



# Clément Gaultier

Ph.D. specialized in Acoustic & Audio Signal Processing

M.Sc. Research in Acoustics

Graduate Engineer specialized in Vibrations – Acoustics – Sensors

## Scientific Background & Interests

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| <p><b>Hearing Research</b></p> <ul style="list-style-type: none"><li>○ Listening experiments, stimuli calibration</li><li>○ Speech intelligibility</li><li>○ Adaptation to noise</li></ul> | <p><b>Speech in Noise.</b></p> <ul style="list-style-type: none"><li>○ Binaural sound source localization, HRTF</li><li>○ Sound propagation modeling, acoustic sensing</li><li>○ Virtually supervised learning, massive regression</li></ul> | <p><b>Signal Processing</b></p> <ul style="list-style-type: none"><li>○ Multichannel sparse audio reconstruction, acoustic echo cancellation</li><li>○ Time-frequency modeling</li><li>○ Real-time algorithm design</li></ul> | <p><b>Acoustic and Audio.</b></p> <ul style="list-style-type: none"><li>○ Wave propagation physics (optics, acoustics, electromagnetics)</li><li>○ Room acoustics students project mentoring</li><li>○ Jury member for final year sound engineer students defence</li></ul> |
| <p><b>Machine Learning</b></p>   | <p><b>Sound Source Localization.</b></p>   | <p><b>Others</b></p>  | <p><b>Teaching.</b></p>   |

## Education & Certifications



- 2019 **Ph.D. specialized in acoustic & audio signal processing**, *Université de Rennes 1, Rennes, Research.*  
*Design and evaluation of sparse models and algorithms for audio inverse problems*
- Graduated in: January 2019
  - Projects: acoustic & audio signal processing inverse problems
    - denoising, declipping, dereverberation,
    - structured (co)sparsity for time-frequency modeling,
    - non-convex optimization algorithms,
    - virtually supervised learning for binaural sound source localization.
    - multichannel real-time audio reconstruction
- 2015 **Master 2 Acoustics**, *Le Mans Université, Le Mans, Research, with Honours.*
- A University Master of Science under the authority of the French Ministry of Education and Research
  - Graduated in: October 2015
  - Specialized in: acoustics
  - Project: Characterization of inhomogeneous membranes vibrations (psychoacoustic descriptors, spectrum analysis, vibration behaviour)
- 2015 **Acoustics and vibrations graduate engineer**, *ENSIM - École Nationale d'Ingénieurs du Mans, Le Mans, Spécialité Acoustique - Vibration - Capteurs.*
- A selective Engineering School in three years under the authority of the French Ministry of Education and Research delivering a postgraduate degree in engineering
  - Graduated in: October 2015
  - Specialized in: vibration, acoustics, sensors
  - Projects: With ONERA the French Aerospace Lab (acoustic measurements, signal processing, BEM modelling, correlation techniques)
- 2010–2012 **Diplôme d'Études Universitaires Générales**, *Le Mans Université, Le Mans, Physique.*
- A two-year university degree specialized in: Computing, Optics, Mathematics, Mechanics
  - Projects: Creation of a graphic user interface to interact with a NAO robot through WiFi
- 2009–2010 **One year preparatory class**, *Lycée Montesquieu, Le Mans.*
- Specialized in: Mathematics, Physics and Engineering Sciences

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in clement-gaultier • 29 years old

2007–2009 **Baccalauréat Scientifique, section Européenne (mention bien)**, *Lycée Marguerite Yourcenar*, Le Mans, *with Second Class Honours*.

- French baccalaureate: French high school diploma (European section with additional courses taught in english)
- Specialized in: Science (Mathematics, Physics, Earth & life science)

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## Professional Experience



Current position **Postdoctoral researcher**, *Orange, Orange Labs*, Cesson-Sévigné, Research.

- Project: Multichannel acoustic echo cancellation for ad-hoc distributed audio systems

Feb. 2019–Aug. 2019 **Research Engineer**, *Inria Rennes research center*, Rennes, *Research & development*.

- Projects: audio restoration transfer of technology
  - pop noise removal,
  - multichannel declipping,
  - DSP algorithms code conversion,
  - listening tests.

Nov. 2015–Jan. 2019 **Ph.D. student specialized in acoustic & audio signal processing**, *Inria Rennes research center*, Rennes, *Research*.

- Early stage researcher
- Projects: acoustic & audio signal processing inverse problems
  - digital sound processing,
  - non-convex optimization algorithms,
  - machine learning for binaural sound source localization,
  - science popularization.
- Teaching, mentoring & evaluation
  - Teaching wave propagation physics tutorials - acoustics, electromagnetics, optics - for second year students (INSA Rennes public school of engineering delivering a postgraduate degree in engineering),
  - Mentoring undergrads students on a room acoustics project,
  - Jury member for final year students graduating as sound engineers from ESRA Bretagne school.

March 2015–Sept. 2015 **Post-graduate visiting student**, *Institute of Sound and Vibration Research*, Southampton, University of Southampton.

- Research work on the auditory system, hearing in noise, speech intelligibility, signal processing
- Setting up listening experiments for people with normal hearing
  - noisy speech stimuli calibration,
  - ethical study / noise exposure validation,
  - statistical analysis,
  - participants recruitment.

July 2014 **Industrial machine operator**, *Renault*, Le Mans, Renault Le Mans' Factory. Production line loading, quality control tasks.

July 2013 **Internship: worker**, *Renault*, Le Mans, Renault Le Mans' Factory. Handling, cleaning and control.

2011–2014 June & July **Ticket inspector, controller**, *Automobile Club de l'Ouest*, Le Mans.

Hire based on personality, foreign language speaking skills to welcome a British public Inform & inspect the tickets of car race spectators

July & August 2010 **Temporary Worker**, *SCIE*, Trangé.

Part time work for an industrial oil recycling company  
Stocktaking, storing, cleaning & dismanteling before warehouse relocation

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## Languages



French Native language

English Fluent ○ *Obtained from doing numerous trips in English-speaking countries (England, Wales, Malta, Canada)*  
○ *Scored 945 out of 990 and 900 out of 990 points on TOEIC certification in 2012 and 2014*

Spanish Basic knowledge

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## Computer skills



Programming	C, C++, bash, python, distributed computing (OAR)	Scientific softwares	MatLab, Labview, COMSOL, LMS VirtualLab, LMS TestLab
Operating Systems	macOS, Windows, Linux	Office softwares	Microsoft Suite, LibreOffice Suite, L <sup>A</sup> T <sub>E</sub> X
Computer Assisted Design	SolidWorks, Catia	Web	Html, CSS, CMS, WordPress, Jekyll

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## Interests



- 2008–Now **Club Alpin Français.**  
Rock-climbing, bouldering, skiing in a mountain sport association
- July 2012 **Ecole de musique de l'Antonnière, Sarthe, FRANCE.**  
Project: Setting up of a music summer camp with acting, music, songs and a background story
- 2010–2012 **University Jazz Band.**  
Playing the saxophone, performing concerts
- 1999–2009 **Music Schools.**  
Learning & playing the saxophone, Singing in a choir

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## Extra



- Driving license

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## Publications



- C. Gaultier**, “Design and evaluation of sparse models and algorithms for audio inverse problems,” Ph.D. dissertation, Université de Rennes 1, Jan. 2019.
- R. Lebarbenchon, E. Camberlein, D. Di Carlo, **C. Gaultier**, A. Deleforge, and N. Bertin, “Evaluation of an open-source implementation of the SRP-PHAT algorithm within the 2018 locata challenge,” in *2018 16th International Workshop on Acoustic Signal Enhancement (IWAENC), LOCATA Challenge*. IEEE, 2018.
- C. Gaultier**, N. Bertin, and R. Gribonval, “CASCADE: Channel-Aware Structured Cospars Audio DEclipper,” in *2018 IEEE International Conference on Acoustics, Speech and Signal Processing*, 2018.
- C. Gaultier**, S. Kitić, N. Bertin, and R. Gribonval, “AUDASCITY: AUdio Denoising by Adaptive Social CosparsITY,” in *2017 25th European Signal Processing Conference (EUSIPCO)*. IEEE, 2017, pp. 1265–1269.
- C. Gaultier**, S. Kitić, N. Bertin, and R. Gribonval, “Cospars denoising: The importance of being social,” in *The Signal Processing with Adaptive Sparse Structured Representations (SPARS) workshop*, 2017.
- C. Gaultier**, S. Kataria, and A. Deleforge, “VAST: The Virtual Acoustic Space Traveler dataset,” in *International Conference on Latent Variable Analysis and Signal Separation*. Springer, 2017, pp. 68–79.
- S. Kataria, **C. Gaultier**, and A. Deleforge, “Hearing in a shoe-box: binaural source position and wall absorption estimation using virtually supervised learning,” in *2017 IEEE International Conference on Acoustics, Speech and Signal Processing*. IEEE, 2017, pp. 226–230.
- R. Gokula, **C. Gaultier**, J. J. M. Monaghan, and S. Bleeck, “Acclimatization to different english accents for enhanced speech intelligibility in noise in individuals with normal hearing,” in *Basic Auditory Science Meeting*. British Society of Audiology, 2015.

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