STUDENT PROJECT offered at the Institute for Neurobiology

EBERHARD KARLS UNIVERSITÄT TÜBINGEN

Student project in spatial cognition

View-specific spatial recall

Background. Imagery of distant places can be built from long-term memory. In prior work, we showed that the orientation of sketch maps drawn from memory depends on prior activation of the target place (by mental travel; Basten et al. 2012) as well as on the location where the recall takes place (Röhrich et al. 2014). This result is relevant for understanding the transformation between allocentric long-term memory contents and ego-centric working memories.

Project. In this project, we will develop and test a new experimental paradigm for assessing the orientation of imagined distant places. Subjects will be seated on a rotating chair and wear an Oculus Rift head-mounted display. The will be instructed to imagine a place (e.g., the Tübingen Holzmarkt) and to remember what on the Holzmarkt they are seeing. They will then be presented with a panoramic image of the goal location and will be asked to turn (on the chair) until the actual view matches the previously imagined one. The adjusted viewing direction is recorded and the next trial begins. This paradigm will be used in later experiments on the place-dependent recall effect.

Methods. MatLab programing, psychophysics, statistical analysis.

Level. BSc

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References

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Röhrich WG, Hardiess G, Mallot HA (2014) View-based organization and interplay of spatial working and long-term memories. PlosONE, 9(11):e112793. doi:10.1371/journal.pone.0112793

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