Champalimaud Foundation

European Research Council

How does the brain estimate the estate of the body to control movement? The Sensorimotor Integration lab has a Postdoctoral open position to help us answer this question by examining neural activity distributed across different regions of the nervous system of flies moving through virtual worlds.

About us

The Chiappe lab at the Champalimaud Neuroscience Programme (ChiappeLab.org) takes advantage of the small size and compact nervous system of the acrobatic fly, *Drosophila melanogaster*, to examine how internal representations of the body give rise to adaptive movement control. The lab studies circuits involved in self-motion estimation, action selection, and movement correction (Fujiwara et al., Nature Neuros, 2017, Neuron, 2022). The lab uses many different techniques, including quantitative analysis of behavior (Cruz et al. Curr Biol 2020) and neurophysiology, modeling and connectomics, with the goal of identifying the circuit bases for flexible movement control at high resolution.

A current focus in the lab is to dissect the structure and function of circuits involved in state estimation, in the context of angular control and turn selection. In recent work, the lab has determined a compact network involved in rotation estimation (Erginkaya et al. BioRxiv, 2023). Ongoing work funded by generous support from ERC will reveal broader principles of movement control by identifying and characterizing how self-rotation estimation is transformed throughout different postsynaptic networks to select an appropriate action in the context of self-paced behavior. The goal of this work will be to reveal basic insights into how internal representations are used to guide goal-directed movement control.

This is an ideal opportunity for a talented colleague interested in integrative brain functions who would enjoy being immersed in collegial, intellectually stimulating, and diverse group of scientists. The position will also provide the opportunity to work in close collaboration with computational and theoretical neuroscientists to advance models and conceptual frameworks for sensorimotor transformations and movement control.

What we provide:

- Full support remuneration for the entire graduate training (6 years) that guarantees full-time dedication to research starting on the second year.
- Training at the competitive International Neuroscience Doctoral Program (INDP) of the Champalimaud Neuroscience Program
- A collaborative, intellectually stimulating, and diverse lab environment
- Opportunities for professional development
- Full immersion into the research excellence ecosystem with vibrant scientific community supported by state-of-the-art technology at the Champalimaud Neuroscience Programme

Your expected tasks:

Eugenia Chiappe, PhD
Principal Investigator
Sensorimotor Integration Laboratory

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- Conducting whole-cell patch recordings or optical imaging of neural activity in behaving flies
- Characterizing functional connectivity among circuit elements of interest
- Quantitative analysis of behavior and connectivity
- Development of behavioral paradigms
- Performing experimental and modelling work

Your expertise:

- A master in neuroscience, biophysics, physics, engineer, or related discipline is required
- Experience in programing (C++ or Phyton or related) is required
- Experimental experience is required
- Previous experience with flies or insects is ideal but not required

Your skills:

- Strong organizational and communication skills
- Strong interest and motivation in solving problems creatively
- A critical thinker and an active technical and conceptual contributor
- Ability to work well both independently and in close relation to a small team
- Ability to work collaboratively and collegially.
- Proficiency in English

Physical requirements: Sustaining a typical seated or standing posture for prolonged durations; reaching and grasping by extending one's hand(s) or arm(s); possessing dexterity for manipulating objects and equipment with fingers, such as operating a keyboard; effective verbal communication skills; normal visual and auditory acuity; and the capability to navigate the workspace are essential for this role. The position necessitates mobility.

How to apply: a CV and letter of motivation (all documents in English) must be sent to Eugenia Chiappe (eugenia.chiappe@neuro.fchampalimaud.org). Please note that in addition, letters of recommendation will be requested for the application to the INDP program, which is mandatory (opening date for the application to the INDP coming soon)

About the Champalimaud Neuroscience Programme

The Champalimaud Neuroscience Programme (CNP) is aimed at establishing new links between nervous system function and behavior. Our interests are represented by the full intellectual scope of the scientists of the program. To achieve this goal, the CNP fosters colleagues to reach their full creative potential and promotes collective achievements through cooperation, exchange, and independence and diversity of thought. English is the official language of the institute. The institute is located at the beautiful waterfront of Lisbon, Portugal. Lisbon offers a sunny Atlantic-Mediterranean climate, affordable cost of living, and vibrant culture with good public transportation.

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