

## Bachelor/Master Thesis

### Generating synthetic faces from privacy-enhancing templates

#### 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, internet security, and digital forensics. Read more on <http://www.dasec.h-da.de/>.

#### Motivation & Goals

Nowadays, the protection of the subject's privacy is an emerging need for the deployment of biometric face systems. Recently, the inversion of deep face templates has been shown (and possible) as a vulnerable step in the biometric systems, thereby leading to the leak of the subject's privacy. On the other hand, different privacy-enhancing methods have been proposed in order to hide the privacy (i.e. soft-biometric information) from face templates. However, the features contained in these privacy-enhancing templates result from different deep neural networks, which can be enough to reconstruct a synthetic face.

#### Tasks

- Investigate the different privacy-enhancing approaches proposed in the literature.
- Design different synthetic image generation schemes (i.e. template inversion schemes) from different privacy-enhancing schemes (i.e. those schemes that will be selected during the investigation).
- Evaluate the biometric performance of the reconstructed images from the different inversion schemes.

#### We offer

- Incentives for the student to work on this project (work within scientific context and in close collaboration with researchers)

#### Requirements

- Good programming skills in python.
- Passion and high motivation for research

#### Start / Period

Immediately / by appointment

#### Contact

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