

Automatic Fingerprint Identification

Diploma work abstract

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Annotation:

Reliable person recognition is an important problem in diverse businesses. Biometrics, recognition based on distinctive personal traits, has the potential to become an irreplaceable part of many identification systems. While successful in some niche markets, the biometrics technology has not yet delivered its promise of foolproof automatic human recognition.

An automatic fingerprint identification system is concerned with some or all of the following issues:

- Fingerprint Acquisition: How to acquire fingerprint images and how to represent them in a proper format.
- Fingerprint Verification: To determine whether two fingerprints are from the same finger.
- Fingerprint Identification: To search for a query fingerprint in a database.
- Fingerprint Classification: To assign a given fingerprint to one of the pre-specified categories according to its geometric appearance.

This Diploma aims to introduce the audience to different stages and techniques of automatic fingerprint identification, its applications and reliability of used algorithms.

Index Terms:

Biometrics, fingerprints, AFIS, matching, verification, identification, minutia, ridges, valleys, orientation field, transformation, rotation, ridge extraction, point pattern matching.