Towards Integrating Statistical Color Features for Human Skin Detection

Authors : Mohd Zamri Osman, Mohd Aizaini Maarof, Mohd Foad Rohani

Abstract : Human skin detection recognized as the primary step in most of the applications such as face detection, illicit image filtering, hand recognition and video surveillance. The performance of any skin detection applications greatly relies on the two components: feature extraction and classification method. Skin color is the most vital information used for skin detection purpose. However, color feature alone sometimes could not handle images with having same color distribution with skin color. A color feature of pixel-based does not eliminate the skin-like color due to the intensity of skin and skin-like color fall under the same distribution. Hence, the statistical color analysis will be exploited such mean and standard deviation as an additional feature to increase the reliability of skin detector. In this paper, we studied the effectiveness of statistical color feature for human skin detection. Furthermore, the paper analyzed the integrated color and texture using eight classifiers with three color spaces of RGB, YCbCr, and HSV. The experimental results show that the integrating statistical feature using Random Forest classifier achieved a significant performance with an F1-score 0.969.