

Modified shielding function for multi-biometric authentication and template protection

ABSTRACT

Biometrics provides a secure means of authentication because it is difficult to copy, forge, or steal biometric modalities. However, unprotected biometric data can be used to violate the security of the authentication system and the privacy of legitimate users. This paper proposes and implements a modified shielding function which provides multi-biometric authentication, template security and user privacy simultaneously. Experimental results based on face and iris datasets obtained from CASIA Near Infra-Red face database and CASIA Iris database version 2 respectively show that the approach has good recognition accuracy (false rejection rate of 0.65% and false acceptance rate of 0.035%). Security analysis shows that the method provides better security (key length of 120 bits) and user privacy compared to previous approaches based on the generic shielding function.

Keyword: Authentication; Biometric; Privacy; Security; Shielding function