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HOCHSCHULE DARMSTADT
UNIVERSITY OF APPLIED SCIENCES
fb i
FACHBEREICH INFORMATIK

ATHENE
Nationales Forschungszentrum
für angewandte Cybersicherheit

Master/ Bachelor Thesis

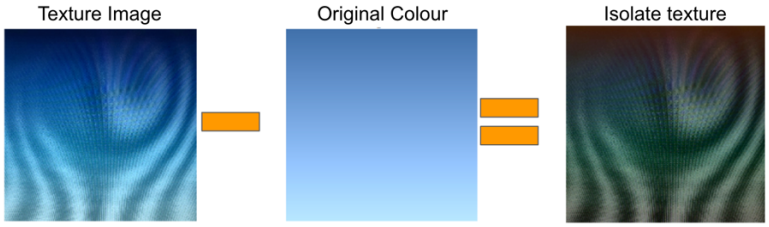
Digital Transferable Texture

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 & Goals

Morphing Attack Detection is a relevant topic aimed at detecting attempts of unauthorized individuals who want access to a "valid" identity in other countries. One of the main scenarios is printing morphed images to request an online passport.
In order to improve the morphing attack detection, it will be necessary to have a more representative database with different scenarios such as printed, scanned or compressed images. Creating these kinds of attacks is a very demanding task. These scenarios are developed manually or semi-automatically, mainly using generative adversarial networks. The goal of this thesis is to create a general-purpose method to isolate digital printed and



Tasks

- Isolate digital printed and scanned textures to transfer them to any domain using traditional computer vision techniques and deep learning.
- Generate a new print/scan morphing database.
- Benchmark manual print/scan images, state-of-the-art Generative adversarial networks (GANs) and transferable texture method.
- Evaluate and report results.

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

Juan Tapia Farias
Juan.tapia-farias@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