David Poirier-Quinot

Audio VR Researcher

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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 d'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.

EDUCATION

PhD in Computer Science, Acoustics, and Virtual Reality 2012 – 2015
CNRS (LIMSI, ETIS), Airbus Defense & Space, Paris
Signal Processing, DOA estimation (EM), Acoustics, Ergonomics, VR, Sound Design

Master Degree in Network and Telecom Engineering 2008 – 2011
ENSEA graduate school of electrical eng. and computer science, Cergy
Network, Telecommunications, Signal Processing, Analog Electronics

SKILLS

Language	French (native), English (fluent), Spanish (basic)
Development	Python, C++, C#, Javascript, Matlab, HTML, CSS, Lisp, Java, C, Objective-C
Software	Blender, Unity3D, Unreal Engine, Max, Juce, Pd, CATT-Acoustic, Photoshop
Others	Perceptive exp. design, data analysis, scientific writing, functionnal analysis, IP

WORK EXPERIENCE

Postdoctoral Researcher Oct. 2017 – Today
d'Alembert Institute – CNRS – Sorbonne University, Paris

Binaural perception in VR applications (partnership with Facebook Reality Labs): impact of individualised binaural rendering on performance and immersion, HRTF learning.

Postdoctoral Researcher May 2016 – Sept. 2017
IRCAM – CNRS, Paris

Distributed spatial audio through web-based applications. Development of WebAudio spatialisation libraries (binaural, Ambisonic) for mixed realities. Design of a framework for real-time auralisation in architectural acoustics and virtual reality.

Postdoctoral Researcher Nov. 2015 – May 2016

Imperial College London, London

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

Postdoctoral Researcher June 2015 – Oct. 2015

LIMSI – CNRS, Paris

Room acoustic simulation and 3D sound design for virtual reality.

Postdoctoral Researcher May 2016 – Apr. 2018

Imperial College London, London

(*part-time*) Design of a toolkit for binaural spatialisation. Simulation of the impact of hearing loss on sound perception. Study of the impact of Ambisonic room reverb order on auditory scene perception.

Postdoctoral Researcher Apr. 2015 – June 2015

Imperial College London, London

Design of a VR experiment on audio subjective perception in room acoustics.

PhD Thesis Feb. 2012 – Mar. 2015

Airbus Defense & Space, CNRS (LIMSI, ETIS), Paris

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

Research Engineer Sept. 2011 – Jan. 2012

LIMSI – CNRS, Paris

Implementation and deployment of sound spatialisation systems (Ambisonic, Binaural, WFS). Development of a scene graph editor for VR architectures.

MAIN PROJECTS

Anaglyph 2018

High-definition binaural spatialisation engine. `http://anaglyph.dalembert.upmc.fr`

Cloud Theatre 2018

Virtual performance in the Athénée Theatre, Paris. Visual rendering, actor holograms, room acoustic and voice directivity simulation. `https://pyrapple.github.io/pages/cloud-theatre.html`

EVERTims 2017

Open source framework for real-time auralisation in architectural acoustics and virtual reality. `http://evertims.github.io`

Ghost Orchestra 2016

Virtual recreation of a concert in Notre-Dame de Paris Cathedral. Room acoustic simulation and visual rendering. `https://groupeaa.limsi.fr/projets:ghostorch`

BlenderVR 2015

Scene graph editor for VR architectures. Adaptation of the Blender Game Engine to support CAVE, VideoWall, HMD, and external rendering modality engines. `https://blendervr.limsi.fr`

D. Poirier-Quinot, G. Parseihian, and B. F. G. Katz, "Comparative study on the effect of Parameter Mapping Sonification on perceived instabilities, efficiency, and accuracy in real-time interactive exploration of noisy data streams," *Displays*, vol. 47, pp. 2 – 11, 2017

L. Picinali, A. Wallin, Y. Levtov, and D. Poirier-Quinot, "Comparative perceptual evaluation between different methods for implementing reverberation in a binaural context," in *AES Convention 142*, (Berlin, Germany), May 2017

A. Politis and D. Poirier-Quinot, "JSAmbisonics: A Web Audio library for interactive spatial sound processing on the web," in *Interactive Audio Systems Symposium, York, UK*, pp. 1–8, 09 2016

D. Poirier-Quinot, B. Matuszewski, N. Schnell, and O. Warusfel, "Nü Soundworks : using spectators smartphones as a distributed network of speakers and sensors during live performances," in *Web Audio Conference*, (London, United Kingdom), Aug. 2017

D. Poirier-Quinot, B. F. Katz, and M. Noisternig, "EVERTims: Open source framework for real-time auralization in architectural acoustics and virtual reality," in *20th International Conference on Digital Audio Effects (DAFx-17)*, (Edinburgh, United Kingdom), Sept. 2017

B. F. G. Katz, B. N. J. Postma, D. Poirier-Quinot, and J. Meyer, "Experience with a virtual reality auralization of Notre-Dame Cathedral," in *Acoustical Society of America*, vol. 141, (Boston, United States), pp. 3454 – 3454, June 2017

D. Thery, D. Poirier-Quinot, B. N. Postma, and B. F. G. Katz, "Impact of the Visual Rendering System on Subjective Auralization Assessment in VR," in *Virtual Reality and Augmented Reality* (J. Barbic, M. D'Cruz, M. Latoschik, M. Slater, and P. Bourdot, eds.), no. 10700 (EuroVR 2017) in Lecture Notes in Computer Science, pp. 105–118, Springer, 2017

See `https://pyrapple.github.io/pages/publications.html` for an exhaustive list of publications.