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HOCHSCHULE DARMSTADT
UNIVERSITY OF APPLIED SCIENCES

fbi
FACHBEREICH INFORMATIK

ATHENE
National Research Center
for Applied Cybersecurity

– Master-/Bachelor Thesis –
Synthetic Fingerprint Generation

da/sec

da/sec is the biometrics and Internet security research group and is affiliated with University of Applied Sciences Darmstadt and the National Research Center for Applied Cybersecurity (ATHENE). The group is led by Prof. Dr. Christoph Busch. The focus of the group is on highly innovative and applied IT security research in the special fields of biometrics. Read more on www.dasec.h-da.de.

Motivation & Goal

For training and testing machine learning algorithms for fingerprint recognition huge databases are required. For this reason it is of interest to generate synthetic images of contactless and contact based fingerprint samples.
The goal of this project is implement a algorithm (or parts of it) to generate realistic contactless fingerprint samples.

Tasks

- Research existing image deformation approaches (e.g. thin-plate splines)
- Implement an algorithm which deforms a contact based fingerprint template into a contactless one
- Implement a mapping on a realistic background

We offer

- Incentives for the student to work on this project (work within scientific context, international collaboration, work on project in collaboration with companies)

Requirements

- High motivation and creativity
- Image processing experiences (esp. OpenCV)
- Good programming skill (Python)

By Date

By now / by appointment

Contact

Jannis Priesnitz
jannis.priesnitz@h-da.de

h_da
Faculty of
Computer Science

ATHENE–National Research Center for Applied Cybersecurity
da/sec – biometrics and internet security research group
Schöfferstraße 8b
64295 Darmstadt