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EFFICIENT PERSON RECOGNITION BASED ON BIMODAL BIOMETRIC TRAITS

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Abstract

This paper proposes a method for efficient person recognition using bimodal biometrics, which has practical applications in various fields. The method involves integrating two different biometric traits, such as fingerprints and facial recognition, to enhance accuracy and security. The fingerprint part in an image is cropped, and Histogram Equalization (HE) is applied. The cropped HE image is resized to 400 x 400, and Discrete Wavelet Transform (DWT) transforms into low and high-frequency bands. The low-frequency LL-band of size 200 x 200 is considered by discarding the highfrequency bands of LH, HL, and HH to reduce noise and dimensionality. The LL band coefficients are converted into column vectors to obtain final features. The Euclidean Distance (ED) compares test fingerprints with database fingerprints to compute performance parameters. The face recognition is based on a modified power law transform and the Viola-Jones algorithm. The Double Density Dual Tree Discrete Wavelet Transforms (DDDTDWT) extract features. The ED matches the obtained features of the database and tests face images to compute performance parameters. The computed Percentage Recognition Rate (PRR) for fingerprint and face recognition systems are fused using the Bayesian theorem. It is seen that the recognition rate of the proposed method is better compared to the unimodal biometrics.

Author Keywords

Biometrics, BI-Modal, DWT, Fingerprint, Face Images, Fusion.

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