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HOCHSCHULE DARMSTADT
UNIVERSITY OF APPLIED SCIENCES
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FACHBEREICH INFORMATIK

ATHENE
Nationales Forschungszentrum
für angewandte Cybersicherheit

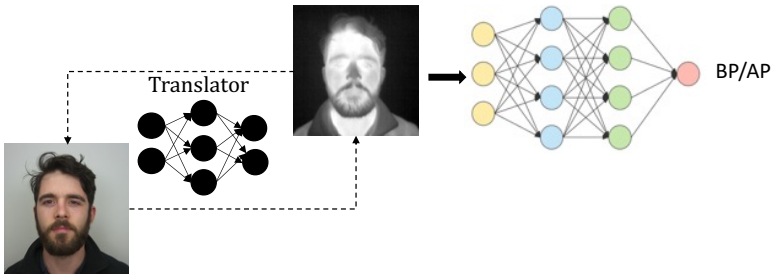
Master/ Bachelor Thesis
Thermal image translation for Face Presentation Attack Detection

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

The task of determining whether a sample stems from a real subject (i.e., it is a bona fide presentation (BP)) or from an artificial replica (i.e., it is an attack presentation (AP)) is a mandatory requirement for biometric capture devices, which has received a lot of attention in the recent past. Nowadays, most face Presentation Attack Detection (PAD) spot APs by analysing RGB images. In contrast, the exploration of thermal image properties has not been carried out yet due to lack of databases. To solve this, a GAN-based solution could be employed to transform RGB face images to thermal ones. Thus, the feasibility of those thermal images could be evaluated for different PAD approaches.



Tasks

- Analysis of different Image-to-image translators to transform facial images from RGB to the thermal spectrum.
- Investigate on existing facial RGB-thermal databases.
- Establish a benchmark between those translated thermal images and their corresponding RGB samples for different Deep learning techniques

Requirements

- High motivation.
- Interest in security technologies and biometrics.
- Strong interest in research.
- Knowledge of Deep learning frameworks is of advantage (e.g., Tensorflow or Pytorch).

Start / Period

Immediately / by appointment

Contact

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