

Master thesis/ Bachelor thesis

Neurophysiological underpinnings of cognitive control

We invite students from the fields of Psychology, Neuroscience, Neuroengineering, Informatics, or comparable backgrounds, to write a bachelor or master thesis, or a study project with us.

About the project: The student will join a project aiming to deepen our understanding of how brain activity patterns during rest can predict individual differences in cognitive control. More specifically, the student will independently (re-)analyze an (already collected) set of EEG data to test how individual resting state EEG characteristics, such as functional connectivity measures, relate to cognitive abilities. The thesis will be co-supervised by Nuno Busch (TUM) and Dr. Artyom Zinchenko (LMU), in cooperation with Prof. Dr. Paul Sauseng (UZH).

Possible start date: Autumn 2024

Your thesis project:

- Develop and test hypotheses based on the state-of-the-art literature
- Independent reanalysis of EEG data
- Enough space for the discussion/ possible implementation of own ideas regarding the reanalysis approach
- Includes travel to UZH (Zürich, Switzerland; at own expense) for 1-3 days to analyze data on-site – other than that, the project is Munich-based (or remote work also possible)
- All data has already been collected.

Your skill set:

- Background in Psychology, Neuroscience, Cognitive Science, Neuroengineering, Informatics, or comparable
- Interest in EEG research, willingness to familiarize yourself with new/ unknown topics and methods
- Good statistical knowledge
- Good programming skills (Matlab and/or R)
- High level of reliability and commitment, independent and conscientious way of working
- Transparent and open research practices
- *Of advantage:* Previous experience with EEG data analysis, particularly with functional connectivity analyses

Publication policy: In case the resulting findings are submitted for publication, the student will be granted co-authorship if he is motivated to continue collaborating beyond the thesis/ study project and to strongly contribute to the preparation for submission.

Contact: If interested, please send your CV, grade report, and a brief statement of research interests & motivation via email until October 1st, **2024**. All applications and questions should be directed to: nuno.busch@tum.de