*Student project in Visual Perception*

Measurement of working memory (WM) span by a delayed match to sample task.

Background. The Visual Array Comparison Task (adapted from Luck & Vogel, 1997) measures the capability to memorize different qualities and quantities of visual items in WM. Thus, the memory span can be estimated and used to characterize the limitations of such a memory (i.e., capacity of the WM).

In this project, the influential study published by Luck & Vogel (1997) should be

replicated and now tested with specific stimulus material previously used in experiments concerning strategy choice in comparative visual search (CVS). In this way, the differing strategies found in CVS (Hardiess & Mallot, 2015) should be better understandable.
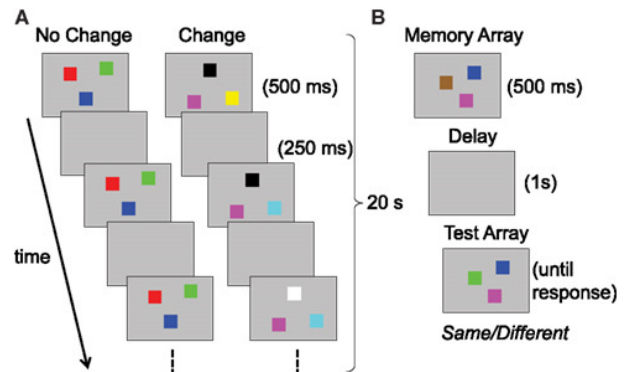
Project(s).

- Develop an experimental setup (psychophysically) by using MatLab technology and the PsychToolbox 3.

- Learn to use psychophysics and memory tasks to investigate dual task performance.

- Learn to create and to run a psychophysical experiment and data processing by the use of MatLab.

- Analyze behavioural data empirically (i.e. estimate of WM capacity) and graphically and perform statistical tests to extract meaningful effects.

Methods. Visual psychophysics, statistics, and MatLab programming of the experiments and the scripts for analysis.

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Level. The project is planned as BSc-project but can be extended to a MSc-project.

References.

Hardiess, G., & Mallot, H. A. (2015). Allocation of cognitive resources in comparative visual search– Individual and task dependent effects. Vision research, 113, 71-77.

Luck, S. J., & Vogel, E. K. (1997). The capacity of visual working memory for features and conjunctions. Nature, 390(6657), 279-281.

Vogel, E. K., & Machizawa, M. G. (2004). Neural activity predicts individual differences in visual working memory capacity. Nature, 428(6984), 748-751.

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