
– Master Thesis –

Speaker Recognition Attack Detection Analyzing Unfiltered Signals

da/sec



da/sec is the biometrics and internet security research group and is affiliated with University of Applied Sciences Darmstadt and the Center for Research in Security and Privacy (CRISP). It 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 www.dasec.h-da.de.

Motivation & Goal

Speaker recognition systems are already used for security relevant applications e.g., telephone banking. Replay attacks, in particular unit-selection, pose a major threat to the performance of speaker recognition systems. For the specific attack with unit-selections, speech samples of the attacked subject are captured, segmented into parts and replayed in different sequence to the Speaker Identification and Verification (SIV) system.

State-of-the-art countermeasures utilize features based on human perception. Goal of this thesis is to design detection algorithms which analyze the frequencies and spectrogram of speech samples in order to detect unit-selection attacks.

Tasks

- Analyze unit-selection attacks
- Design and evaluate detection methods for unit-selection attacks based on unfiltered signal analyzes
- Evaluate the performance of the designed detection methods

Requirements

- Interest in biometrics/speaker recognition
- Basic knowledge in signal processing
- Basic knowledge in pattern recognition
- Programming skills (Matlab, Python)

By Date

- Immediately

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