Abstract

In this paper a script independent automatic numeral recognition system is proposed. A single algorithm is proposed for recognition of Kannada, Telugu and Devanagari handwritten numerals. In general the number of classes for numeral recognition system for a scripts/language is 10. Here, three scripts are considered for numeral recognition forming 30
classes. In the proposed method 30 classes have been reduced to 18 classes. The global and
local structural features like directional density estimation, water reservoirs, maximum profile
distances and fill hole density are extracted. A Probabilistic neural network (PNN) classifier
is used in the recognition system. The algorithms efficiency is for various radial values of PNN
classifiers, with different experimental setup and obtained encouraging results are compared to
other methods proposed in the literature survey. A total of 2550 numeral images of Kannada,
Telugu and Devanagari scripts are considered for experimentation. The overall accuracy of the
system is 97.20%. The novelty of the proposed method is that, it is script independent, thinning
free, fast, and without size normalization.

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Index Terms

Computer Science

Pattern Recognition

Key words

OCR Handwritten Numeral Indian scripts

Structural feature

Probabilistic Neural Net (PNN)