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The Identification of ear prints using complex gabor filters

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Abstrak

Biometrics is a method used to recognize humans based on one or a few characteristics physical or behavioral traits that are unique such as DNA, face, fingerprints, gait, iris, palm, retina, signature and sound. Although the facts that ear prints are found in 15% of crime scenes, ear prints research has been very limited since the success of fingerprints modality. The advantage of the use of ear prints, as forensic evidence, are it relatively unchanged due to increased age and have fewer variations than faces with expression variation and orientation. In this research, complex Gabor filters is used to extract the ear prints feature based on texture segmentation. Principal component analysis (PCA) is then used for dimensionality-reduction where variation in the dataset is preserved. The classification is done in a lower dimension space defined by principal components based on Euclidean distance. In experiments, it is used left and right ear prints of ten respondents and in average, the successful recognition rate is 78%. Based on the experiment results, it is concluded that ear prints is suitable as forensic evidence mainly when combined with other biometric modalities.