Abstract

Numeral recognition remains one of the most important problems in pattern recognition. To the best of our knowledge, little work has been done in Devnagari script compared with those for non Indian scripts like Latin, Chinese and Japanese. In this paper we propose an effective method for recognition of isolated Marathi handwritten numerals written in Devnagari script. Fourier Descriptors that describe the shape of Marathi handwritten numerals are used as feature. 64 dimensional Fourier Descriptors represents the shape of numerals, invariant to rotation, scale and translation. Three different classifiers, namely, nearest neighborhood (NN), K-nearest neighborhood (KNN) and Support Vector Machine (SVM) are used independently in order to recognize test numeral. These classifiers are trained with 64 dimensional Fourier Descriptors (FD) of training samples. The proposed system is experimented with a database of 13000 samples of Marathi handwritten numerals using fivefold cross validation method for result computation. An overall recognition rate of 97.05%, 97.04% and 97.85% are obtained for NN, KNN and SVM respectively.

Reference

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- S. Kumar and C. Singh, “A Study of Zernike Moments and its use in Devnagari

**Index Terms**

Computer Science Pattern Recognition

**Key words**

Handwritten numeral
Fourier Descriptors

Nearest Neighbor (NN)
K-Nearest Neighbor (KNN)
Support Vector Machines (SVM)