



The [Brain Dynamics and Imaging Methods Group](#) within the [Section of Systems Neuroscience](#) is closely associated with the Departments of [Psychiatry](#) and [Psychology](#) and the [Neuroimaging Center \(NIC\)](#) at the [TU Dresden \(TUD\)](#). Our research focusses on studying brain functions related to emotions and cognitive control. In particular, we like to understand how the state of the brain changes on the time scale of seconds to minutes, how the underlying brain states differ between tasks and individuals, and how such differences relate to human behaviour. In this context, we are also keen to develop better methods that improve reproducibility of brain imaging measures, especially from machine learning. We rely primarily on magnetic resonance imaging (MRI) data for our research goals, but are also open to supplementary methods such as neurofeedback or transcranial stimulation.

Currently, we are involved in two DFG-funded Collaborative Research Centers (CRCs): ([SFB 940](#)) on "*Volition and Cognitive Control: Mechanisms, Modulators, and Dysfunctions*" and ([TRR265](#)) on "*Losing and Regaining Control over Drug Intake*". These centers together with the ([NIC](#)) and the Center for Information Services and High Performance Computing ([ZIH](#)) provide an outstanding scientific infrastructure and ideal environment for interdisciplinary research.

Our group currently invites applications for a

PhD Student / E13 TV-L 75% (f/m/d)

The position is initially funded for 2 years. Prolongation is intended. We are seeking a highly motivated student with a background in psychology, neuroscience, computer science or mathematics and a keen interest in applying machine learning methods to brain imaging data and neuroscientific questions. The candidate is strongly encouraged to contribute ideas to the future of the project in line with personal interests. The objective of your work will be to identify and improve reproducible measures of brain function and structure that relate to cognitive control and addictive behaviour.

Your tasks:

- Investigate the reproducibility of measures derived from functional and structural MRI data (various data sets available)
- Improve reproducibility of such measures using machine learning techniques and/or improved experimental designs
- Investigate potential reasons for the intra-subject variability of such measures
- Investigate the relationship of such measures to addictive behaviour and/or self-control
- Contribution to the acquisition of relevant data
- Contribute to related grant proposals
- Interact with other CRC scientists and students
- Preparing manuscripts and presenting results at conferences

Your profile:

- University degree (Master or Diploma) in psychology, cognitive neuroscience, computational neuroscience, computer science, mathematics or related disciplines
- A keen interest in applied computational sciences and neuropsychology
- Solid programming skills in Python or Matlab
- Expertise in the analysis of fMRI-data would be advantageous
- Good English language skills (speaking and writing)
- An interest in interdisciplinary cooperation and team work

We offer you:

- Being part of a structured PhD graduate program
- Working in a highly interdisciplinary team with leading cognitive and computational scientists that will support you

We look forward to receiving your complete application (one PDF-document including a cover letter with a brief summary of research interests, full CV, and two references) until Apr. 30th, 2021. We kindly ask you to apply via our [online form](#) to make the selection process faster and more effective. For further information or to apply, please contact: Michael Marxen, Ph.D. (michael.marxen@tu-dresden.de).