A NOVEL METHOD FOR HANDWRITTEN DIGIT RECOGNITION SYSTEM

LITERATURE SURVEY

1. A Novel Method of Combined Feature Extraction for Recognition Publisher: IEEE 2008 conference

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   EXPLANATION: Multimodal recognition is an emerging technique to overcome the non-robustness of the unimodal recognition in real applications. Canonical correlation analysis (CCA) has been employed as a powerful tool for feature fusion in the realization of such multimodal system. However, CCA is the unsupervised feature extraction and it does not utilize the class information of the samples, resulting in the constraint of the recognition performance. In this paper, the class information incorporated into the framework of CCA for combined feature extraction, and a novel method of combined feature extraction for multimodal recognition, called discriminative canonical correlation analysis (DCCA), is proposed. The experiments show that DCCA outperforms some related methods of both unimodal recognition and multimodal recognition.

2. A Novel Method for Persian Handwritten Digit Recognition UsinG Support Vector Machine

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EXPLANATION: Persian handwritten digits classification has been facing difficulties due to different handwritten styles, inter-class similarities, and intra-class differences. In this paper, a novel method for detecting Persian handwritten digits is presented. In the proposed method, a combination of Histogram of Oriented Gradients (HOG), 4-side profiles of the digit image, and some horizontal and vertical samples was used and the dimension of the feature vector was reduced using Principal Component Analysis (PCA). The proposed method applied to the HODA database, and Support Vector Machine (SVM) was used in the classification step. Results revealed that the detection accuracy of such method has 99% accuracy with an adequate rate due to existing unacceptable samples in the database.

3. Handwritten Text Recognition System Based on Neural Network

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EXPLANATION: Handwritten text recognition is still an open research issue in the domain of Optical Character Recognition (OCR). This paper proposes an efficient approach towards the development of handwritten text recognition systems. 3-layer Artificial Neural Network (ANN) is utilized in this Paper using supervised learning approach. The choice of optimal feature vectors greatly the accuracy of any text recognition system therefore bit map representation of input samples are utilized as feature vector. The feature vectors are ⚥ rst pre-processed and then applied to the ANN along with the generated target vectors; that are generated on the basis on input samples. 55 samples of each English alphabet are used as a ANN training process in order to make sure the general applicability of system towards new inputs. Two different learning algorithms are utilized in this paper. Additive image processing algorithms are also developed in order to deal with the multiple characters input in a single image, tilt image and rotated image. The trained system provides an average accuracy of more than 95 % with the unseen test image.