

PROBLEM STATEMENT

Handwriting recognition has been the main subject of research for almost the last forty years. This research work analyzes the behaviour of classification techniques (CNN) in a large handwriting dataset (MNIST) to predict a digit. Machine-learning techniques, particularly when applied to Neural Networks like CNN or ANN, have played an increasingly important role in the design of these recognition systems. Several methods have been developed in handwritten digit recognition and these methods have been classified into categories: knowledge-based methods, feature-based methods, template-based methods and appearance-based methods. Errors in Digit recognition cause severe problems like digits written on a bank cheque if recognized erroneously could result in unfortunate consequences.

The goal of our work is to create a model that will be able to recognize and classify the handwritten digits from images by using concepts of Convolution Neural Network. Though the goal of our research is to create a model for digit recognition and classification, it can also be extended to letters and an individual's handwriting. The major goal of the proposed system is understanding Convolutional Neural Network, and applying it to the handwritten digit recognition system by working on the MNIST dataset. There have already been significant advancements in this area of research previously. We have tried to form a model around the Conventional Neural Network with MNIST as our dataset so that the model has high accuracy and has been trained and tested on a large dataset. We shall also consider developing a robust test harness for estimating the performance of the model and then exploring improvements to the model. With high accuracy rates, the model can solve a lot of reallife problems.