

Master/ Bachelor Thesis

Explainable Visualisation for Morphing Attack Detection

da/sec

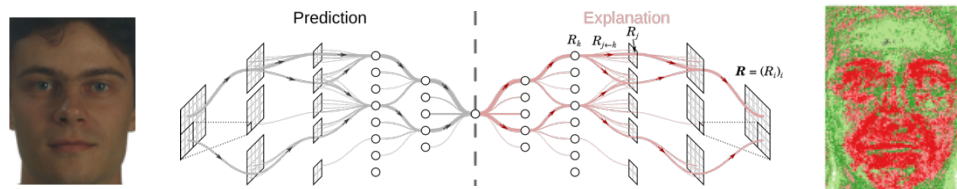


Motivation & Goals

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.

The visualisation of features used for the Deep Learning (DL) method is an open problem. DL methods are considered black-box, then visualisation explainability is necessary to a better understanding.

(LRP) is a method that identifies relevant pixels by running a backward pass in the neural network. The backwards pass is a conservative relevance redistribution procedure, where neurons that contribute the most to the higher layer receive the most relevance from it. This project aims to visualise the most relevant features on morphed face image classifiers using deep learning.



Tasks

- Train a DL classifier to detect morphed images.
- Implement a visualization of the most relevant features on the images.
- Develop graphics and visualization for several Deep Learning methods.
- Analyses the consistency of the results based on LRP algorithms.

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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