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HOCHSCHULE DARMSTADT
UNIVERSITY OF APPLIED SCIENCES

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BIOMETRICS AND INTERNET-SECURITY
RESEARCH GROUP

CASED

- Master Thesis -
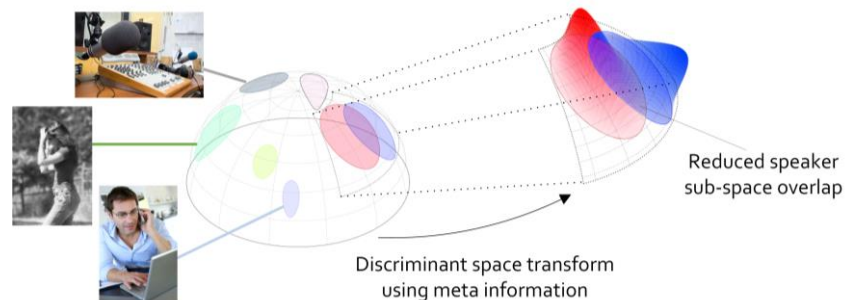## Discriminant Speaker Sub-spaces

CASED

In the Center for Advanced Security Research Darmstadt (CASED) Technische Universität Darmstadt, Fraunhofer Institute for Secure Information Technology and Hochschule Darmstadt are collaborating in the fast developing field of IT-Security: progressive security solutions are researched, developed and implemented into industrial economy. Read more on www.cased.de.

Motivation & Goal

Speaker recognition systems analyze characteristic biometric voice patterns. State-of-the-art systems use i-Vectors to represent speakers in a spherical space. However, aiming at high-secure systems, discriminant speaker sub-spaces need to be examined.

The range of sub-spaces depend on within- and between-speaker variances, such that some speech signals are applicable for effective-attack purposes on wide-ranged speaker sub-spaces. Discriminant space transformations shall reduce these speaker mismatch rates.

Discriminant space transform using meta information

Reduced speaker sub-space overlap

Tasks

- Analyze speaker sub-spaces
- Design and evaluate attacking schemes
- Examine discriminant-space transformations

Requirements

- Interest in pattern recognition, machine learning and biometrics
- Good Programming skills (preferably C++, Julia, MATLAB or Python) but any other language is fine too
- Basics in Bayesian and probabilistic theory
- Motivation and creativity

Contact

If you are interested, please contact Andreas Nautsch

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Issued: August 15th, 2014