Abstract

In this paper, new features called Slope Detail (SD) features for handwritten digit recognition have been introduced. These features are based on shape analysis of the digit image and extract slant or slope information. They are effective in obtaining good recognition accuracies. When combined with commonly used features, Slope Detail features enhance the digit recognition accuracy. K-Nearest Neighbour (k-NN) and Support Vector Machine (SVM) algorithms have been used for classification purposes. The data sets used are the Semeion Data Set and United States Postal Service (USPS) Data Set. For the USPS Data Set an error rate of 1.3% was obtained, which has been found to be better than any reported error rate on the said data set.

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Handwritten Digit Recognition using Slope Detail Features

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Index Terms

Computer Science

Pattern Recognition

Keywords

Slope Features; Handwritten digits; Pattern Classification; Nearest Neighbor; Support Vector Machine; Artificial Intelligence; Gradient Feature; USPS Data Set;