

Realistic virtual audiovisual environments for evaluating hearing aids with measures related to movement behavior

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With increased complexity of hearing device algorithms a strong interaction between motion behavior of the user and hearing device benefit is likely to be found. To be able to assess this interaction experimentally more realistic evaluation methods are required that mark a transition from conventional (audio-only) lab experiments to the field.

In this presentation we describe our methodology for acquiring ecologically valid behavioral data in realistic virtual audiovisual testing environments. The methods are based on tools to present interactive audiovisual environments while recording subject behavior with gaze and motion tracking systems.

The results of a study that evaluated the effect of different types of visual information (e.g., video recordings vs. animated characters) on behavior and subjective user experience are presented. It was found that visual information can have a significant influence on behavior and that it is possible to systematically assess this. Furthermore, first results are presented of two studies that observed head and eye movement behavior: 1) in typical everyday listening situations that were replicated with virtual audiovisual environments in the lab (e.g., cafeteria) and 2) when visual cues were presented via a head-mounted display or projected onto a panoramic cylindrical screen in front of the subject.