Lips detection in the normalised RGB colour scheme

ABSTRACT

Lips detection is used in many applications such as face detection and lips reading. In this paper a method for lips detection in colour images in the normalised RGB colour scheme is presented. A new method, called maximum intensity normalisation, is investigated and compared with the traditional pixel intensity normalisation method. The intensity of the colour image is first normalised using either the pixel or maximum intensity normalisation methods. Then, the skin regions in the image are determined by histogram thresholding the r-b and r-g chrominance components. The skin regions are then thresholded to classify the pixels in the image into lips or non-lips pixels. Two methods for selecting the threshold value where investigated. In the first method, the threshold value is the value that gives the minimum error of both classes. For the second method, the threshold is the value where the error of both classes is the same. Two Asian databases were used. The first was created in-house and the second was collected from the WWW. It was found out that there is no significant difference on the percentage of correct classification between the two threshold selection methods for both databases. However, percentage of correct classification for the in-house database was considerably higher than that of the WWW database.