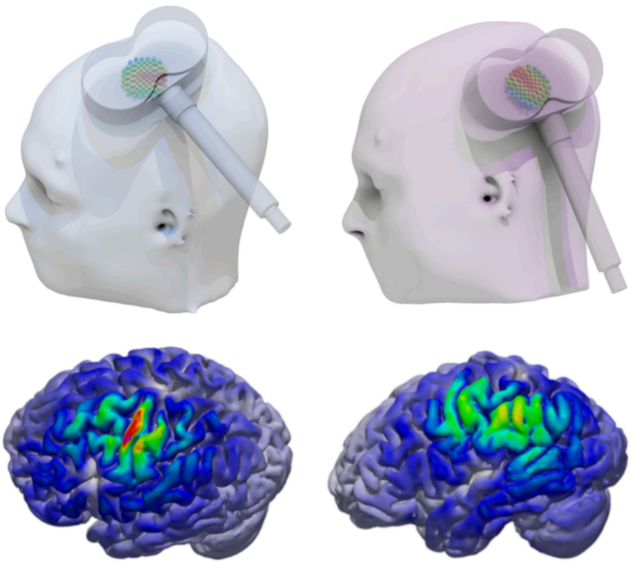
# Population-level Dosing Atlas for Transcranial Magnetic Stimulation

We are offering an exciting opportunity for an internship or thesis project focused on developing a population-level dosing atlas for transcranial magnetic stimulation (TMS). This project aims to use **electric field simulations on a large cohort** of subjects from a **public brain database**. By analyzing various cortical targets, we seek to gain insights into the **factors that influence stimulation strength**. TMS is a widely used non-invasive brain stimulation (NIBS) technique with applications in research and clinical treatments for neurological and psychiatric conditions. However, there is significant variability in the effectiveness of TMS due to individual differences in brain anatomy and physiology.
Understanding these differences and their impact on stimulation strength is crucial to optimize TMS applications and to improve treatment outcomes. This research will **help reduce variability and enhance the precision of TMS** applications by creating a detailed dosing atlas.

## Key Objectives

- Conduct electric field simulations for a diverse range of subjects.
- Identify relevant factors that affect TMS dosing with mixed effects models.
- Develop a comprehensive dosing atlas to enhance application of TMS.



## Requirements

- Background in cognitive neuroscience, *informatics, psychology, …
- Proficiency in programming languages such as Python and R.
- Basic understanding of TMS, electric field simulations, and high-performance super-computing (HPC, slurm) is desirable.
- Strong analytical and problem-solving skills.

## Benefits

- Gain hands-on experience in cutting-edge neuroscience research.
- Contribute to the development of a valuable tool for the scientific community.
- Opportunity to collaborate with researchers at the Max Planck Institute for Human Cognitive and Brain Sciences.
- Possibility of co-authoring scientific publications based on project outcomes.

## Application Process

To apply, please send your CV, a brief statement of interest, and academic transcripts (English or German) to Dr.-Ing. Dipl.-Psych. Ole Numssen.

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