

3.15 Ad Hoc Microphone Arrays

Keywords

Microphone position calibration, Synchronization, Distributed source localization

Key contact researcher(s)

Prof. Hervé Bourlard
Dr. Afsaneh Asaei
herve.bourlard@idiap.ch
afsaneh.asaei@idiap.ch
Tel.: +41 27 721 77 11

Technology Transfer Office

Dr. Florent Monay
Dr. Hugues Salamin
tto@idiap.ch
Tel.: +41 27 721 77 72

Corporate Sponsorship Program

See Section 4 of the present document

File reference & version number:

Software disclosure 11610

Functional description

Ubiquitous sensing exploits the abundance of microphone-embedded devices, such as notebooks and smart phones, in developing innovative technologies capable of aggregating widely sensed spatial audio. The key challenges pertain to the unknown geometry of the microphones and asynchronous recordings to enable higher level speech applications. Idiap has the prototype of a technology for calibration and synchronization of ad hoc microphones relying on properties of the structured matrices as well as the acoustic reverberation.

Innovative aspects

- Calibration of microphones from partial distances
- Synchronization of microphone recordings
- Distributed speaker localization
- Ability to handle very large network of ad hoc microphones
- Ability to deal with malfunctioning microphones

Commercial application examples

- Hands-free high-quality speech recording
- 3D audio technologies
- Sound field reproduction
- Surveillance

More information

“Enhanced diffuse field model for ad hoc microphone array calibration”, Mohammad J. Taghizadeh, Philip N. Garner and Hervé Bourlard, *Signal Processing*, Vol. 101, pp. 242-255, 2014.

Software & IPR status

The research software is available upon agreement.