Abstract

The work, as mentioned can be used in the forensic studies for identifying the authenticity of a person. We can use the work in age analysis of the person from his writing. Further the efficiency of the system is very high in comparison to the existing system. The work is to recognize handwriting of a person by using hidden markov model, support vector machine and our new approach HMM-SVM classifier using MATLAB. In previous HMM and SVM classifier are used to the handwriting recognition. In this paper we used the combined features of HMM and SVM classifier using combination of Curvelet transform and Invariant transform. Performance of the system depends entirely on the feature vectors. Further we compare the performance of HMM, based technique with combined HMM- SVM based technique and found that for some combined HMM-SVM technique is better than HMM. Only curvelet transform using HMM or SVM get good accuracy but for better accuracy required the combined HMM-SVM classifier. It improve the problem of HMM classifier of multiple detection of Class to. However a kernel based technique adds advantage over probabilistic methods in certain deterministic states. Hence we combine both HMM and SVM to design a combined classifier for the problem. We have also evaluate the performance of HMM, SVM and Combined
New Approach of Hand Writing Recognition using Curvelet Transform and Invariant Statistical Features

HMM-SVM classifier.

References

- David A. Katz, Handwriting Analysis
- Javed Ahmed Mahar, Mohammad Khalid Khan, Prof. Dr. Mumtaz Hussain Mahar, &quot;Off-line Signature Verification of Bank Cheque Having Different Background Colors&quot;.
- Bikash Shaw, Swapan Kumar Parui, Malayappan Shridhar Offline Handwritten Devanagari Word Recognition: A holistic approach based on directional chain code feature and HMM
- Edson J. R. Justin0 FlifioBortolozzi &apos;; Robert Sabourin &apos;; Off-line Signature Verification Using HMM for Random, Simple and Skilled Forgeries

**Index Terms**

Computer Science  
Pattern Recognition

**Keywords**

Hidden markov model (HMM)  
state vector machine-SVM  
HMM-SVM classifier  
Curvelet transform (CT)  
Invariant Statistical Features (IFS)

Thresholding