



### *Virtual reality environments for soundscape research*

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Soundscape research demands a holistic approach for the analysis of environments, yet any research method, e.g. soundwalk or lab-based listening test, has its advantages and limitations. The virtual reality (VR) and augmented reality (AR) technology provides an alternative method for soundscape research, which may remain as much context as possible while enable control conditions. The current phase of this research project focuses on the ecological validity of virtual reality environment for soundscape, by comparing human experiences and responses in a real soundscape and three-dimensional virtual ones. In particular, it explores the influence of the authenticity of virtual audio-visual scenes, ranging from real recorded scene, real recorded scenes with added virtual sources (AR), simulated high-resolution VR scene, simulated VR scene with simplified visual cues, to audio-only presentation without a video, on human responses to environment, to search for the threshold of complexity for reproducibility. The results will contribute to the development of new methodology of soundscape research and to the potential applications in soundscape design and soundscape management.