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**For up-to-date information, publications and models available**, have a look here:  
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## Research topics

My research aims at understanding how **auditory perception** is influenced by the environment surrounding us, in particular room **reverberation** (the multiple sound reflections on room boundaries), which is mixed with the direct sound coming from the sources and modifies the signal at our ears. My goal is to study the perceptual effects associated with these modifications, and to propose relevant **models** and acoustical measurements to describe them.

I consider sound perception in terms of **speech intelligibility in noise** and source **localization**. I am also interested in sound reproduction in rooms. I consider the auditory system as a measurement tool allowing an evaluation of intelligibility and sound quality – by quality I mean “characteristics” rather than “good” or “bad” – and as a subject of study, in order to understand the complex processing involved while we are listening. I am particularly interested in characterizing the effects associated with **hearing impairment**.

My goal is to define acoustical measurements relevant for the improvement of auditory comfort in **ordinary rooms**, not only in big music halls and amphitheatres. My research can also be applied to vehicles and partially closed spaces (stations, streets ...), and to the improvement of **hearing-aids**. By auditory comfort I mean here ease of communication, security and **accessibility** for all. Because virtual rooms can be considered, **virtual and augmented realities** also constitute a field of applications.

Student, visiting researcher, inviting researcher: if you are **interested in starting a collaboration**, just drop me an email ([mathieu.lavandier@entpe.fr](mailto:mathieu.lavandier@entpe.fr)).