

### 3.11 Acoustic Simulator

#### Keywords

Acoustic simulator; Noise; Reverberation  
; Codec

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#### File reference & version number:

N/A

## Functional description

Idiap maintains an open-source acoustic simulator that provides a large number of speech signal degradation processes. Based on a large database of 80h of real noise recordings, over a hundred impulse responses of speakers, cabinets, smartphones and rooms along with 15 different speech and audio codecs, this simulator stands out as a valuable pool of resources to develop detailed and robust models for speaker and speech recognition technology. It currently covers landline, cellular, satellite, VOIP, interview and playback scenarios.

## Innovative aspects

- Large number of speech signal degradation processes
- Open-source data and code
- Expandable functionality

## Commercial application examples

- Development of robust speech processing systems
- Low-resource speech applications

## More information

Ferras, Marc, Madikeri, Srikanth, Dey Subhadeep, Motlicek, Petr Bourlard Herve, “A Large-Scale Open-Source Acoustic Simulator for Speaker Recognition”, *IEEE Signal Processing Letters*, 23(4), pp. 527-531, 2016.

## Software & IPR status

IP lies in the copyright of the code. Noise data and impulse responses are online resources released under a Creative Commons Attribution license. Codec code has more restrictive licenses.