

Human face recognition from camera using Haar-like features, application in security surveillance

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Abstract: This thesis presents a real-time facial recognition system for security surveillance, utilizing Haar-like features for efficient and robust detection. The study addresses the challenges of varying illumination, pose, and occlusions in uncontrolled environments by integrating the Haar cascade classifier for rapid face detection with a recognition module. The proposed system processes video streams from surveillance cameras, first detecting faces using the AdaBoost-trained cascade, then extracting discriminative features for identification. Experimental results demonstrate high detection accuracy and low false-positive rates under diverse conditions, with a processing speed suitable for live monitoring. The system's application in security contexts, such as access control and suspect tracking, is validated through scenario-based testing. This work contributes a practical, low-cost solution for automated surveillance, balancing computational efficiency with reliable performance. The findings confirm that Haar-like features remain a viable foundation for face detection in security systems, particularly when combined with optimized recognition algorithms.

Keywords: face recognition, Haar-like features, camera surveillance, security monitoring