Master Thesis:
AudioVR – Auditory Exploration of VR environments for people with blindness

ACCESS@KIT - Zentrum für digitale Barrierefreiheit und Assistive Technologien

VR environments are a highly visual medium that is often not accessible to people with blindness. Text and UI elements as well as the virtual scene lead to problems, as there are no accessibility tools, software or standards in VR. One way in which these elements can be made accessible to people with blindness is AudioVR, the auditory presentation of virtual content and scenes, e.g. by means of scene descriptions or spatial audio.

Objective of the Thesis:

The aim of this master's thesis is to use selected, suitable methods to make a VR environment audibly perceivable and usable for people with blindness. First, existing approaches should be examined with a literature review and a user-centered concept for AudioVR should be developed. Subsequently, suitable methods are to be selected for the auditory presentation of virtual scenes. Dynamic content such as changes and actions in a scene should also be considered. Finally, the suitability of the developed concept and the selected methods will be evaluated in a usage study.

Topics and Key Aspects:

- Familiarization with the development of VR applications for people with visual impairments
- Test and selection of auditory approaches in VR
- User study on the suitability of the selected methods
- Creation of detailed documentation of all steps and results of the work

Requirements:

- Students enrolled in a Master's degree program in computer science, information science or a related course.
- Interest in the topics of VR and accessibility.
- Programming skills, preferably C#.
- Ability to work independently and problem solving skills.

If you are interested or have any questions,
please contact Julia Anken (julia.anken@kit.edu).

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