

Master/ Bachelor Thesis

Preservation of identity on Iris Images using GANs

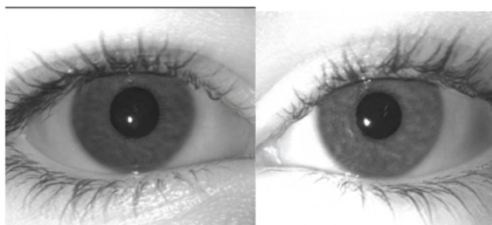
da/sec



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. 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

Recently, Generative Adversarial Networks (GANs) have achieved considerable attention from the deep learning research community due to their significant contributions in image generation tasks. These networks can generate many images; however, the person's identity is missing in this new synthetic image. The synthetic images look alike very similar, but the identification or soft-biometrics features are missing. This problem affects near-infrared images and periocular images in the visual spectrum.



*Left: Original Image. Right: Synthetic image (FID=16.0).

Tasks

- Develop a method to preserving the identity on synthetic iris images based on latent vector manipulation.
- Generation of synthetic images from Periocular and NIR Iris images
- Evaluation and benchmark of the implemented systems.
- *This topic is open to more than one student—different approaches for identification, soft-biometrics, and spectrum.*

Requirements

- High motivation, Interest in security technologies and biometrics
- Strong interest in research
- Good programming skills (Python) are of advantage.

Start / Period

Immediately / by appointment

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