

## **Post-Doctoral fellow/Chief Project Data Science Engineer, Research and entrepreneurship**

### **Mission:**

The fellow will participate in an international research project on the quality of 3D eye movement control before and after strabismus surgery. Specifically, she/he will be in charge of gathering data, developing and deploying on cloud new analysis of eye movements based on time series and image processing.

### **Details of the project:**

**Learn the technology developed of Orasis-Ear, REMOBI & AiDEAL** (<https://orasis-ear.com>) for neuro-functional exploration and training of eye movements in 3 D (lateral, vertical and depth) in healthy persons and patients.

**Collect and structure the data from various clinical centres** participating in the strabismus project in France and in India (All India Institute of Medical Science). All clinical centres are using the REMOBI & AiDEAL technology and tests are run by clinicians, orthoptists or optometrists in each service; the fellow is expected to be connected with all partners, collect the data but also their needs for future improvements of the technology.

**Develop novel data analysis methods specific for strabismic persons**, taking into consideration the misalignment of the eyes, but also the dynamic fluctuations of the strabismus while the eyes are moving across the 3D space. In particular, the already existing software (AiDEAL) will be adapted by the fellow to strabismus. The fellow is also expected to develop an image processing approach (including, but not limited to, clustering analysis, dynamic spatial mapping etc.) The overall goal is to produce several indexes enabling to evaluate the quality of eye movement control in patients that will be integrated in a new software (ImaGEAL) complementing the existing one (AiDEAL). Finally, the fellow will deploy this new software on the cloud (in serverless mode). This part of the mission can take place right from the beginning of the project thanks to the existing database of Orasis-EAR (approximately 700 patients, with other pathologies than strabismus).

### **Contracts & Environment**

The fellow will have **two 50 % contracts in parallel, one with the CNRS** with Marine Vernet, Ph.D. CNRS Researcher, IMPACT, CRNL UMR5292, Lyon, France), **the other 50% with Orasis-Ear**, a spinoff of the CNRS, headed by Zoï Kapoula, CEO neuroscientist and Research Director at the CNRS. For both contracts, the fellow will develop her/his activity at Orasis-Ear **in Paris**, with regular meetings with M. Vernet & Z. Kapoula.

At Orasis-Ear she/he will interact with the other engineers and associate IA researchers and with the CTO. Interactions with researchers from the LIPADE laboratory, working on Data Analysis of visual processing, will be possible and encouraged.

The fellow will benefit from a rich and international environment, from academic (CNRS, AIIMS in India and LIPADE) and industrial partners (Orasis-Ear).

### **Skills**

The candidate will have a **Ph.D. since less than 2 years at the start of the project** in one or several relevant disciplines (neuroscience, data science/AI). Strong skills in data analysis, programming in C++, Python, QT, knowledge on architecture and deployment of technical solutions in the cloud, data storage, data management and privacy. Good oral communication, writing and organisation skills are expected.

### **Duration of the contract and salary**

Position: 2-year French post-doctoral position.

Gross salary: approximately 2690 €/month; Net salary (before taxes): approximately 2202 €/month. One contract will be managed by the CNRS. The other contract by Orasis-Ear. Starting and ending dates will be the same for both contracts/**Possible employment by the company afterwards and stock subscription warrants**

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