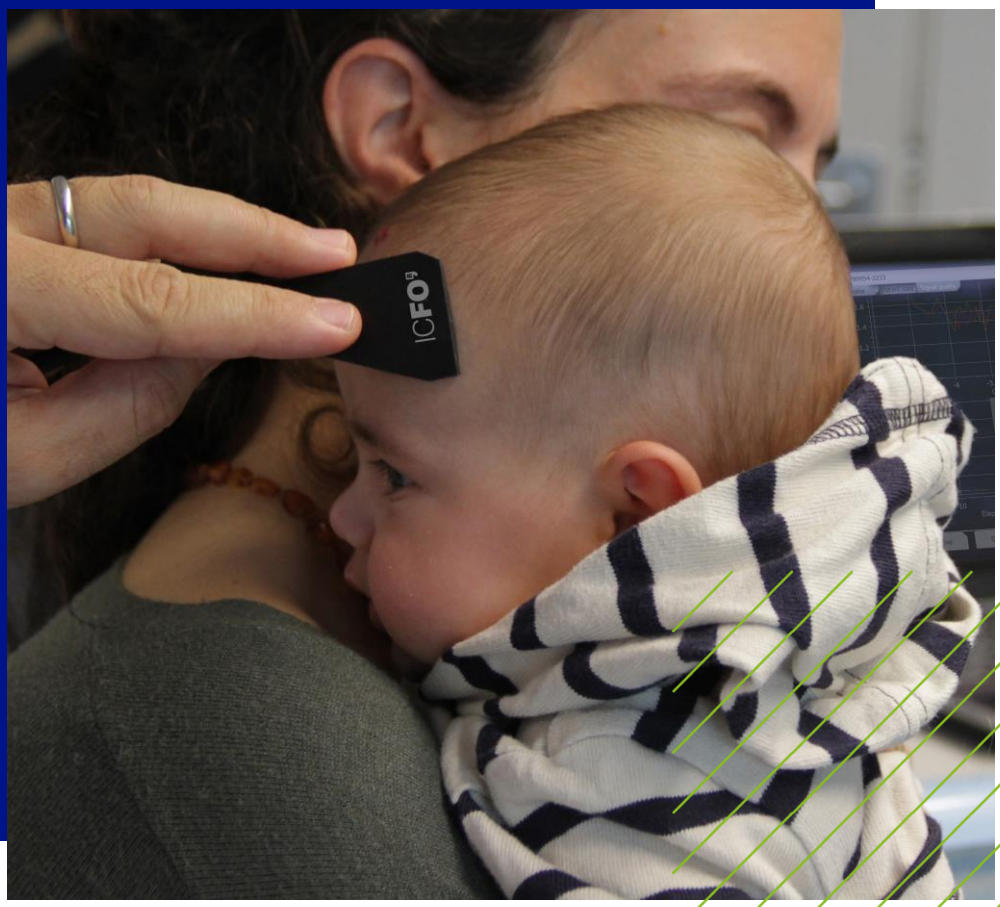
ICFO Research Group Medical Optics

PhD and Postdoctoral positions in machine-learning for biophotonics & neurocritical care



PhD and Postdoctoral positions in machine-learning for biophotonics & neurocritical care

Postdoctoral and Ph.D positions are available in an inter-disciplinary project coordinated by **ICFO Medical Optics group led Prof. Dr. Turgut Durduran** to apply machine-learning methods to derive intracranial pressure (ICP) from non-invasive, diffuse correlation spectroscopy data.
The project is based on a long-standing collaboration between ICFO and Hospital Vall d'Hebron in Barcelona area. We have previously shown that ICP, normally measured invasively, can be estimated from non-invasive optical data. In this project, we will acquire data from different patient cohorts to increase the training set, we will get data from patients without monitors to test predictive capabilities and we will work with collaborators from USA to utilize pre-clinical models. The machine-learning aspect of this work will be co-supervised by Prof. Gema Piella Fenoy (U. Pompeu Fabra) and the clinical studies will be done in collaboration with Dr. M. A. Poca (Vall d'Hebron Hospital).

References

Fischer, Jonas B., et al. "Non-invasive estimation of intracranial pressure by diffuse optics: a proof-of-concept study." Journal of neurotrauma 37.23 (2020): 2569-2579.

Barcelona Medical Photonics Network, **https://barcelonamedicalphotonics.icfo.eu/**

Durduran, Turgut, and Arjun G. Yodh. "Diffuse correlation spectroscopy for non-invasive, micro-vascular cerebral blood flow measurement." Neuroimage 85 (2014): 51-63.

Durduran, Turgut, et al. "Diffuse optics for tissue monitoring and tomography." Reports on Progress in Physics 73.7 (2010): 076701.

Eligibility and Conditions

Post-doctoral candidates must hold an internationally-recognized Ph.D.-equivalent degree (or evidence of its completion in the nearest future) in a related field using machine-learning for signal processing.

Expertise in machine-learning for time-series analysis, biomedical signal processing, biomedical optics, diffuse optics are a plus.

PhD candidates must hold an internationally-recognized Master -equivalent degree (or evidence of its completion in the nearest future) in a related field using machine-learning for signal processing.

Application procedure

In case of interest, applications should be submitted through our Jobs Opening site https://jobs.icfo.eu/ although candidates may contact Prof. Dr. Turgut Durduran (turgut.durduran@icfo.eu) for further details.

Ph.D. candidates should follow ICFO's general Ph.D. admission process as described in the corresponding open call at https://jobs.icfo.eu/

For updated information about the **Medical Optics research group**, please visit https://www.icfo.eu/research-group/16/medical/home/437