Abstract

With an ever growing emphasis on security systems, automated personal identification based on biometrics has been getting extensive focus in both research and practical over the last decade. The methods for iris recognition mainly focus on feature representation and matching. As we known traditional iris recognition method is using Gabor Wavelet features, the iris recognition is performed by a 256 byte iris code, which is computed by applying Gabor wavelets to a given portion of iris. Log Gabor wavelet based features are invariant to changes in brightness and illumination whereas techniques like principal component analysis can produce spatially global features. The goal of this paper is to compare feature extraction algorithm based on PCA, Log Gabor Wavelet and Gabor Wavelet. We use these methods to generate feature vectors that could represent iris efficiently. Conclusions based on comparisons can provide useful information for further research. Performance of these algorithms is analyzed using CASIA database.
The Comparison of Iris Recognition using Principal Component Analysis, Log Gabor and Gabor Wavelets

References

- J. Daugman (2003), "Demodulation by Complex valued wavelets for stochastic pattern recognition," International Journal of Wavelets, Multiresolution and Information Processing, 1(1), 1-17
- R. Johnson (1991), "Can Iris Patterns Be Used to Identify People?" Chemical and Laser Sciences Division LA-12331-PR, Los Alamos National Laboratory, Calif.

The Comparison of Iris Recognition using Principal Component Analysis, Log Gabor and Gabor Wavelets

- Peng Yao, Jun Li, Xueyi Ye, Zhenquan Zhuang, Bin Li (2006), "Iris Recognition Algorithm using modified Log Gabor Filters," The 18th International Conference on Pattern Recognition(ICPR&apos;s06), IEEE Computer Society, 461-464.
- R. O. Duda, P. E. Hurt (1972), "Use of Hough transform to detect line and curves in pictures," Communication of ACM.

Index Terms

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