Abstract

Face detection is the problem of determining whether a sub-window of an image contains a face or not.

The rapidly expanding research in face processing is based on the premise that information about a user's identity, state, and intent can be extracted from images, and that computers can then react accordingly.
A Hybrid Approach to Human Face Detection

This hybrid face detection system is combination of two methods i.e. Feature Extraction method and Neural Networks method. This method works in two stages. The first stage involves extraction of pertinent features from the localized facial image using Gabor filters. Second stage requires classification of facial images based on the derived feature vector obtained in the previous stage. And so a Neural Network Based classifier is used which examines an incremental small window of an image to decide if there is a face contained in each window. The neural network is trained to choose between two classes 'faces' and 'non-faces' images. To decrease the amount of time needed for detection and to enhance image's quality, processing the image before training the neural network on these two classes enhances the algorithm. Training a neural network for the face detection task is a challenging job due to the difficulty in characterizing 'non-face' images. It is easy to get a representative sample of images that contain faces but it is much harder to get a representative sample of those images that do not contain faces.

Reference

7) K. Okajima, "Two-dimensional Gabor-type receptive field as derived by mutual information maximization, Neural Networks", 1998.
8) Yale Database available at http://cvc.yale.edu/

Index Terms

Computer Science

Pattern Recognition

Key words

HYBRID APPROACH

pertinent features

Gabor filters
Neural Network Based