
Redirected Walking – Exploring large Virtual Environments while freely walking

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Overview

Real Walking allows a user to explore a virtual environment (VE) which is larger than the available physical space while walking naturally. Wearing a head-mounted display and carrying a computer in a backpack to render the VE, the user is continuously tracked by an external tracking system. While walking in a dedicated tracking area, his/her motion is mapped into the VE such that the user feels like really walking in virtual reality which greatly improves the immersion of the application. However, since the VE is supposed to be larger than the physical space, this mapping is subtly manipulated by so-called redirection techniques in order to steer the user to certain areas, consequently avoiding collisions with tracking



space boundaries. Over the years, several different approaches addressing this issue of navigating large VEs in small physical spaces like motion compression, curvature redirection and rotational resets have been developed. Furthermore, the combination of different techniques, path planning algorithms and user trajectory prediction are currently in research and open up various new possibilities.

Tasks

Your task is to summarise existing state-of-the-art techniques used in Redirected Walking and evaluate the different methods currently in use. You show advantages/disadvantages for each approach, explain how they work in detail and what future work may result in. Finally, you present your findings to the ICVR lab and hand in a written report covering your study.

Workpackages

- Literature research on the state-of-the-art
- Evaluation of methodologies
- Final presentation
- Written report

Results

The results of the study have to be summarised in a written report and will be presented to the ICVR in a presentation.

Contact

Christian Hirt, LEE L201
Andreas Kunz, LEE L208

hirtc@ethz.ch
kunz@iwf.mavt.ethz.ch