A Novel Approach for Finger Vein Pattern Enhancement using Gabor and Canny Edge Detector

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Abstract

Biometrics is the science of identifying a person using physiological or behavioural features. A biometric verification system authenticates an individual's identity by matching the live biometric template to his/her biometric template or templates stored in the system database. Nevertheless, finger vein verification system is cost effective in comparison but high in accuracy with opportunities of fake detection and bio-cryptography system. Previous research on finger vein verification has proved that it's accuracy relies on enhancement of vein image pattern quality. However, at times noise generates as a result of hair and skin texture, which is as well enhanced because they are much resembles the vein structure. Noise is any process that affects the original image since it is not part of the original image. This causes great error when extracting accurate vein patterns. It also leads to increasing processing time during finger vein extraction, which is eventually cause an inaccuracy in matching/verification system. To overcome this problem, a novel approach for finger vein pattern enhancement using Gabor-Canny edge detector is proposed, which is far better and more accurate than previous
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method.

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Index Terms

Computer Science  Image Processing

Keywords

Noise, Finger vein detection, ROI, Gabor filter, Canny edge detector