Max Planck Institute for Biological Cybernetics

PhD positions (f/m/d) in computational neuroscience

The Natural Decision Making Group, hosted by the Computational Neuroscience Department at the Max Planck Institute for Biological Cybernetics, invites applications for **two PhD positions**.

Who we are:
The overarching goal of our group is to understand how animals learn the dynamics of their environment across different timescales and adapt their decisions accordingly. To achieve this goal, we study foraging behavior as a window into naturalistic decision processes. Specifically, we conduct systematic, cross-species studies of foraging by developing data-driven, species-specific computational models. We investigate how the decision strategies of different species arise from underlying neural circuits and relate to the spatiotemporal structure of their unique ecological niche, as well as their sensory-motor constraints.

What you will work on:
The PhD projects will focus on integrating methods from reinforcement learning, dynamical systems, and artificial intelligence (AI) to develop data-driven models that can identify computational, algorithmic, and neural mechanisms underlying adaptive decision-making. For this purpose, we also work in close collaboration with multiple experimental labs to design novel, comparable foraging tasks across different species, including *C. elegans*, zebrafish, and mice, complemented by targeted human experiments conducted in our group. By combining computational and experimental insights across species, we aim to uncover the shared and species-specific mechanisms governing adaptive decision-making in naturalistic settings.

Whom we are looking for:
The ideal candidate has (N = necessary, D = desired, P = plus):

- (N) A strong academic background (Master's or equivalent) in computational neuroscience, cognitive science, computer science, physics, mathematics, statistics, psychology, or other related fields.
- (N) Strong analytical and critical thinking skills.
- (N) Proficient programming skills (ideally in Python).
- (N) Excellent communication skills in English.
- (N) A collaborative mindset and the ability to work responsibly within a team.
- (D) Experience with computational modeling and/or advanced data analysis.
- (P) Experience with reinforcement learning models.
- (P) Experience with, or a strong interest in, designing and conducting human behavioral experiments.

What we offer:
The positions are initially limited to three years (E13 TVöD), with the possibility of extension. The successful candidates will work in a cutting-edge, international environment at the Max Planck Institute for Biological Cybernetics. Due to the interdisciplinary nature of the projects, they will have the opportunity to work closely

with an extensive network of collaborators, including Peter Dayan, Shervin Safavi, Jennifer Li, and Drew Robson, as well as excellent teams of researchers at the Allen Institute for Neural Dynamics led by Cindy Poo and Laura Driscoll. Furthermore, they will enroll in the Graduate Training Centre of Neuroscience (GTC) and may additionally apply to the core program of the International Max Planck Research School for the Mechanisms of Mental Function and Dysfunction (IMPRS MMFD), both of which offer structured training curricula, career development programs, and networking opportunities for doctoral students. The IMPRS core program also provides additional financial support to the doctoral students through wrap-up and travel grants.

About Tübingen:
Situated on the Neckar River in southwestern Germany, Tübingen is a scenic and vibrant university town. The quality of life is exceptionally high, the atmosphere is diverse and inclusive, and most locals speak English. Furthermore, the city is a premier scientific hub, providing outstanding research opportunities anchored by three Max Planck Institutes, the University of Tübingen, the University Hospital, and Europe's largest AI research consortium, Cyber Valley. You can find out more about the Tübingen Research Campus here: https://tuebingenresearchcampus.com/en

How to apply:
If you are interested in the position, please submit your application through this form. To ensure a fair and equitable selection process, we ask that you **do not include a photo** in your application documents. Please have the following documents and information ready before completing the application form:

- CV
- BSc and MSc transcripts
- Names and contact information of 2 referees

Applications will be considered until **June 15, 2026**, or until the positions are filled. The Max Planck Society is committed to employing diverse individuals and strives for gender equity and diversity. We welcome applications from individuals of all backgrounds and explicitly encourage members of underrepresented groups to apply.

If you have any questions, feel free to reach out to Roxana Zeraati (roxana.zeraati@tuebingen.mpg.de) and include "PhD-Foraging-MPI" in the email title.