BIOMETRIC VERIFICATION ON THE BASIS OF MEASUREMENT INFORMATION OF A FINGERPRINT READER

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The talk deals with the problem of electronic verification of people on the basis of measurement information of a fingerprint reader and new approaches to its solution. The offered method guaranties the restriction of error probabilities of both type at the desired level at making a decision about permitting or rejecting the request on service in the system. On the basis of investigation of real data obtained in the real biometrical system, the choice of distribution laws is substantiated and the proper estimations of their parameters are obtained. Using chosen distribution laws, the normal distribution for measurement results of characteristics of the people having access to the system and the beta distribution for the people having no such access, the optimal rule based on the Constrained Bayesian Method (CBM) of making a decision about giving a permission of access to the users of the system is justified. The CBM, the Neyman-Pearson and classical Bayes methods are investigated and their good and negative points are examined. Computation results obtained by direct computation, by simulation and using real data completely confirm the suppositions made and the high quality of verification results obtained on their basis.