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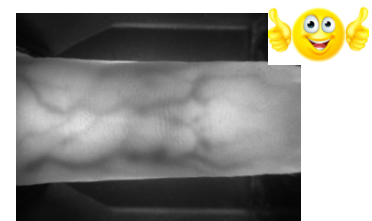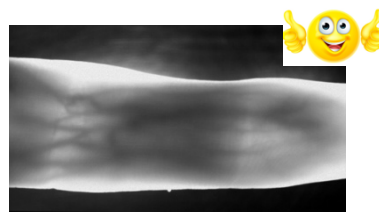in Security and Privacy

Bachelor / Master Thesis
Finger Vein Sample Quality

da/sec

da/sec is the biometrics and internet security research group and is affiliated with the Center for Research in Security and Privacy (CRISP). It is led by Prof. Dr. Harald Baier and Prof. Dr. Christoph Busch. The focus of the group is on highly innovative and applied IT security research in the special fields of biometrics, internet security and digital forensics. Read more on http://www.dasec.h-da.de/.

Motivation & Goals

One of the challenges faced by biometric recognition systems is the existence of low quality samples. This can lead to the extraction of faulty features or even to the failure to extract any features at all. However, if poor quality is known, constructive feedback can be provided: should we discard this sample and re-acquire? How much can we trust the similarity score obtained from its comparison with the stored reference?

Whereas objective quality measures have been proposed for other biometric characteristics including face and fingerprint, almost no work has been done for finger vein. Inspired in the fingerprint work, and the parallelism between finger vein and fingerprint feature extraction, the focus of this work will be on the development of new finger vein quality metrics.

Tasks

- Develop finger vein quality metrics, based on available fingerprint software
- Test the proposed metrics on existing databases
- Analyse the correlation between quality and recognition performance

Requirements

- High motivation
- Interest in security technologies and biometrics
- Knowledge in Python is a plus

Start / Period

Immediately / By appointment

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