3.10 Large Scale Speaker Identification

Keywords

Speaker identification; search in large database: security; forensics; tracking of criminal activities

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Functional description

Idiap's speaker identification technology focuses on datasets with large speaker populations. It exploits several complementary technologies (iVectors, Subspace GMMs) to generate low-dimensional but representative speaker models, followed by channel compensation technique.
Our environment simulator provides massive resources for the development of speaker identification systems that are more robust to acoustic mismatch.

Innovative aspects

- Combining state-of-the-art speech and speaker recognition technologies
- Simulation of a large variety of acoustic environments for improved robustness
- The technology is language-, text- and channel-independent
- Possibility to detect phone exchange within the same speaker
- New speaker can be easily added by end-users
- The technology supports all speaker identification alternatives: 1:1, 1:N, N:M (group of speakers against group of speaker models)

Commercial application examples

- Search and retrieval of speaker identities (in large audio archives)
- Speaker identification of multi-styled and noisy speech
- The technology can be easily combined with gender and language identification

More information

Petr Motlicek et al., "Employment Of Subspace Gaussian Mixture Models in Speaker Recognition", in: Proc. of IEEE Intl. Conf. on Acoustics, Speech and Signal Processing (ICASSP), pp. 4755–4799, 2015.

Software & IPR status

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