

## Reduction of False Positives in Head-Shoulder Detection Based on Multi-Part Color Segmentation

**Authors :** Lae-Jeong Park

**Abstract :** The paper presents a method that utilizes figure-ground color segmentation to extract effective global feature in terms of false positive reduction in the head-shoulder detection. Conventional detectors that rely on local features such as HOG due to real-time operation suffer from false positives. Color cue in an input image provides salient information on a global characteristic which is necessary to alleviate the false positives of the local feature based detectors. An effective approach that uses figure-ground color segmentation has been presented in an effort to reduce the false positives in object detection. In this paper, an extended version of the approach is presented that adopts separate multipart foregrounds instead of a single prior foreground and performs the figure-ground color segmentation with each of the foregrounds. The multipart foregrounds include the parts of the head-shoulder shape and additional auxiliary foregrounds being optimized by a search algorithm. A classifier is constructed with the feature that consists of a set of the multiple resulting segmentations. Experimental results show that the presented method can discriminate more false positive than the single prior shape-based classifier as well as detectors with the local features. The improvement is possible because the presented approach can reduce the false positives that have the same colors in the head and shoulder foregrounds.

**Keywords :** pedestrian detection, color segmentation, false positive, feature extraction

**Conference Title :** ICPRML 2016 : International Conference on Pattern Recognition and Machine Learning

**Conference Location :** Bangkok, Thailand

**Conference Dates :** December 12-13, 2016