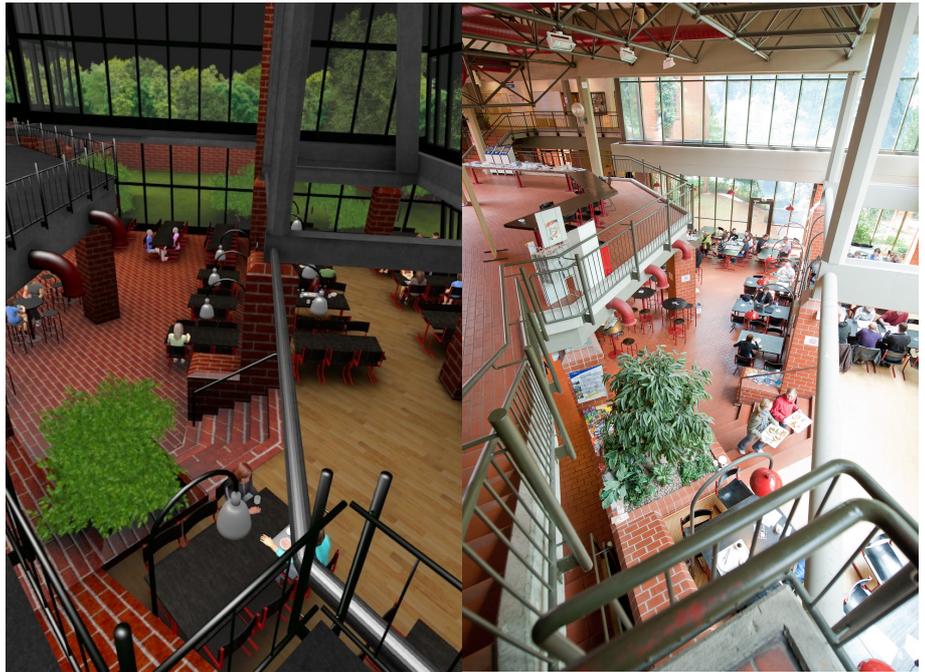


# Master thesis

## „Comparison of motion behavior in the field and in the lab“

**Background:** Motion behavior, especially head motion behavior, is important for the understanding of hearing aid benefit: Directional microphones typically amplify sounds from the frontal direction and attenuate sounds from the back hemisphere. However, humans do not always point their head towards the direction of interest – parts of the orienting towards a source are done with the eyes, and it is also known that in multi-talker communication situations listeners look only in about 67% of the time towards the active speaker. Motion behavior can be systematically measured in the laboratory. Here it is important to present acoustic and visual cues. However, it remains



unclear whether subjects are behaving naturally in the lab environment. Therefore it is required to compare motion behavior measured in the lab with motion behavior in real environments.

**Aim:** You will learn how to plan and perform motion behavior experiments in the field. Results will show if movement behavior measured in the lab is comparable to movement behavior in real life.

**Approach:** In this master thesis you will use portable motion tracking devices to record motion behavior in various environments (e.g., cafeteria, street, train station). The data will be compared to previously recorded motion behavior from lab experiments. Experiments will be performed with test subjects (young normal hearing listeners).

**Required background and skills:** Matlab skills, basic understanding of digital signal processing, and a general interest in working with state-of-the-art technology and hardware prototypes.

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**Literature:**

Hendrikse et al. (2018): Influence of visual cues on head and eye movements during listening tasks in multi-talker audiovisual environments with animated characters. *Speech communication* 101, p70-84 (<https://doi.org/10.1016/j.specom.2018.05.008>)