STUDENT PROJECT offered at the Institute for Neurobiology

EBERHARD KARLS UNIVERSITÄT TÜBINGEN

Student project in Visual Perception

The Attentional Boost Effect between the perception of visual targets and the enhancement of memory performance in a RSVP task

Background. The interference hypothesis states that the performance drops when two congruent tasks demanding the same memory processes must be handled. However, if the primary task demands identification (i.e. attention for recognition of a particular target among distractors) and the secondary task demands memorisation (of images using rapid serial visual presentation, RSVP), the enhancement hypothesis states that memory performance increases.

In this project we investigate (a) if the predictions of the enhancement hypothesis were correct and if yes, (b) we manipulate perceptual (changing complexity of the visual targets) and memorisation (changing similarity of the visual images used in RSVP) related parameters to characterise the underlying attentional and perceptual processes that boost the performance.

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 and d'-statistics.
- Analyze behavioural data empirically and graphically and perform statistical tests to extract meaningful effects.

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

Supervisors/Contact. Dr. Gregor Hardiess:
mail: gregor.hardiess@uni-tuebingen.de
http: //homepages.uni-tuebingen.de/gregor.hardiess/

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

References.

Lin, J. Y., Pype, A. D., Murray, S. O., and Boynton, G. M. (2010). Enhanced memory for scenes presented at behaviorally relevant points in time. *PLoS Biol. 8*:e1000337.

Swallow, K. M., and Jiang, Y. V. (2011). The role of timing in the attentional boost effect. *Atten. Percept. Psychophys. 73*, 389–404.

Swallow, K. M., & Jiang, Y. V. (2013). Attentional load and attentional boost: A review of data and theory. *Frontiers in Psychology, 4*, 274.

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