

## State of the art in biometric key binding and key generation schemes

### ABSTRACT

Direct storage of biometric templates in databases exposes the authentication system and legitimate users to numerous security and privacy challenges. Biometric cryptosystems or template protection schemes are used to overcome the security and privacy challenges associated with the use of biometrics as a means of authentication. This paper presents a review of previous works in biometric key binding and key generation schemes. The review focuses on key binding techniques such as biometric encryption, fuzzy commitment scheme, fuzzy vault and shielding function. Two categories of key generation schemes considered are private template and quantization schemes. The paper also discusses the modes of operations, strengths and weaknesses of various kinds of key-based template protection schemes. The goal is to provide the reader with a clear understanding of the current and emerging trends in key-based biometric cryptosystems.

**Keyword:** Authentication; Biometric; Security; Privacy

