

A NOVEL METHOD FOR HANDWRITTEN DIGIT RECOGNITION SYSTEM

Literature Survey

Paper 1: A Novel Handwritten Digit Classification System Based on Convolutional Neural Network Approach

Year: 2021

Authors: Ali Abdullah Yahya, Jieqing Tan and Min Hu

Description:

The process of calculating the size of the Effective Receptive Field(ERF) helps to select a typical filter size. It leads to enhance the classification accuracy using CNN. The core idea behind applying data augmentation is to avert the overfitting problem by artificially increasing the size of our datasets without collecting new data. Some cases there is an amount of almost 1% of the values that have exist outside the main diagonal, which means that our proposed algorithm still produces some of the mislabeled elements. The principal reason for the failure of our model to correctly labeled these elements could be that the different handwritten digit images vary in size and style, which makes the classification mission much harder even for humans. In addition to that, our CNN model with data augmentation consumes a bit more time than CNN without data augmentation because of the extra data that has been extracted from the original dataset.

Paper 2: Multiple classifiers fusion and CNN feature extraction for handwritten digits recognition

Year: 2019

Authors: Hui-huang Zhao and Han Liu

Description:

For feature extraction, A correlation-based feature subset selection method was used to obtain diverse feature sets and setting multi-level fusion of classifiers trained on different feature sets. a framework that involves CNN based feature extraction and multi-level fusion of diverse classifiers. In particular, we have designed to increase the diversity among classifiers through preparing different feature sets and using different learning algorithms for classifiers training.

Paper 3: An efficient and improved scheme for handwritten digit recognition based on convolutional neural network

Year: 2019

Authors: Saqib Ali, Zeeshan Shaukat, Muhammad Azeem, Zareen Sakhawat, Tariq Mahmood and Khalil ur Rehman

Description:

CNN propagates features of lower-level layers to produce features of higher-level layers contrary to traditional Neural Networks(NN). CNN architecture design consists of two convolutional layers to exhibit high performance in terms of time and accuracy. recognition of handwritten digit using convolutional neural network (CNN), incorporating a Deeplearning4j (DL4J) framework, with rectified linear units (ReLU) activation is implemented. The proposed CNN framework is well equipped with suitable parameters for high accuracy of MNIST digit classification.