Abstract

Security is a major concern in many facets of life today. During the last decade, Forensic Science in India has also taken a big leap. Recent introduction of the said biometrics facilities in Forensic Laboratories is now ready to take the forensics to the doorsteps of common man. A decade ago, a new branch of biometric technology, palmprint authentication, was proposed whereby lines and points are extracted from palms for personal identification. In this paper, we consider the palmprint as a piece of texture imprint and apply texture-based feature extraction techniques to palmprint authentication. In order to make the proposed algorithm rotation and translation invariant, the ROI of the imprint has been cropped from the captured palmprint image, prior to feature extraction. A 2-D Gabor filter is used to extract the important features for obtaining the textural information. Features of the query palmprint image have been compared in terms of the Euclidian distance with the templates in the database. The experimental results illustrate the effectiveness of the proposed method for criminal identification based on the palmprints found at the crime scene. The results and conclusions match the standard of forensic laboratories. An efficient algorithm using Haar classifiers like features for real-time face detection is devised then motion analysis techniques are used to locate the user’s eye by
detecting eye blinks. The eye is tracked in real time using correlation with an open eye template. If the user's depth changes significantly or rapid head movement occurs, the system is automatically reinitialized. The principle of the proposed system is based on the real time eye blink detection for warning the driver of drowsiness or in attention to prevent traffic accidents. The facial images of driver are taken by a camera with frame rate of 30fps. An algorithm is proposed to determine the level of fatigue by measuring the eye blink duration and tracking of the eyes, and warn the driver accordingly. The system is also able to detect when the eyes cannot be found. These experiments on four drivers/subjects yielded an overall blink detection accuracy of 87.01% and overall drowsiness detection accuracy of 81.14%.

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Index Terms

Computer Science  Pattern Recognition

Keywords

Biometrics  Palmprint  Gabor Transform  Feature Extraction  Euclidean Distance  Personal Identification