Abstract

Recently there is an emerging trend in the research to recognize handwritten characters and numerals of many Indian languages and scripts. In this manuscript we have practiced the recognition of handwritten Gurmukhi numerals using three feature sets and three classifiers. Among three feature sets, first feature set is comprised of distance profiles having 128 features. Second feature set is comprised of different types of projection histograms having 190 features. Third feature set is comprised of zonal density and Background Directional Distribution (BDD) forming 144 features. The three classifiers used are SVM, PNN and K-NN. The SVM classifier is used with RBF (Radial Basis Function) kernel. We have observed the 5-fold cross validation
accuracy in the case of each feature set and classifier. We have obtained the optimized result with each combination of feature set and classifier by adjusting the different parameters. The results are compared and trends of result in each combination of feature set and classifier with varying parameters is also discussed. With PNN and K-NN the highest results are obtained using third feature set as 98.33% and 98.51% respectively while with SVM the highest result is obtained using second feature set as 99.2%. The results with SVM for all feature sets are higher than the results with PNN and K-NN.

References


Index Terms

Computer Science Emerging Trends in Technology

Keywords
Handwritten Gurmukhi Numeral Recognition  Zonal Densitydistance Profiles  Background Directional Distribution (bdd)
Svm
Pnn
K-nn
Rbf Kernel.