Abstract

In an automatic fingerprint identification system (AFIS), the fingerprint enhancement algorithm is mainly used to improve the visual quality of the input fingerprint image. The factors affecting the quality of an input fingerprint image may be the presence of scars, cuts, pressure variation between the finger and sensor, worn artifacts, and humidity during acquisition process. An enhancement algorithm is applied on the input fingerprint image to improve image quality and to repair broken ridges. This paper proposes a new method of enhancing fingerprint image. The method uses a hybrid approach of a new orientation scheme and a Circular Gabor filter to improve the visual quality of the fingerprint image. The proposed approach is compared to other enhancement algorithms using structural similarity index (SSIM). Experimental results and comparative analysis show that the new method performs better than the previous methods.

References


**Index Terms**

Computer Science

Pattern Recognition

**Keywords**

Fingerprint Image Histogram Equalization Fast Fourier Transform Orientation Circular Gabor Filter Ssim