage of characters being successfully recognized.

RAGHUNATH DEY[8]: Handwritten Number or digit recognition plays an important role in different platforms and applications. Here, a novel technique based on a string edit distance algorithm is proposed to recognize offline handwritten digit images. The recognition system tries to build up each digit's string and then predicts the digit class by comparing the test string against the existing string from the training set. The lower the edit distance among the two digit's string, the greater the chances of similarity among them. Some digit databases have evaluated this system and a variety of mixed datasets have been developed to validate the system's robustness.

ALI ABDULLAH YAHYA[9]: An enormous number of CNN classification algorithms have been proposed in the literature. Nevertheless, in these algorithms, appropriate filter size selection, data preparation, limitations in datasets, and noise have not been taken into consideration. As a consequence, most of the algorithms have failed to make a noticeable improvement in classification accuracy. To address the shortcomings of these algorithms, our paper presents the following contributions: Firstly, after taking the domain knowledge into consideration, the size of the effective receptive field (ERF) is calculated. Calculating the size of the ERF helps us to select a typical filter size which leads to enhancing the classification accuracy of our CNN.

ALI LATIF[10]: The aim of this paper is to propose a novel technique for Arabic/Farsi handwritten digit recognition. We constructed an invariant and efficient feature set by combination of four directional Chain Code Histogram (CCH) and Histogram of Oriented Gradient (HOG). To achieve higher recognition rate, we extracted local features at two levels with grids 2×2, 1×1 and it causes a partial overlapping of zones. Our proposed feature set has 164 dimensions. For classification phase, Support Vector Machine (SVM) with radial basis function kernel was used.

REFERENCES

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