Windowing system facial detection based on gabor kernel filter, fast fourier transform, and probabilistic learning vector quantization

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Abstrak

Facial detection is a crucial stage in the facial recognition process. Misclassification during the facial detection process will impact recognition results. In this research, windowing system facial detection using the Gabor kernel filter and the fast Fourier transform was proposed. The training set images, for both facial and non-facial images, were processed to obtain the local features by using the Gabor kernel filter and the fast Fourier transform. The local features were measured using probabilistic learning vector quantization. In this process, facial and non-facial features were classified using label 1 and -1. The proposed method was evaluated using facial and non-facial image testing sets, which were taken from the MIT+CMU image database. The testing images were enhanced first before the detection process using four different enhancement methods: histogram equalization, adaptive histogram equalization, contrast limited adaptive histogram equalization, and the single-scale retinex method. The detection results demonstrated that the highest average accuracy was 83.44%.