Master Thesis:
Simulation of Visual Impairments in Virtual and Augmented Reality

ACCESS@KIT - Zentrum für digitale Barrierefreiheit und Assistive Technologien

The further development of technologies such as virtual and augmented reality is constantly creating new possibilities for simulations. The simulation of visual impairments can help both to better understand the disease and to make it more comprehensible for others. Through this form of sensibilization, the needs of people with visual impairments can be given more consideration in the future when developing products, designs, digital content and much more.

Objective of the Master Thesis:

The aim of this master's thesis is to simulate selected symptoms and degrees of visual impairment in a VR headset. It should be possible to view one's own environment (using video see-through) as well as completely virtual environments with simulated visual impairment. First, literature research on existing approaches to the simulation of visual impairments and their transferability and use in VR should be carried out. Subsequently, a Unity plugin for simulation should be developed and evaluated in a user study.

Topics and Key Aspects:

- Familiarization with the various symptoms of visual impairments and their simulation
- Development of a Unity plugin
- User study on the suitability of the developed plugin
- Creation of detailed documentation of all steps and results of the work

Anforderungen:

- 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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