



*Student Assistant (Wissenschaftliche Hilfskraft)*

# Evaluation of an Automated Deep Fake Detection System

## Motivation and Task Description

In recent years, deep neural networks have achieved remarkable results and even showed super-human capabilities in a broad range of domains. As an example, generative models can automatically synthesize highly realistic images and video or audio clips which can be used to generate training data or realize text-to-speech systems. Unfortunately, this technique led to the rise of so-called deepfakes which are manipulated video or audio clips showing real people with altered faces, gestures or actions. Hence, deepfakes can easily deceive the viewer and directly harm the shown persons. This shows the need of automated end-to-end methods to detect deepfakes.

In this work a new approach to detect deepfakes based on our latest findings in adversarial machine learning should be evaluated. For this purpose, state-of-the-art detection tools should be summarized and evaluated. Based on currently used methods and our concepts, an end-to-end framework is implemented and tested. Finally, a comparison with current detection systems is performed and analyzed.

## Requirements

- Good general programming skills (ideally Python)
- Interest in Deep Learning and Security
- Ability to work self-directed and systematically
- Motivation and self organization

## Contact

### Philip Sperl

Telefon: +49 89 322-9986-141

E-Mail: [philip.sperl@aisec.fraunhofer.de](mailto:philip.sperl@aisec.fraunhofer.de)

### Jan-Philipp Schulze

Telefon: +49 89 322-9986-195

E-Mail: [jan-philipp.schulze@aisec.fraunhofer.de](mailto:jan-philipp.schulze@aisec.fraunhofer.de)

Fraunhofer Research Institution for Applied and Integrated Security (AISEC)

Cognitive Security Technologies

Lichtenbergstraße 11, 85748 Garching (near Munich), Germany

<https://www.aisec.fraunhofer.de> Ausschreibungsdatum: 8. Dezember 2020