Abstract

The paper presents iris recognition technique based on the concept of Energy Compaction. Compaction is done by using the partial energies of transformed iris images. Various Self mutated hybrid wavelet transforms (SMHWT) namely ‘Cosine-Haar’, ‘Cosine-Hartley’, and ‘Cosine-Slant’ are used to generate feature vector of iris images. The important task is reducing the size of feature vector so that the performance of system can be increased. The reduction of size of feature vector is achieved by using the concept of partial energies. The size of feature vector reduces immensely for 99%, 98%, 97% and 96% of energy. The size of feature vector is extremely large while considering all the coefficients of transformed iris images for 100% of energy which leads more computation. System gives better performance when partial energies are considered. The proposed technique is tested on Palacky University Iris Database. Genuine Acceptance Rate (GAR) is used as a metric to test the performance of the proposed Iris recognition technique. The self mutated hybrid wavelet transform of ‘Cosine-Haar’ gives preeminent GAR value as compared to other transforms considered. Results show the proposed technique gives better performance in terms of accuracy by considering partial.
energies as compared to 100% energy.

References


Index Terms

Computer Science

Image Processing
Keywords

Iris Recognition, Feature Vector, Genuine Acceptance Rate, Energy Compaction, Self Mutated Hybrid Wavelet Transform, Cosine transform, Haar Transform, Hartley Transform, Slant Transform.