Scale Invariant static hand-postures detection using Extended Higher-order Local Autocorrelation features

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Abstract

This paper presents scale invariant static hand postures detection methods using extended HLAC features extracted from Log-Polar images. Scale changes of a handposture in an image are represented as shift in Log-Polar image. Robustness of the method is achieved through extracting spectral features from the each row of the Log-Polar image. Linear Discriminant Analysis was used to combine features with simple classification methods in order to realize scale invariant hand postures detection and classification. The method was successful tested by performing experiment using NSU hand posture dataset images which consists 10 classes of postures, 24 samples of images per class, which are captured by the position and size of the hand within the image frame. The results showed that the detection rate using Extended-HLAC can averaged reach 94.63% higher than using HLAC features on a Intel Core i5-4590 CPU running at 3.3 GHz.

References

Index Terms

Computer Science
Image Processing
Keywords

Scale invariant, log polar image, posture detection, posture classification.