

Research position in Neuroinformatics

Workflow design and signal analysis

A research position is open by the *University of Pavia* on the European Project “A Research Infrastructure to Advance Neuroscience and Brain Health” - EBRAINS 2.0.

Working environment

The Researcher will work in the Neurophysiology Unit of the Department of Brain and Behavioural Sciences (University of Pavia, Italy, <https://web.unipv.it/>). The Neurophysiology Unit is composed by three laboratories (Cellular Neurophysiology, Neurocomputation, Neuroimaging and Brain Modelling) and generates state of the art concepts, models, and theories about brain functioning. The research unit has a specific expertise in the study of neurons and circuits of the cerebellum in health and disease and is actively investigating multiscale brain processing in experimental and computational settings. An overview of laboratory activities and organization can be found at <https://dangelo.unipv.it/>. The researcher will take part to the EBRAINS 2.0 project and collaborate with other EU projects (Virtual Brain Twins, TEF-Health, CEN) and Italian PNRR (EBRAINS-Italy, PNRR-MNESYS, PNRR-CN1, PNR Fit4MedRob) and PRIN projects running in the research unit.

Activity

Optical imaging is largely used to investigate brain activity but the workflows for advanced recording techniques often need to be designed or customized. This project aims to generate a workflow for signal analysis and to perform the analysis of biological datasets obtained from cellular imaging experiments *in vivo*. The data are recorded from freely behaving animals and stored for analysis offline. This typically involves operations of spatial-temporal filtering, motion correction and feature extraction to identify active neuronal units and quantify their activity. Extensive datasets will be analysed to extract relevant physiological information. The research will address the discharge of cerebral and cerebellar neurons *in vivo* during sensorimotor tasks and during learning of associative behaviours.

Details on the call

The official call will appear on the website of the University of Pavia in the next few weeks (<http://www-5.unipv.it/alboufficiale/>).

Expected starting date: 1 June 2024. Duration: 1 year that can be extended up to a maximum of 3 years. No teaching activity is requested for these positions except for seminars and lectures to master's degree and PhD students.

The evaluation of candidates will include CV, publications, reference letters, oral discussion including English language assessment (details to come).

Contact and info

Any details on the call, research activities and the specific project will be discussed with the applicants.

Curriculum Vitae, reference letters and other inquiries should be emailed to dangelo@unipv.it and simona.tritto@unipv.it.