# Internship Institut ∂'Alembert – LAM Team – 2026

# Room acoustics as a core gameplay mechanic in VR and AR

Place: LAM team, Institut Jean le Rond ∂'Alembert, Jussieu (Sorbonne Univ.), Paris

Duration: 4-6 months

Start: March (can adapt to school schedules)

Supervision: David Poirier-Q.[1] (researcher)

Co-supervision: Brian F.G. Katz[2] (research director)

Salary: Following university policy.

## CONTEXT AND GOAL

The Sound and Space group within the LAM team investigates room acoustics, spatial sound, and interaction in mixed reality. This internship builds on two research projects exploring real-time acoustics for navigation without visual cues and natural interaction in virtual environments.

The aim is to design and implement mixed reality games in which room acoustics shape the gameplay itself. Players might use reverberation to infer the properties of a space, locate hidden areas, or manipulate their surroundings to solve acoustic puzzles.

## EXPECTED RESULTS

The intern will first establish a workflow for rendering perceptually plausible room acoustics in real time within a VR/AR environment. Using this workflow, they will design and implement one or more game prototypes for internal testing, exploring how acoustic cues can support engaging and intuitive gameplay.

One prototype will then be refined into a small but complete game, with a coherent set of mechanics and a polished player experience. If time permits, the intern will design and conduct a user study to assess whether playing the game improves participants' ability to perceive and interpret the acoustic properties of a space.

## SOUGHT SKILLS

Experience with Unity and C#; familiarity with Max/MSP; a strong interest in VR/AR, sound, and game design; and an enthusiasm for prototyping and experimental evaluation.

## CONTACT

David Poirier-Q. (`david.poirier-quinot@sorbonne-universite.fr`)

[1] David Poirier-Q. website: `https://pyrapple.github.io`.

[2] Brian F. G. Katz website: `http://www.lam.jussieu.fr/Membres/Katz/index.php?page=accueil`.