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# Gain Compensation for Natural Walking.

Keywords: Virtual Reality; Redirection; Natural walking

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## Background

The ReWaVE system @ ICVR allows for an unlimited real walking in a virtual environment while staying in a physically constraint room. For doing so, the user is guided on a walking trajectory that is different from the walking path being visualized in the HMD. This mismatch in the visohaptic perception is achieved by so-called 'gains'.

## Motivation

The sense of presence within a virtual environment is significantly increased if real walking is possible to freely explore the virtual world. This opens new perspectives in many application fields such as mechanical engineering, architecture, or medicine. Current research @ ICVR focuses on enhancing the 'compression factor', i.e. the subtle mismatch between the real walking trajectory and the visually perceived path.



## Task

Using the aforementioned 'gains', a user's linear or curvature movement is altered. However, it is unknown yet whether the user unconsciously compensates these gains, e.g. by changing his walking speed. So far, no compensation is assumed, but the compression factor could be further increased if a possible compensation behavior is known and taken into account. Thus the main task of this Master thesis is to develop and perform a user study to research this possible behavior.

## Work packages

- Become acquainted with the ReWaVE system
- Literature study on motion compensation
- Development of user study
- Intermediate presentation
- Performing user studies
- Evaluation of results
- Written report
- Final presentation

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## Informationen & Administration

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