

Survey on face detection methods

ABSTRACT

Face detection has attracted attention from many researchers due to its wide range of applications such as video surveillance, face recognition, object tracking and expression analysis. It consists of three stages which are preprocessing, feature extraction and classification. Firstly, preprocessing is the process of extracting regions from images or real-time web camera, which then acts as a face or non-face candidate images. Secondly, feature extraction involves segmenting the desired features from preprocessed images. Lastly, classification is a process of clustering extracted features based on certain criteria. In this paper, 15 papers published from year 2013 to 2018 are reviewed. In general, there are seven face detection methods which are Skin Colour Segmentation, Viola and Jones, Haar features, 3D-mean shift, Cascaded Head and Shoulder detection (CHSD), and Libface detection. The findings show that skin colour segmentation is the most popular method used for feature extraction with 88% to 98% detection rate. Unlike skin colour segmentation method, Viola and Jones method mostly comprise of face regions and other parts of human body with 80% to 90% detection rate. OpenCV, Python or MATLAB can be used to develop real-life face detection system.