

User Authentication Based on Face and Periocular Regions Using Deep Learning Algorithm

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Abstract: A specific biometric characteristic must be unique for each person for whom it can be calculated and must be constant throughout time in order to be used for identifying purposes. Biometrics, which include voiceprints, fingerprints, photos, signatures, and retinal blood vessel patterns, all have significant disadvantages. While photos and signatures can be easily falsified and are inexpensive and simple to collect and keep, they cannot be reliably identified mechanically. However, because the human iris is an internal organ of the eye and is both insulated from the outside environment and easily visible up to a distance of one meter, it is an ideal biometric for an automated, fast, and reliable identification system. The most dependable and accurate biometric identification technology currently in use is iris recognition. The automated biometric identification process known as "iris recognition" makes use of mathematical pattern-recognition techniques on photographs of each individual's unique, complicated, random iris patterns. This work proposes to create a face and iris identification system that segments the face, eye, and iris region using the Grassmann algorithm, Gabor filtering, and deep neural network. Using template matching, a template of the observed region is produced. The recognition is predicated on features found in the real-time enrollment system. The outcomes demonstrate the effectiveness of the suggested approach for iris-based biometric identification

Keywords: Authentication, Biometric system, Deep learning, Face recognition, Iris classification

