A Palmprint Identification System Based Multi-Layer Perceptron

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Abstract : Biometrics has been recently used for the human identification systems using the biological traits such as the fingerprints and iris scanning. Identification systems based biometrics show great efficiency and accuracy in such human identification applications. However, these types of systems are so far based on some image processing techniques only, which may decrease the efficiency of such applications. Thus, this paper aims to develop a human palmprint identification system using multi-layer perceptron neural network which has the capability to learn using a backpropagation learning algorithms. The developed system uses images obtained from a public database available on the internet (CASIA). The processing system is as follows: image filtering using median filter, image adjustment, image skeletonizing, edge detection using canny operator to extract features, clear unwanted components of the image. The second phase is to feed those processed images into a neural network classifier which will adaptively learn and create a class for each different image. 100 different images are used for training the system. Since this is an identification system, it should be tested with the same images. Therefore, the same 100 images are used for testing it, and any image out of the training set should be unrecognized. The experimental results shows that this developed system has a great accuracy 100% and it can be implemented in real life applications.
Keywords : biometrics, biological traits, multi-layer perceptron neural network, image skeletonizing, edge detection using canny operator

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