

**Master thesis** at the Technische Universität Berlin

## Matching ACT-R and EEG data

**Methods, which unite findings and methods of cognitive modeling and neuroscience are required, in order to obtain greater understanding of cognitive processes of the human brain.**

**The objective** is to develop and apply a matching method that links Independent Components (ICs) derived from EEG-data and ACT-R buffer activation, using dipole fitting and canonical correlation analysis.

The EEG data as well as the ACT-R model exist, as well as the outline of the matching method. Your work would be to implement, improve and evaluate the potential of such a method.

**The optimal candidate has a strong interest and knowledge in:**

- **EEG** – research, namely experience with Independent Component Analysis and Dipole Fitting
  - **ACT-R** – theory and basic functionality
  - **Statistical analysis**, Canonical Correlation Analysis
  - Programming (Matlab)
  - **fun working with data**
- The thesis will be supervised by Sabine Prezenski and Nele Rußwinkel from the department of cognitive modeling in dynamic human machine systems at Technische Universität Berlin in Berlin, Germany.
  - It is not necessary, but possible to stay in Berlin during the entire period of the thesis. Probably we can provide a small travel grant
  - Starting as soon as possible.

**To find out more:**

Prezenski, S. and Russwinkel, N. (2016). A Proposed Method of Matching ACT-R and EEG-Data. In Proceeding of the International Conference for Cognitive Modelling, pp. 249-251, Pennsylvania, USA.

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