Fellow R1: Optical decomposition of the retinal circuit

Closed position

Supervisor: Dr. M. Chalk
Host institution: Sorbonne Université (**SU**), Paris, France
Duration: 36 months
PhD program: ED3C Doctoral school Brain, Cognition and Behaviour
Research group: Institut de la Vision | Department of Visual Information Processing
Secondments (short visits) at: Max-Planck-Institut für Dynamik und Selbstorganisation (**MPI**, Germany), Instituto de Microcirugía Ocular (**IMO**, Spain) and company **Quibim SL** (Spain)
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Objectives

To use a combination of experiments and models to understand the role of specific types of inhibitory amacrine cells in modulating the ganglion cell responses, making predictions about how healthy retinas extract information from the visual scene. We will use computational models to test key hypotheses about how the retina efficiently encodes sensory information. Ultimately, the strategy could be used in other sensory areas.

What is offered

To work within an interdisciplinary environment with a close-to-the-clinic approach, receiving training from leading experts in visual information processing in a full-time Ph.D. position for 36 months, in which living and mobility costs will be fully covered with a gross salary of 40,800.00 € per year.

Required skills

We are seeking an enthusiastic candidate that has a strong quantitative background, with a **B.Sc.** and **M.Sc.** or equivalent degree in **mathematics**, **physics**, **engineering or computing science**. The candidate will ideally have a basic knowledge of **computational neuroscience or biology**. It will be an asset if the candidate has **prior research experience**, ideally in a computational neuroscience or computational biology lab. **Proficiency in mathematics**, and **basic knowledge of scientific programming** (i.e.: in Python, Matlab or C) is essential.

Additional skills

Interdisciplinary skills: Ability to work at the intersection of machine learning and neuroscience, applying theoretical results to understand experimental results, and vice versa. Effective written and verbal communication skills: to collaborate with researchers within and without the lab, and share findings. Adaptability and Problem-Solving: Strong problem-solving skills to address complex questions related to retinal information processing and a strong personal drive to explore new questions on the interface between machine learning and neuroscience.