

Abstract – Many research and algorithms have been developed for iris recognition in recent years due to advances in imaging acquisition and processing and renewed emphasis in biometric based security measure, given that iris recognition is still the most accurate biometrics used in security identification. The advances in imaging acquisition enabled more accurate and realistic iris images, while introducing new challenges for iris recognition due to reflection, which negatively affected the performance of the traditional segmentation methods used for iris recognition. In this paper, we present a new iris segmentation and pattern extraction algorithm that achieves high performance with or without reflection. The segmentation based iris recognition system developed in the paper streamlined while set of analysis algorithms for iris recognition from image preprocessing, feature extraction, enrollment, to recognition. The system achieved perfect recognition rate when tested on well-known iris recognition databases CASIA-IrisV1 and CASIA-IrisV3, provided by the Chinese Academy of Sciences.

Key Words – iris recognition, iris segmentation, normalization, 2D Gabor filter bank, texture feature extraction.