

# Irreversible Biometric Template Protection by Trigonometric Function

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## Abstract

A protection against biometrics fraud operations will never end because of the continuously occurring computer systems hacking attempts, in particular, the attempts to steal templates from databases related to biometrics. The objective of this paper is to propose a new technique for a biometric template protection, which is characterized as non-invertible (irreversible) template transformation for the reference biometric template inside the database. The proposed technique is based on cosine or sine trigonometric functions to exploit the periodicity property that leads to one-to-many solutions in mathematics, which is well explained in this paper, as well as tested with many attempts to revert the original template. Moreover, security analysis has been discussed in terms of several kinds of attacks such as multiplicity and brute force attacks. The analysis has given promising and fruitful results regarding the security and easiness in involving it inside the commercial work