

3.16 Speaker Localization and Separation

Keywords

Microphone array, Multiparty speech analysis, Source localization

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Functional description

Multi-party speaker localization and separation play a key role in many applications involving hands-free meeting recordings and scene analysis. Idiap's multiparty speech processing technology provides a flexible framework for multi-speaker localization and speech separation based on the recently emerged techniques of the structured sparse coding. The principles rely on the models of the auditory system in structural grouping and spatial analysis.

Innovative aspects

- Ability to pinpoint the exact source location
- Ability to separate individuals from overlapping speech
- Requirement for a few number of microphones
- Flexible in ad-hoc and constrained microphone placement

Commercial application examples

- Distant speech recognition
- Hands-free video conferencing
- Sound field reproduction
- Surveillance
- Entertainment

More information

“Structured Sparsity Models for Reverberant Speech Separation”, A. Asaei, M. Golbabaee, H. Bourlard, V. Cevher, *IEEE/ACM Transactions on Speech and Audio Processing*, Vol.22, No.3, pp. 620-633, 2014.

Software & IPR status

- The reference implementation is available upon agreement.
- The rights are partly covered by a patent application: US20130096922: Method, apparatus and computer program product for determining the location of a plurality of speech sources.