

"Building a framework for the use of Compressed Sensing techniques applied to acoustic wave fields."

Challenges

A better understanding of the sparse nature of acoustic wave fields in order to:

- Reduce the acquisition time
- Solve problems involving large scale data
- Reduce the stream of data sensed
- Improve the quality of signals recorded

Partners

- Institut lean le Rond d'Alembert
- Institut Langevin
- Laboratoire Jacques-Louis Lions
- Inria Rennes

Experimental

Main results

Algorithmic

- Compressed Sensing applied successfully to:
 - Near Field Acoustic Holography
 - Plenacoustc function
 - Under water acoustic imaging
 - Source localisation and patterns identification
 - Multiple Room impulse response capture
- Three antennas of 120 microphones and one antenna of 128 hydrophones built and used within experiments
- Plane wave dictionaries
- Theoretical Co-sparse model applied to wave propagation equation
 - Blind auto-calibration of Compressed Sensing devices

Development of an algorithm for blind filter estimation

Estimation of sources arrival directions in reverberant field

http://echange.inria.fr

