

The German Center for Neurodegenerative Diseases (DZNE) is a world-leading internationally oriented research center, committed to discovering new approaches to prevent and treat neurodegenerative diseases. To this end, researchers at ten DZNE sites across Germany pursue a translational and interdisciplinary strategy comprising five interconnected areas: fundamental research, clinical research, health care research, population health science, and systems medicine. www.dzne.de

The DZNE in **Magdeburg** advertises a

PhD position on hippocampal plasticity in human aging – Code 4045/2020/12

Within the context of the new SFB 1436 “Neuronal Resources on Cognition”, one 3.5-year PhD is available at the DZNE Magdeburg to study how hippocampal vascularization patterns affect cognitive functioning, using a spatial memory task that relies on a posterior medial temporal network of the brain (including the hippocampus). The successful candidate (f/m/d) will develop a training procedure where different groups of younger and older adults (including high-functioning “SuperAgers”) perform a smartphone-based spatial navigation task in the real world and combine it with performance measures from a virtual reality (VR) paradigm to investigate how interindividual variability in neural resources relate to changes in performance in the context of a training intervention.

What we are looking for:

Function: PhD student
Start date: Beginning of 2021
Location: DZNE Magdeburg, Germany

Who we are and what we do:

Research focus: Cognitive Neuroscience research on medial temporal network functioning, aging & dementia
Team: International and interdisciplinary research team, including cognitive scientists, psychologists, biologists and neurologists
Environment: Research dedicated 3T and 7T MRI scanners
Cutting-edge virtual reality facilities
Mobile EEG, MEG, TMS and eye tracking systems
Active local network of PhD students and Postdocs

What your role would look like:

Supervisors: Dr. Nadine Diersch & Dr. Anne Maass
Tasks: Develop and implement a behavioral training procedure measuring spatial navigation abilities in different participant groups, characterize performance improvements (e.g. by estimating individual learning states using Bayesian modelling) and link them to the neural status of the participants

Your profile:

- MSc in psychology, cognitive neuroscience, neuroimaging methods or related
- Strong interest in cognitive aging
- Experience in working with different age and patient groups
- Interest in working with smartphone data & computational modelling techniques
- Prior experience with programming languages such as R, Matlab and/or Python
- Reliability, flexibility, passion
- German & English language proficiency

To submit your application, please visit <https://jobs.dzne.de/en/jobs/60675/phd-position-on-hippocampal-plasticity-in-human-aging-4045202012>

For further information (not application!) about this unique opportunity, please email Nadine Diersch (nadine.diersch@dzne.de). To learn more about our research, please visit our websites and follow us on Twitter.

Contact:

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Further reading:

For more information about the SFB 1436 (in German), click [here](#).

Diersch, N., Valdes-Herrera, J.-P., Tempelmann, C., & Wolbers, T. (2019). Increased hippocampal excitability and altered learning dynamics mediate cognitive mapping deficits in human aging. bioRxiv. doi: 10.1101/581108.

Maass, A., Düzel, S., Goerke, M., Becke, A., Sobieray, U., Neumann, K., Lövdén, M., Lindenberger, U., Bäckman, L., Braun-Dullaeus, R., Ahrens, D., Heinze, H.-J., Müller, N.G., Düzel, E. (2015). Vascular hippocampal plasticity after aerobic exercise in older adults. *Molecular Psychiatry*, 20(5), 585-593.

Perosa V., Priester A., Ziegler G., Cardenas-Blanco A., Dobisch L., Spallazzi M., Assmann A., Maass A., Speck O., Oltmer J., Heinze H.J., Schreiber S., Düzel E. (2020). Hippocampal vascular reserve associated with cognitive performance and hippocampal volume. *Brain*, 143(2), 622-634.

You will obtain special skills and knowledge for your scientific qualification during your activities at DZNE. The DZNE is an equal opportunity employer. It is committed to employing disabled individuals and especially encourages them to apply.