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**INTRODUCTION**

- The objective is to reduce the data dimensionality by extracting the most important features from character images.
- The main aim is to propose a fast and easy to use feature extraction method that obtains a good performance.
- The hotspot technique extracts important information from the character images and is fairly robust to translation and rotation variances.

**DATA COLLECTION AND PRE-PROCESSING**

- 5,900 records of The Thai data set - 65 classes
- 9,595 records of The Bangla numeric data set - 10 classes
- 10,000 records of The MNIST data set - 10 classes

Pre-processing starts off with cropping the exceeding parts of scanned images. These images are transformed into binary images and scaled to 40 × 40 pixels.

**EXPERIMENTAL RESULTS**

- The feature vectors obtained from the hotspot techniques are classified by the k-NN algorithm.
- Randomly divided the data into a test (10%) and training set (90%) 10 different times.
- The best feature extraction techniques for classification is hotspot technique, (Table 1).

**ABSTRACT**

The novel feature extraction technique called the hotspot technique is proposed for representing handwritten characters and digits. This technique is applied to three data sets and combined with by the k-Nearest Neighbors (k-NN) algorithm. The results revealed that the hotspot technique provides the largest classification accuracies.

**Keywords:** Handwritten Character Recognition, Feature Extraction, k-Nearest Neighbors, Classification.