Review Paper on Feature Vector Based Distance Analysis Approach for Braille Character Identification

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ABSTRACT

The Braille is the representation based language used by blind people to perform conversation. Each Braille character itself represents some symbol or word or character specific to the language such as English. A Braille character is generated using group of dots. To identify the Braille characters in an automated way, there is the requirement of some recognition system. In this review paper, an automated neural network based approach is defined to perform the recognition. The character recognition is the application of image processing used to identify the character. This application is area needs a series of image processing operations, which help us in our research work.

Keywords: OCR, Braille, Neural Network.

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1. INTRODUCTION

Character Recognition is one of the traditional fields of artificial intelligence, machine vision and the pattern recognition. In case of different systems and library management, the significance of the Character recognition is proven already. The character recognition is basically performed using the mirrors or the lenses. The character recognition is considered as the separate field so that recognition of characters will be done effectively. Character Recognition is defined as the important image processing application in which the recognition is based on multiple parameters. These parameters include the feature extraction and feature specification. The feature depends on the algorithmic approaches adapted to extract the features.

In such kind of systems, the recognition accuracy is one of the important things. Here the input is passed as the raw data and the recognition is based on the scanned image so that the effective textual components will be extracted from the image. This recognition system deals with the character identification and the scanning operation. The document is processed for feature extraction and recognition. The final outcome id derived in the form of a picture box containing the recognized character.

II. LITERATURE SURVEY

M. Egmont-Petersen [1] has defined a work on image processing neural network approach. Author presented a survey based work under different neural network approaches such as Kohonen feature map, hophel neural network etc. Author performed a recognition process under different image processing approaches such as segmentation, image encoding, feature extraction, object recognition, optimization etc.

Anna Bosch [2] presented a work on image classification using Random forest and ferns. Author has defined a work on image classification under specification of object generation so that the classification of these images to the groups will be performed.

S. Mikrut [3] has defined a neural network approach to automate the recognition process. Author defined a fragmented approach for classify the images under different neural network approaches. Author defined the usability of the work for sub image election using Kohomen neural network approach.

Giorgio Giacinto [4] has defined a work to design neural network architecture for image classification for digital character recognition. In this stage, the pattern recognition is here been defined using Neural network approach. Author defined the feature level segmentation under network formation so that error identification to the work is defined.

Dan C. Ciresan [5] has defined a flexible and high performance neural network approach for image classification. Author defined the GPU based processing for neural network based classification under filteration approach. Author defined the feature generation based on architectural specification. The object level handwrittern characters are identified to improve the recognition rate so that effective object identification will be obtained.

S.Nagaprasad [6-7] has presented a work to perform the classification using optimization algorithm. Author has combined the working of three main algorithms called Neural network, ART network and Fuzzy Adaptive ART network.

P Dan Ciresan [8] has presented a neural network based character recognition based on the biological features of image. Author has defined work based on neural network architectural analysis. Author extracted the outline feature based on convolutional filtration so that the effective network implementation to the tissue layer based extraction so that the visual features of image will be explored.

Yuanqing Maya Lin [9] has outlined an adjustive feature extraction and recognition approach using SVM for big scale image classification. The work is here performed on larger dataset so that the improved information extraction and recognition will be performed over the dataset. Author also presented the work based on the image category label identification so that the image features will be explored and the recognition based on key analysis will be applied on it. Jana Machajdik [10] has defined a feature adaptive approach for feature generation so that effective image level classification will be performed. Here the extraction of feature is based on testing and training approach. Author defined the training level mapping on image phogaphs with specification of color, shape and texture features. The group formation is defined to generate the image rating. The results are obtained to perform effective recognition of this feature image.

Kamal R. Al-Rawi [11] has presented a work on learning based approach to perform effective extraction and recognition of featured image. The work includes the design of a network system under classification model so that the object level classification to the multivalued dataset will be performed. Author presented the work under ART network specifications so that the learning process will be improved.

Jahangheer. S. Shaik [12-14] has outlined a tracking and classification approach for infrared pictures. Author has presented an approach to perform the extraction of image features and to perform the effective recognition based ont he feature analysis unsing intelligent approach. Author defined the algorithm to perform the classification under analysis on IR approach.

Jianchao principle [15] has conferred a spatial pyramid primarily based matching algrothmic program for pattern recognition. Author has defined a work on SVM approach to reduce the error rate during the classification model. Author has identified the SIFT features of image and compare them under out forms of the linear model so that effective object recognition will be performed and the object identification will be done more accurately. Author defined the kernel level analysis on image features so that the featured mapping will be generated and the effective descriptive object recognition will be performed over the image.

F.Alilat [16] has defined a fuzzy effective neural network approach for effective recognition of character image. Author defined the neuron fuzzy based approach to perform comparison and performed the vigilance parameters. Author defined the specification on quadratic measures so that effective object recognition so that network modeling to the work. Author defined network based model to generate the image features. Author defined the criteria analysis on images so that coaching analysis over the image features will be performed.

TurkerInce [17] defined a neural adaptive framework to perform the recognition on satellite images. Author defined radial basis function to generate the network similarity based classification so that the effective information extraction of the images will be obtained. Author defined the projected information form under feature generation and variance matrix so that occurrence to the matrix values will be obtained.

John R. writer [18] has defined the work based on picture level interpretation applied on agricultural image. Author processed this dataset for information extraction and classification using neural network approach. The work is here defined under extraction of land cover images and spatial information analysis based on representational features. Author defined the descriptive analysis applied on image to generate the feature set.

Gustavo Camps-Valls [19] presented a graph based approach for classification of image sunder training approach. Author generated the spectural features over the image and perform the division based on dimension analysis. Author generated the feature dimension based analysis. Author defined the kernel specification to generate the feature graph and generate the matrix level analysis under tagged and sampled data features.

G. Camps-Valls [20] has presented a spectrum feature based neural network approach for effective recognition of input image. Author defined the classification phase under the strategic formation and generation under derivation of image. Author defined the radial function based analysis to generate the discrimitive features of image and provided the experimentation to repair the image. Author defined the accuracy level analysis so that effective feature generation and recognition will be performed.

III.   NEURAL NETWORK SYSTEM FOR BRAILLE CHARACTER IDENTIFICATION

Braille is the representation based language used by blind people to perform conversation. A Braille character is generated using group of dots. To identify the Braille characters in an automated way, there is the requirement of some recognition system. In this work, a segmented block analysis approach will be defined to extract the image features. Based on this feature extraction, the feature curve will be generated over the image. This feature curve will be based on the Braille dots weights identified in the segments. This featured curve will be generated for all database characters and work as the training set for the recognition. Later on the dataset will be trained using neural network. In final stage, distance analysis on this trained value will be performed to obtain the final recognized object image.

To provide the filteration of the image and to generate the featured image so that more adaptive results will be obtained. The block adaptive analysis is defined to improve the image.

Feature Extraction: The work is defined to extract the feature from the image so that the recognition or the classification of image will be done. The statistical information extraction under sliding window based analysis is applied for the feature curve generation. The algorithmic model is used for the feature points. Once the points are obtained, the curve over these points is generated to obtain the result image.

Recognition: The edge point feature based analytical model is presented to generate the feature curve. The mapping of the image is here done based on the feature curve instead of the original image. This feature curve based mapping has provided more accurate results.
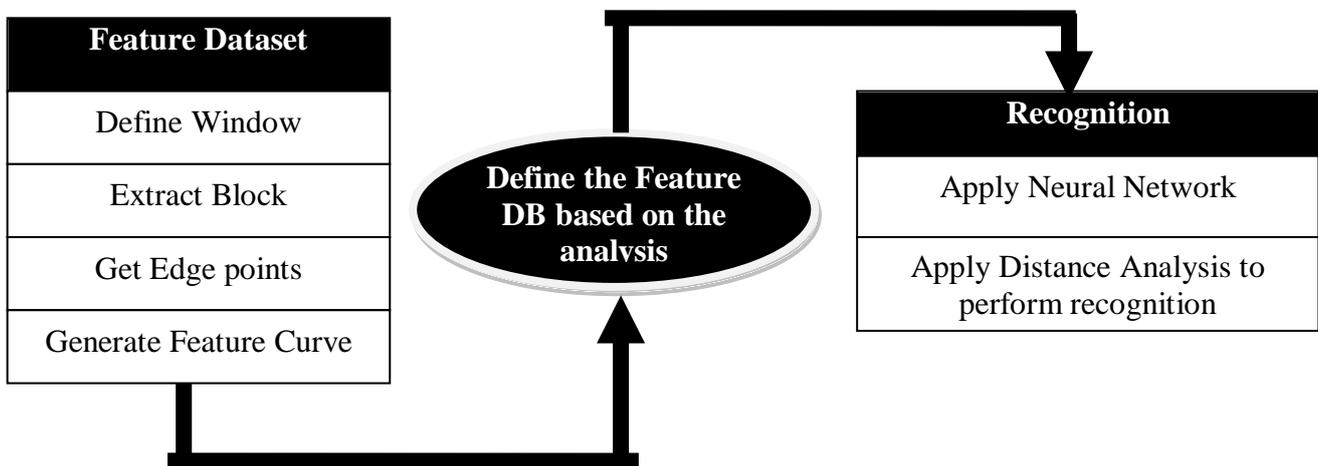

Figure 1.1:   Model of proposed work

Distance Analysis: At the final stage the distance analysis is defined to improve the recognition process. Here the weights obtained from the neural approach are considered as input to the system and later on the recognition is performed over it.

At the final stage of this work, the Neural network based distance analysis system is applied to perform to control the prediction process and to generate the effective data segmentation on weather dataset. In this work, an estimation to the clustered values is been performed using neural network based modeling. This model is here applied to perform the data classification based on self-analysis and will divide the dataset in set of classes so that effective data processing will be done. The stages for the work are given here under:

- The clustered data is taken as the input to the neural network process
- Analyze the dataset and perform the selection of most effective attribute set that can participate for result
- Analyze the weights for the data values based on the frequency analysis and the error data values
- Train the dataset with the specification self-class
- Identify the class members based on intelligent data processing.
- The evaluation of estimated class is done under performance parameter

IV.   CONCLUSION & FUTURE SCOPE

Braille character recognition is defined to provide the conversation for blind people. The computer specific automated Braille character recognition overview is provided in this work. The work has defined feature adaptive nueral network model for effective recognition of braille character. In first stage of this work, the character image is processed and converted to curve form. The curve formation is here defined based on the segmented weight analysis. The neural network based recognition model can be presented to recognize the character. This work can be implemented on different test sets.

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