Fingerprint Classification based on Neuro-Fuzzy method

zahra hosein doust*,

Abstract Fingerprint as a kind of human biometrics on the finger tips has been widely used for personal recognition in forensic and civilian applications because of its uniqueness, immutability and low cost. Fingerprint classification is an important indexing scheme to speed up the search of fingerprint database in large-scale identification system. A typical fingerprint classification algorithm usually extracts a representative feature set to capture the individuality of each fingerprint and then does some strategies to determine the fingerprint class. So when some type of feature sets and learning method is used, fingerprint classification is more reliable than when only one set of feature is applied. In this thesis, a fingerprint classification approach based on neuro-fuzzy learning through feature sets exit on fingerprint images is proposed. The proposed system consists of three primary phases. The first phase is the pre-processing; the additional areas of input images in order to achieve fingerprint areas are d. Then the input images and the images exist in the database, a series of features extracted by Torque of pseudo-Zernike. Finally fingerprint classification is done by neuro – fuzzy method. To evaluate the proposed system in this thesis, FVC2004 dataset is applied, which includes 10 classes of different people. As well as the recognition rate is evaluated, in the compare of proposed system can be observed that this method has better recognition rate as compared system.

Keywords : Keywords: Fingerprint classification, Feature extraction, Fingerprint recognition, Orientation map, Single point