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HOCHSCHULE DARMSTADT
UNIVERSITY OF APPLIED SCIENCES
fbi
FACHBEREICH INFORMATIK

ATHENE
Nationales Forschungszentrum
für angewandte Cybersicherheit

Master/ Bachelor Thesis

Generation of Uncontrolled Images for D-Morph scenarios using Conditional 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

Image morphing techniques can be used to combine two or more images into one new image. This approach can also create a morphed facial image from the biometric face photo (passport) of two individuals that look alike. However, in the Differential Morphing (D-Morph) the comparison must be done between a passport photo (controlled scenario) and a Live capture (Uncontrolled scenario) from the same captured subject. Most of the time live-image of the same subject is not available to train efficient D-Morphing classifiers. Generative Adversarial Networks (GANs) have been demonstrated high quality results to transfer styles, transfer domains between several conditions using pairs on unpair images. This algorithm may help to create new live-images.
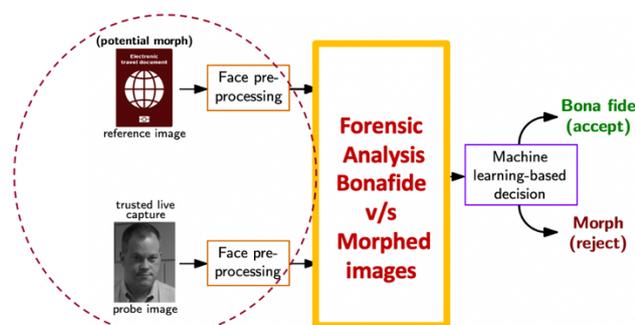

Figure 1: Differential Morph

Tasks

- Develop a method to create uncontrolled images for Differential Morphing.
- Design a Database
- Evaluation and benchmark of the implemented systems.

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

Contact

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