David Poirier-Quinot

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https://pyrapple.github.io

EXECUTIVE SUMMARY

I'm a researcher, presently focused on sound spatialisation, perception, and room acoustics simulation for virtual and augmented realities. I studied these fields along with signal processing and computer sciences at ∂'Alembert Institute, Imperial College London, IRCAM, LIMSI, and ETIS labs. With a background in Mathematics, Physics and Chemistry, I obtained a Master's degree in signal processing and telecommunications from the ENSEA graduate school of Electrical Engineering (France) in 2011, and received a Ph.D. degree in acoustics, signal processing, and computer science from Sorbonne University (Paris VI, France) in May 2015.

WORK EXPERIENCE

Postdoctoral Researcher 04/2022 – Today

Sorbonne University, ∂'Alembert Institute, Paris

Creation of realistic scenes in mixed realities : acoustics, interaction, perception and optimisation.

Postdoctoral Researcher 05/2019 – 03/2022

IRCAM-STMS and Sorbonne University, ∂'Alembert Institute, Paris

Accurate real-time room acoustic simulation for interactive architectural exploration with the visually-impaired. Binaural perception in VR : impact of realistic room reverb on performance and immersion.

Postdoctoral Researcher 10/2017 – 04/2019

Sorbonne University, ∂'Alembert Institute and Facebook Reality Labs, Paris

Binaural perception in VR applications : impact of individualised binaural rendering on performance and immersion, HRTF learning.

Postdoctoral Researcher 05/2016 – 09/2017

IRCAM, Paris

Distributed spatial audio via web-based applications. Development of WebAudio spatialisation libraries for mixed realities. Design of a framework for real-time auralisation in VR architectural acoustics.

Postdoctoral Researcher 04/2015 – 05/2016

Imperial College, London

Study of the impact of room acoustics on 3D audio perception. Perceptive comparison of reverberation techniques for 3D audio. Hearing loss simulation.

PhD Thesis 02/2012 – 03/2015

Airbus Defense & Space, LIMSI, ETIS, Université Paris VI, Orsay

"Design of a radio Direction Finder for search and rescue operations". Interfacing of propagation models and virtual environments for the assessment of direction finder designs performance.

EDUCATION

PhD in Computer Science, Acoustics, and Virtual Reality 2012 – 2015

Paris VI University, Paris

Engineering Degree in Network and Telecomunications 2008 – 2011
ENSEA graduate school of electrical eng. and computer science, Cergy

Preparatory school 2006 – 2008
Paris National school of Chemistry and Biology, Paris

High School 2003 – 2006
Descartes High School, Yvelines, France

SKILLS

Language	French (native), English (fluent), Spanish (basic).
Development	C, C++, C#, CSS, HTML, Java, Javascript, Lisp, Matlab, Objective-C, Python.
Software	Blender, CATT-Acoustic, JUCE, Max/MSP, PureData, Unity, Unreal Engine.
Others	Perceptive exp. design, data analysis, scientific writing, functional analysis, IP.

DEVELOPED SOFTWARES

SmallRoomZ 2023
Plugin for realtime auralisation of acoustic scale models.
http://smallroomz.dalembert.upmc.fr

RoomZ 2022 –2023
http://roomz.dalembert.upmc.fr

Anaglyph 2018 – 2020
Binaural spatialisation plugin. http://anaglyph.dalembert.upmc.fr

Evertims 2017 – 2021
http://evertims.github.io

3D Tune-In Toolkit 2018
http://3d-tune-in.eu/toolkit-developers

JSAmbisonics 2017
https://www.npmjs.com/package/ambisonics

BlenderVR 2012–2015
https://blendervr.limsi.fr

MAIN PUBLICATIONS

David Poirier-Quinot. Cue-preserving auralisations for blind exploration of virtual indoor environments. *Technology and Disability*, pages 1–18, 2025 (accepted with major revisions)

Julien De Muynke, David Poirier-Quinot, and Brian F. G. Katz. Effect of interpolation artefacts on perceived stability of nearby sources in a navigable reverberant environment. *Journal of the Audio Engineering Society*, pages 1–15, April 2024. doi: 10.17743/jaes.2022.0158

David Poirier-Quinot and Martin S. Lawless. Impact of wearing a head-mounted display on localization accuracy of real sound sources. *Acta Acustica Journal*, 1(1):1–10, January 2023. doi: 10.1051/aacus/2022055

David Poirier-Quinot, Martin S. Lawless, Peter Stitt, and Brian F. G. Katz. HRTF performance evaluation: methodology and metrics for localisation accuracy and learning assessment. In *Advances in Fundamental and Applied Research on Spatial Audio*, chapter 3, pages 1–32. Intech Open, May 2022. doi: 10.5772/intechopen.104931

David Poirier-Quinot and Brian F. G. Katz. On the improvement of accommodation to non-individual HRTFs via VR active learning and inclusion of a 3D room response. *Acta Acustica Journal*, May 2021. doi: 10.1051/aacus/2021019

David Thery, David Poirier-Quinot, Sebastien Jouan, Brian F. G. Katz, and Vincent Boccara. Architectural acoustic design: Observation of use cases including audio-only and multimodal auralizations. *Building Acoustics Journal*, 29(1):179–199, September 2021. doi: 10.1177/1351010X211045518

David Poirier-Quinot and Brian F. G. Katz. Assessing the impact of head-related transfer function individualization on task performance: case of a virtual reality shooter game. *Journal of the Audio Engineering Society*, 68(4):248–260, May 2020. doi: 10.17743/jaes.2020.0004. (best journal paper award)

Complete list of publications : `https://pyrapple.github.io/pages/publications.html`.

TEACHING

Master 2, Sorbonne Univ., Paris   2020 – 2025
Design and conception in virtual and augmented realities.

Master 2, Learning Planet Institute, Inserm Univ., Paris   2022
Development in virtual and augmented realities.

Masterclass, IRCAM, Paris   2017 – 2018
Design of interactive web audio installations.

Master 2, Pôle Univ. d'Ingénierie, Orsay   2013 – 2015
Spatialised sound and virtual reality.

SUPERVISION

Thesis
(2023 – 2026) Acoustic requirements for realistic interactions in VR/AR (co-encadrement).

Master 2 Internships
(2022) Métriques spatiales en acoustique des salles, ENSEA.
(2022) Exploration de l'acoustique de Notre-Dame, Ecole Centrale Nantes.
(2020) Étude du rapport entre la forme et le son en RV, Louis-Lumière.
(2019) Estimation de salle à partir de réponses impulsionnelle, ENS Cachan.
(2019) Design of a VR game for HRTF selection, Sorbonne Université.
(2017) WebAudio installation for embodied interactive remix, ESBA Le Mans.
(2015) UI d'un système de guidage audio, Master ergonomie Paris Descartes.
(2014) Serious game pour l'évaluation du rendu binaural en RV, ENSEA.

Master 1 Internships
(2023) Répétition dans un contexte de réalité virtuelle, Sorbonne Université.
(2019) Étude perceptive comparative de moteurs de rendu binaural, Louis Lumière.
(2019) Impact of micro-oscillations on binaural externalisation, Sorbonne Université.
(2013) Development of a VoIP application, Telecom Paris.