DETECTING FACES IN ARBITRATORY IMAGES USING A SIMPLE TECHNIQUE

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With ever growing interest in multimedia information processing, face detection has been used in various applications. Since the existing face detection techniques are based on complex algorithms or concepts, this research work investigates a simple technique to detect human faces in still images.

This report presents a face detection technique that is based on simple image processing techniques. The developed system uses the symmetric characteristic of straight posed human faces. Due to restrictions on speed and performance, this research use images smaller than 330 × 220 pixels in resolution.

The developed algorithm uses a mask of 1s and -1s (Figure 10) and the size can be defined by the user.

If the image being processed contains a symmetric face of size less than the size of the defined mask, the mask will produce a smaller value after convolution. This concept can be used to determine a symmetric face and the location of the face in the scanned image. Location is displayed on the next picture box of the developed system by marking the corresponding pixels with black. If the height of the symmetric object is larger it will be displayed as a line in the next picture box of the system.

When an image with a uniform background is scanned, at first the uniform background is eliminated automatically by the developed system. Therefore the developed system can be used to detect human faces in both uniform and in non uniform backgrounds.

The system was tested with 20 images which contain uniform backgrounds, non uniform backgrounds and human faces of various sizes. The images were tested by the system with different sizes of masks such as 20×5, 40×5, 60×5. and it could detect human faces with 77% of accuracy.