Abstract

In biometric identification, fingerprints are most widely used. Fingerprint identification has become time consuming because of growing size of fingerprint databases. Fingerprint classification can be one of the significant preprocessing steps to improve the speed of fingerprint identification systems. Fingerprint Classification is done to put a given fingerprint to one of the existing classes. Classifying fingerprint images is a very difficult pattern recognition problem, due to the small interclass variability. In this paper a comparative analysis based on vector quantization for fingerprint classification using Kekre’s Fast Codebook Generation (KFCG) is presented using various codebook sizes and window sizes. KFCG is one of the better and faster vector quantization codebook generation methods. Here, Fingerprint Classification is done using KFCG codebook of sizes 4, 8 and window sizes 2x2, 4x4, 6x6, 7x7, 8x8, 9x9, 10x10 and 16x16. The proposed approach is computationally lighter. It is observed that the method effectively improves the computation speed and provides accuracy of 84% for window size 7x7 and codebook of size 4 and for codebook of size 8 accuracy is 74% for window size 8x8.
Comparison of Fingerprint Classification using KFCG Algorithm with Various Window Sizes and Codebook Sizes

References

Comparison of Fingerprint Classification using KFCG Algorithm with Various Window Sizes and Codebook Sizes


Index Terms

Computer Science

Pattern Recognition

Keywords

Vector Quantization
Kekre's Fast Codebook Generation (kfcg)
Fingerprint Classes