



The impact of the VR interface on the accuracy and ergonomics of spatial hearing tests

Grzegorz Rusinek, Agnieszka Paula Pietrzak

Politechnika Warszawska Instytut Radioelektroniki i Technik Multimedialnych
Nowowiejska 15/19, 00-665 Warszawa
agnieszka.pietrzak@pw.edu.pl

In recent years, virtual reality (VR) has been an attractive alternative to traditional methods of conducting hearing tests, offering both a natural way to indicate sound direction and complete digital data recording. The aim of this study was to analyze how the use of virtual reality goggles and motion controllers affects the accuracy of localizing acoustic stimuli and the subjective comfort of participants, compared to a web-based application operated with a mouse. The study was performed for 16 azimuthal samples (0° elevation) and 8 samples with a fixed azimuth of 90° and varying elevation. The results show that VR can reduce localization errors and narrow the interquartile range, especially in the azimuthal task. Respondents rated VR the highest in terms of intuitiveness, comfort, speed, and perceived precision. These findings confirm the potential of VR to improve hearing tests, especially in the horizontal plane, and suggest directions for further research on HRTF personalization and interface optimization for elevation tasks.