Max-Planck-Institut für biologische Kybernetik

Max Planck Institute for Biological Cybernetics

Postdoc position:
"Brain network mechanisms underlying spatial cognition"

A postdoc position is available at the **Department of Computational Neuroscience** at the Max Planck Institute for Biological Cybernetics (https://www.kyb.tuebingen.mpg.de/computational-neuroscience) to work with Dr. Oxana Eschenko on brain network mechanisms underlying spatial cognition.

This project is a follow up study (**Yang**; https://www.jneurosci.org/content/jneuro/39/3/434.full.pdf; **Mei**; http://learnmem.cshlp.org/content/25/3/129) aiming at understanding the role of two thalamic nuclei – the nucleus reuniens and mediodorsal nucleus – within a large-scale brain network underlying spatial cognition. The involvement of both thalamic nuclei in spatial cognition can be inferred from anatomical connectivity and neuropharmacology, while neurophysiological mechanisms of the spatial network dynamics remain poorly understood.

We hypothesize that a functional coupling exists between the associative thalamic nuclei, the hippocampus, and the prefrontal cortex and that this coupling enables successful spatial navigation and retrieval of spatial memory. To test this hypothesis, we recorded multi-site neural activity while rats learned a complex maze task, and plan to relate model-agnostic and model-dependent behavioral variables reflecting learning and decision-making to aspects of the extracellular neural signals, including spectral decomposition, coherence, cross-frequency and phase-amplitude analysis.

Candidates should have strong computational and data science skills and proven experience in the analysis of behavior and neural signals. Proficiency in English is essential. The position is available from March 1, 2023 and will be for one year in the first instance, subject to a probationary period. An extension may be possible depending on performance.

Remuneration is based on qualifications and professional experience in accordance with the collective agreement for the public service (TVöD Bund) plus various social benefits and additional pension provision.

The Max Planck Society is an equal opportunity employer: Handicapped individuals are strongly encouraged to apply, and so are women in areas in which they are underrepresented. The Max Planck Society strives for gender and diversity equality. We welcome applications from all backgrounds.

Please contact Dr. Eschenko (e-mail: oxana.eschenko@tue.mpg.de) with any enquiries.

Application deadline is September 30, 2023 or until the position has been filled.

Please upload your application documents electronically to our job portal by September 30, 2023 using the following link: **https://jobs.tue.mpg.de/jobs/191**

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