Fellow R2: Novel methods for visual impairment detection using eye-tracking technology and automated classification algorithms

Closed position

Supervisors: Dr. J. L. Güell, Dr. J. Pujol
Host institution: Instituto de Microcirurgía Ocular (IMO), Barcelona, Spain
Duration: 36 months
PhD program: Doctoral School in Optical Engineering
Research group: Optical Engineering Group, Center for Sensors, Instruments and Systems Development (CD6)
Secondments (short visits) at: Universitat Politècnica de Catalunya (**UPC**, Spain), Sorbonne Université (**SU**, France), and **Quibim SL** (Spain)
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Objectives
To provide new objective clinical methodologies to evaluate the oculomotor function with higher spatial/temporal resolution than with traditional ophthalmic/optometric methods. To develop tools based on automated classification for the early diagnosis of visual anomalies (e.g.: amblyopia and strabismus) and monitor the efficacy of clinical treatments.

What is offered
To work within an interdisciplinary environment with a close-to-the-clinic approach, receiving training from leading experts in visual optics 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 30,270.85 € per year.

Required skills
We are seeking an enthusiastic candidate holding a **B.Sc./M.Sc. degree in Physics, Engineering Physics, Biomedical Engineering, Optics Engineering, Optics and Optometry**, or similar. The applicant should have:

- Excellent programming skills (i.e., C++, Matlab, Python)
- Experience and/or scientific activity in the field of **optics/photonics** (in particular knowledge **in vision science and eye tracking,** or a related field will be appreciated)
- **Strong data analysis skills**, including the ability to process and interpret large datasets generated by eye tracking and other diagnostic tools; as well as **proficiency in machine learning and computer vision techniques** for automated classification and diagnosis of visual anomalies.

Additional skills
Interdisciplinary skills and clinical knowledge: to collaborate with clinicians, optometrists, and ophthalmologists to bridge the gap between research and clinical practice. Effective communication skills: to convey research findings and

methodologies to a clinical audience. Innovation and research skills: A creative and innovative mindset to develop new methodologies and tools for assessing oculomotor function and diagnosing visual anomalies.