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*Institute of Information Technology of ANAS, Baku, Azerbaijan***DEVELOPMENT OF THE METHOD OF HUMAN RECOGNITION  
IN BIOMETRIC NETWORK**

*In the work information about biometric technologies is given. The advantages of databases based on the unified platform in biometric network environment are shown. The effective ways of recognition are investigated and their comparative analysis is implemented. The human recognition in biometric network is studied and new method is suggested.*

Computer network is a broad term. A network of computers with special software means of communication lines and computers and peripheral equipment of each other. Data acquisition, transfer and sharing of information available to users of computer networks is important.

The use of biometric technologies provides reliable verification of the passengers crossing state borders, and strengthens the control of passport and visa regulations, and other identification documents. The recognition systems are of particular importance here [1].

One of the ways is to implement human recognition by using biometric networks. There is no accurate definition of biometric networks. Databases obtained from different sources are collected in biometric network. Identification of a person is implemented by using biometric characteristics and appropriate biometric features collected in the databases. For instance, human facial images, fingerprints, palm patterns, iris, etc. can be example to biometric characteristics. Implementation of identification according to multiple biometric characteristics of a person increases accuracy of recognition, for this purpose distinct algorithms developed for identification are used. Identification of any person can be implemented on the basis of the collected databases in biometric networks. Let's point distinct databases with  $X_1, X_2, X_3, \dots, X_n$  people in appropriate database with  $A_{ij}$   $i = 1, n, j = 1, m$  biometric characteristics with

$P_{ijk}$ .  $i=1, n, j=1, m, k=1, q$ . And let's point any person who is being identified with  $A_1^*, A_2^*, \dots, A_t^*$ .

Let's assume that the  $i = 1, t$  identification of  $A_i^*$  -th person should be implemented. Identification process (facial image, finger print, iris, palm pattern, skull, and hand veins) is implemented on the basis of the algorithms that are developed by using people's biometric features in databases. In this case, information stored in distinct databases in network is used. For instance, accuracy of human recognition can be 90% if any database and appropriate identification algorithm are used. If the other database and appropriate identification algorithm are used, then accuracy of recognition can be 60 %, etc. in this case, in order to increase quality of recognition, weight ratios are used.

Weight ratio of geometric traits used in human recognition based on facial images can be calculated on the basis of the algorithm given in [2, 3] work.

One of the ways is estimation of face changing which are connected in features space. Multiple images belong to one person creates a cluster. In order to achieve high recognition, features space should be chosen where the distance between any images belongs to one cluster are less than the distance between two photo-portraits in distinct clusters. However the distance between clusters in space is different, as the number of clusters increases the result of recognition will be more successful. In order to test importance of features, its impact to the deployment of images in space should be known [4, 5].

Biometric networks can be used anywhere. In recent years, as terrorism increases, people's attention is drawn to the provision of security at airports.

Using biometric networks can improve the quality of human recognition, so that it is one of the main issues in the solution of problems.

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## **RELIABILITY MODELING IN FOG-COMPUTING-BASED INFORMATION AND CONTROL SYSTEMS**

*The paper deals with the fog-computing-based information and control systems (ICS) reliability issue. There are some examples of ICSs, implemented within the relatively new fog-computing paradigm. Yet the reliability issue of ICS class considered is analyzed scarcely. Within this paper the simplified model of fog-computing-based ICS workload distribution is presented and discussed in terms of system reliability. Workload distribution is presented via multicriteria optimization problem, the aim of which is to maximize the reliability functions of system devices. Also some simulation has been made and presented.*