Masterarbeit

Development of a Virtual Reality Environment for Exploring Haptic Interaction through a Wearable Sensor Glove

An increasing number of applications in entertainment, medicine, retail, research, and education have begun utilizing Mixed Reality (MR) systems. However, the interaction of humans with MR environments still need to be explored and studied in detail. To this end, we have developed a wearable sensor glove which allows tracking the motion of the human hand and also provide pseudo haptic and haptic feedback. In this project, we plan to develop an environment in Unity and an experimental design that will facilitate exploration of interactions between the user and virtual environments through a bi-directional interface.

Arbeitsauftrag

- Realistic modeling of the glove input in the virtual environment
- Establishing haptic feedback on fingertips
- Integrating the glove and HTC Vive Pro Eye to establish pseudo haptic feedback
- Design and preperation of a user study
- Documentation and presentation of results

Anforderungen

- Proficient knowledge of C#/C/C++
- Experience with object-oriented programming
- Experience with Unity or other game engines

Verweise

Cansev, M. E., Xue, H., Rottmann, N., Bliek, A., Miller, L. E., Rueckert, E., & Beckerle, P. (2021). Interactive Human–Robot Skill Transfer: A Review of Learning Methods and User Experience. *Advanced Intelligent Systems*, 2000247.

Lécuyer, A., Coquillart, S., Kheddar, A., Richard, P., & Coiffet, P. (2000, March). Pseudo-haptic feedback: can isometric input devices simulate force feedback?. In Proceedings IEEE Virtual Reality 2000 (Cat. No. 00CB37048) (pp. 83-90). IEEE.

Beginn: immediately
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