Face Identification from a Partial Face View (FIPV)

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ABSTRACT

Face recognition systems have essential applications in daily life and for many organizations such as in surveillance systems and identification and verification systems. Face detection is the first step of the face recognition process that deals with identification of humans. Face recognition is certainly a challenging investigation research field in computer vision. In this thesis, a new system, called Face Identification from a Partial Face View (FIPV), is presented to perform person identification in three phases, where the database system used by FIPV is a head-pose image database. In the first phase of FIPV, the Viola-Jones algorithm is used to detect faces in the input images. In the second phase, a proposed Split and Rotate Face Detection algorithm (SRFD) is applied to enhance the Viola-Jones algorithm. It splits each image undetected by Viola-Jones into two parts, four parts, six parts, or eight parts, and then, each part is rotated with angles ranging from -90° to +90° until a face is detected in one of these parts. In the third phase, the FIPV system uses the eigenfaces method with a Train Database and a Test Database

to identify the person. This phase compares the selected test image with images in the database system until it identifies the person, and then it shows the corresponding personal information. Finally, the identified test image is added to the Train Database. The implementation of our FIPV system and SRFD algorithm demonstrated a significant performance with 31% better than other techniques.