

Infrascapes: Development of methods for the analysis of movement and orientation behaviour in wayfinding tasks based on the case study “mirror maze”

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Abstract

Navigation, orientation - to find one's way - belong to the elementary tasks of everyday life. Do behavioural data retrieved from these scenarios allow for a prediction of whether a subject is anxious, disoriented, determined or satisfied? Can behaviour be predicted on these bases? Insights like this might be of great use, for example for the optimisation of public spaces.

Recent studies have exclusively used punctual measures of movement (photo sensor) or behavioural data. Individual movement or orientation of subjects has received less attention.

Goal of this work is a) the development of methods for the collection of data concerning subject's movement and orientation and b) the development of helpful descriptive measures, means of visualisation and analysis of this data.

In a pre-study, virtual 3D-rooms have been developed to confront subjects with different experiences and to measure movement and orientation data within this environment.

The main experiment, which is meant to serve as a case study for the development and application of new methods, was conducted in a real world setting. General differences between male and female subjects as well as sex-related effects of restricted field of view were studied in this setting. For that purpose 30 men and 30 women were individually send through the mirror-maze of the Hamburg Dungeon, solving navigation and orientation tasks, while their navigation and orientation behaviour was recorded.