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Face Recognition Techniques: A Critical Review

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Abstract

Humans have the ability to identify each other. Identification of a person by his facial image is known as face recognition. To identify a person by comparing image data or live capture with stored data is the biometric method of face recognition. A set of measurable and unique characteristics of a person can be used to recognize an individual automatically. To recognize a person automatically is one of the challenging problems in computer science. Face recognition is a technique of biometrics, which operates on image data from the obtained data. Face Recognition is used for security purposes. Physical interaction is not required in case of face recognition on behalf of the user. Face recognition is used for both verification and identification. This study of face recognition provides a review of various face recognition algorithms based on local feature extraction methods, dimensionality reduction approaches and hybrid methods. It provides a collection of face recognition techniques, critical review, and description of major face recognition algorithms. In addition, a classification of face recognition has also been provided. This work would be an attempt to study the major methods/techniques involved in the recognition of faces.

Keywords: *Biometric, face recognition, image processing, pattern recognition*

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INTRODUCTION

Computer science has become a necessary part of everything in the world. Computer Science has boundless applications in various fields of life. Following an explosion of the Internet during the 1970s, the 1980s and the 1990s there was a significant growth of the applications: remote sensing, technical diagnosis, autonomous vehicle guidance, criminology, medical imaging, image processing, security and automatic surveillance were most significantly developing areas. This process can be seen in the increasing number of hardware and software solutions available in the IT markets. One of the core applications is enforcement and its potential in commercial applications. Due to these applications, it has become an active area of research. Face recognition is the best way to identify a person because human cooperation is not required as such it has become choicest research in biometrics [2]. Many methods have been introduced for recognition that is considered as a milestone. Face recognition system means to identify or verify a person automatically from a video frame source or from an image source. Visual information plays an important and vital role in all aspects of the activities performed by a human being. The main aim in face recognition is to make a system that can