Fighting Identity Theft with Advances in Fingerprint Recognition

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Identity theft is …
Made possible by … and …
Can be solved through …
Biometric recognition against a central database is such a method
Adoption of technology is slow
Software description
Software performance
Identity theft is ...

... when person a assumes the identity of person b, using identifying information of person b; usually to:

- gain access to privileges available to person b
- commit a crime and not have it linked back to them.
Made possible by ...

Full Names
National ID Number
Telephone Number
... and ...
Can be solved through ...

... a more reliable method of **confirming** identity.
Biometric recognition against a central database is such a method.

Use of a **biometric** to **automatically** determine or confirm an identity.
Adoption of technology is slow

Hardware

Software

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Software description

Software library with functions needed to perform biometric recognition using fingerprints; including the following core functions:

- fingerprint feature extraction
- fingerprint feature comparison
- fingerprint classification
Software description (cont...)

VS
Feature Extraction
Feature Extraction
Feature Comparison

Similar
There are 5 different types of fingerprint patterns and thus 5 fingerprint classes.

- Whorl
- Tented Arch
- Left Loop
- Right Loop
- Plain Arch
Software performance

Feature extraction

- fingerprint features can be extracted from quality fingerprints.
- not all features are always extracted or extracted correctly.
- overall performance is below that of most commercial software and were making improvements.
Feature comparison

- matching features from different fingerprints can be identified
- performance of our similarity score formula compare favourably with those in the published literature
- overall performance still below that of best commercial products
Fingerprint classification

- we have obtained classification accuracies of over 90% classifying fingerprints in Database 1 of the 2002 and 2004 fingerprint verification competitions.
- accurate location of singular point remains a challenge; especially for poor quality fingerprints.
Identity theft was defined and one of its many consequences mentioned.
The reasons why identity theft is possible were presented.
A solution to the problem of identity theft was discussed.
A hindrance to the realisation of the solution was presented.
CSIR’s contribution to the realisation of the solution is discussed.
Thank you