

### 3.9 Speaker Verification

#### Keywords

Speaker recognition; speaker verification; security; forensics; tracking of criminal activities

#### Key contact researcher(s)

Dr. Petr Motlicek  
[pmotlic@idiap.ch](mailto:pmotlic@idiap.ch)  
Tel.: +41 27 721 77 49

#### Technology Transfer Office

Dr. Florent Monay  
Dr. Hugues Salamin  
[tto@idiap.ch](mailto:tto@idiap.ch)  
Tel.: +41 27 721 77 72

#### Corporate Sponsorship Program

See Section 4 of the present document

#### File reference & version number:

N/A

## Functional description

Idiap's speaker verification/authentication technology focuses on datasets with large speaker populations. Besides state-of-the-art approaches based on iVectors and SGMM modeling generating low-dimensional speaker models, followed by channel compensation techniques, a hybrid approach successfully integrates our state-of-the-art speech recognition (or key-word spotting) technology into a speaker recognition system that benefits from linguistic resources.

Our environment simulator provides massive resources for the development of speaker verification systems that are more robust to acoustic mismatch.

## Innovative aspects

- Combining state-of-the-art speech and speaker recognition technologies
- Exploiting the content of the spoken message to enhance verification capabilities
- Simulation of a large variety of acoustic environments for improved robustness
- Multiple enrollment solutions offering enhanced scoring capabilities

## Commercial application examples

- Verification/authentication of caller against large database of speaker models
- Speaker verification of multi-styled and noisy speech
- Security: ID verification, forensics, tracking of criminal activities
- Gatekeeper for accessing secured systems (“voice-as-password” applications exploiting users' knowledge)

## More information

Subhadeep Dey, Petr Motlicek, Srikanth Madikeri and Marc Ferras, “Exploiting Sequence Information for Text-Dependent Speaker Verification”, in: Proceedings of 2017 IEEE International Conference on Acoustics, Speech, and Signal Processing, New Orleans, USA, 2017.

## Software & IPR status

The above mentioned approaches to speaker verification are developed for the open-source Kaldi toolkit. The acoustic simulator is available as an open-source package from publicly available resources.