Postdoctoral Researcher — Event Segmentation and Laminar 7T fMRI in Alzheimer's Disease

The German Center for Neurodegenerative Diseases (DZNE) is a globally leading, internationally oriented research institution dedicated to discovering new approaches for the prevention and treatment of neurodegenerative diseases.

Your role in detail

Join the Clinical Cognitive Neuroscience group, led by Dr David Berron. Our research spans the functional architecture of human memory and the medial temporal lobe, how Alzheimer's pathology disrupts these systems from the earliest disease stages onward, and the development of disease-stage-specific imaging and digital cognitive markers.

This position is part of the DFG Research Unit "Layers of Memory" (subproject P7), a consortium spanning Bochum, Bonn, Dortmund, Duisburg-Essen, Magdeburg, and Tübingen, plus partner sites in the Netherlands and Austria. Your tasks will include:

- Acquiring and analyzing 7T laminar fMRI data using a naturalistic movie-based event segmentation paradigm
- Segmenting MTL subregions and hippocampal subfields (e.g. using ASHS) and defining cortical layer compartments
- Applying univariate and multivariate (representational similarity) analyses to characterize event boundary activity and temporal pattern separation/completion
- Comparing findings across young adults, cognitively healthy older adults, and people in early stages of Alzheimer's disease recruited in Magdeburg and Essen
- Co-supervising student assistants
- Preparing manuscripts and presenting results at international conferences

Your profile

- PhD in psychology, cognitive neuroscience, neuroscience, or a related field
- Passion for neuroimaging and neuropsychology, and a genuine interest in the neural basis of memory and cognitive impairment in early-stage neurodegenerative disease, particularly through naturalistic, translational research approaches
- Experience with (f)MRI data analysis; prior work with ultra-high-field (7T) or laminar imaging is a strong plus
- Experience with MTL/hippocampal subfield anatomy and segmentation, or willingness to learn these pipelines quickly
- Strong programming skills (R, Python and/or MATLAB) and familiarity with multivariate analysis methods (e.g. RSA)
- Good communication skills and ability to work both within a local and a distributed, multi-site team
- Track record of peer-reviewed publications
- Fluent in written and spoken English; German is a strong plus, not a requirement

Candidates who meet most, but not all, of these points are still encouraged to apply.

Your role

Everyday experience unfolds as a continuous stream that the brain must segment into meaningful episodes — a process that depends on the hippocampus and medial temporal lobe (MTL) and is disrupted early in Alzheimer's disease. Importantly, patients in early disease stages report these difficulties themselves, which makes it clinically relevant for their everyday life. Yet we still don't know how this happens at the level of individual hippocampal and entorhinal layers, or how AD pathology disrupts it. This project combines naturalistic, movie-based fMRI with ultra-high-field (7T) laminar imaging, remote cognitive testing and advanced multivariate and AI-based analyses to map event segmentation at subfield and layer resolution, in young adults, cognitively healthy older adults, and people in early stages of Alzheimer's disease.

The position offers an outstanding research environment with access to state-of-the-art infrastructure, unique scientific collaborations, and excellent opportunities for professional development. You will have access to 7T scanners, including the 7T Siemens Terra.X Impulse Edition scanner in Magdeburg — one of only very few systems of this kind worldwide — plus 3T MRI and PET. The position is embedded in the DFG Research Unit "Layers of Memory", collaborating with laminar-imaging pioneer Prof. David Norris (Essen) and a wider consortium and collaborators spanning ultra-high-field fMRI, laminar fMRI methodology, clinical neurology and Alzheimer's disease, and human memory and event segmentation.

In addition, you will have access to richly phenotyped and biomarker-characterized patient and control cohorts. We offer close 1:1 supervision, regular lab meetings and journal club, as well as exchange with local and international consortia (e.g. DFG CRC 1436 Neural Resources of Cognition, IHI-ACCESS-AD) and institutions. You will become part of an international, open-minded, experienced, ambitious and supportive team that gets along well beyond just working together.

Your application

Please submit your application including CV, a short motivation letter, and two references via the **application link** on this page.

For futher information on the advertised position, please contact Dr David Berron (**david.berron@dzne.de**).