A Practical View of Privacy Preserving Biometric Authentication

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Abstract: Recently, biometric market is growing rapidly and biometric applications can be found in diverse areas such as border control, banking, ID-documents, access control, etc. However, usage of personal biometric information can harm privacy of users and raise problems of cross matching and identity theft. Privacy preserving techniques like template protection are an important supplement to biometric systems to prevent abuse of stored biometric information and to improve security of biometric authentication. This work introduces the concept of biometric privacy preserving techniques and shows how to quantify their security and privacy in practice with help of a generalized evaluation framework. The advantages as well as limitations of the existing methods are analyzed. Additionally, systematic security considerations are given and a guideline to successfully design privacy preserving techniques for biometric systems is proposed.