Abstract

Selection of feature extraction method is most important factor in achieving high recognition performance in automatic numeral recognition systems. This paper presents an efficient and novel method for recognition of machine printed and handwritten Kannada numerals using Crack codes and Fourier Descriptors. Printed and handwritten Kannada numerals are scan converted to binary images and normalized to a size of 40 x 40 pixels. Crack code that represents the line between the object pixels and the background (the ‘crack’) is computed. The code obtained is then represented in complex plane and 10 dimensional Fourier...
descriptors are computed and are used as features. SVM classifier is used in the recognition phase. The proposed combination of feature extraction method and SVM classifier is applied with success to a database of 2500 printed multi-font printed Kannada numerals and 3150 handwritten Kannada numerals. The experiment is carried out using five-fold cross validation method. The average recognition accuracy of 99.76% and 95.22 % are obtained for printed and handwritten numerals, respectively.

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