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What is the problem?

The problem addressed in the project is real-time facial recognition. The authors focus on how to effectively and efficiently recognize human faces in real-time using computer vision. This task is particularly challenging due to the large amount of data involved and the need for quick and accurate processing. The project explores how to reduce the amount of data required for face recognition and make the system faster and more robust using Principal Component Analysis (PCA). Face recognition is important for various applications like security, social media, and biometric systems.

What has been done earlier?

The earlier work involved different methods and technologies for facial recognition .Face Recognition Framework, Prior research focused on building comprehensive frameworks for facial recognition, with various approaches developed to solve the recognition problem. Face Recognition in Recordings and Cameras: Earlier studies used algorithms like Adaboost and Haar Cascade for facial detection and recognition in videos and images, particularly through the OpenCV library. Haar Cascade is an earlier, well-known algorithm for face detection. Initially, it was slow and tedious, but modified versions have made it more efficient. This method uses a series of images of a similar character (face) that are stored in a database for recognition.

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What are the remaining challenges?

The authors propose the following novel solutions

Use of PCA (Principal Component Analysis): The project reduces the amount of data involved in face recognition by applying PCA. This statistical method helps in dimensionality reduction, reducing a high-dimensional face image to a lower-dimensional space while preserving important facial features. PCA allows the system to handle large amounts of data more efficiently.

Simplified Algorithms: They developed a relatively simple but highly effective face detection algorithm that takes human skin color into account. This makes the system faster and less computationally expensive.

Fast and Robust System: The system proposed by the authors aims to be both fast and robust, making it suitable for real-time applications while being easy to understand and implement.

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