ACOUSTICS2008/3025 Auditory Resolution in Virtual Environments: Effects of spatialization algorithm, off-center listener positioning and speaker configuration

Georgios Marentakis, Nils Peters and Stephen McAdams

Centre for Interdisciplinary Research in Music Media & Technology (CIRMMT) - Schulich School of Music - McGill Univ., 555 Sherbrooke Street West, Montreal, QC, Canada H3A1E3

We present the results of an empirical study on the effects of room and off-center listener positioning on sound localization in two virtual environments, VBAP and Ambisonics. Localization accuracy has been assessed by estimating Minimum Audible Angles and Minimum Audible Movement Angles for the two spatialization algorithms and for three directions of sound incidence, in the studio and a concert hall for listeners in offcenter listener positions, with two loudspeaker setups. A model of localization accuracy as a function of the experimental variables is presented, that can be used to quantify the effects of the room and off-center listening positions on sound localization and auditory movement detection.