Literature Survey

[1] Improved Handwritten Digit Recognition Using Convolutional Neural Networks (CNN) , IEEE Sensors Journal , 2020

In this paper, with the aim of improving the performance of handwritten digit recognition, they valuated variants of a convolution al neural network to avoid complex preprocessing, costly feature extraction and a complex ensemble (classifier combination ) approach 6 of a traditional recognition system.

[2] Handwritten Digit Recognition using CNN , International Journal of Innovative Science and Research Technology , 2019

In this paper, the most widely used Machine learning algorithms, KNN, SVM, RFC and CNN have been trained and tested on the same data in order acquire the comparison between the classifiers.

[3] Recognition of Handwritten Digit using Convolutional Neural Network in Python with Tensorflow and Comparison of Performance for Various Hidden Layers , 5th International Conference on Advances in Electrical Engineering (ICAEE) , 2019

In this paper, they observed the variation of accuracies of CNN to classify handwritten digits for 15 epochs using various numbers of hidden layers and epochs and 7 to make the comparison between the accuracies. For this performance evaluation of CNN, they performed the experiment using Modified National Institute of Standards and Technology(MNIST) dataset.

[4] Review on Deep Learning Handwritten Digit Recognition using Convolutional Neural Network , International Journal of Recent Technology and Engineering (IJRTE) , 2021

In this paper, Object Character Recognition (OCR) is used on printed or documented letters to convert them into text. The database has training image database of 60,000 images and 8 testing image database of 10,000 images. The KNN algorithm describes categorical value by making use of majority of votes of K-nearest neighbors, the K value used to differ here.

[5] Recognition of Handwritten Digit using Convolutional Neural Network (CNN) , Global Journal of Computer Science and Technology: D Neural & Artificial Intelligence , 2019

The goal of this work will be to create a model that will be able to identify and determine the handwritten digit from its image with better accuracy using using the concepts of Convolution al Neural Network and MNIST 9 dataset. Later it can be extended for character recognition and realtime person’s handwriting. The results can be made more accurate with more convolution layers and more number of hidden neurons.

Drawbacks of the Existing System:

The different architectures of CNN, hybrid CNN,CNN - RNN and CNNHMM models, and domain - specific recognition system, are not thoroughly inquired and evolutionary algorithms are not clearly explored for optimizing CNN learning parameters ,the number of layers, learning rate and kernel sizes of convolutional filters.

The fluctuation of accuracies for handwritten digits was observed for 15 epochs by varying the hidden layers. There is no clear explanation given for observing variation in the overall classification accuracy by varying the number of hidden layers and batch size.