



Universitat
Pompeu Fabra
Barcelona

Departament
de Ciències Experimentals
i de la Salut



Job Position: Postdoctoral Researcher in Brain Modeling and Neuronal Data Analysis

Project Context:

This position is within the frame of Neurotwin, "Digital twins for model-driven non-invasive electrical brain stimulation," an EU-funded initiative. Neurotwin employs the concept of 'digital twins' to develop personalized hybrid brain models using neuroimaging data from Alzheimer's disease. The aim is to use these models to design and test individualized neuromodulation protocols for restoring healthy brain dynamics. The project encompasses a wide range of disciplines including nonlinear dynamics, network theory, biophysics, engineering, neuroscience, clinical research, and ethics, promising groundbreaking developments in both basic and clinical neuroscience.

Summary:

We are seeking a highly motivated Postdoctoral Researcher to join our dynamic brain modeling team. The role primarily focuses on validating and refining a biologically inspired computational model by analyzing Somatosensory Evoked Potential (SEP) data from existing experiments. The candidate will also extend the model's utility to explore features relevant to Alzheimer's Disease using APP mouse data.

Key Responsibilities:

- Analyze and interpret SEP data from mice experiments within the context of the Neurotwin project.
- Fine-tune the existing computational model based on the SEP data to validate its predictions.
- Simulate the effects of glutamatergic and GABAergic agonists.
- Conduct statistical validation of the model using Root Mean Square Error (RMSE) and Pearson correlation coefficient.
- Prepare and present findings for academic journals, conferences, and stakeholder meetings.

Qualifications:

- PhD in Neuroscience, Computational Neuroscience, Biomedical Engineering or a related field.
- Experience in data analysis; prior experience in computational neuroscience is highly recommended but not essential.
- Proficiency in Python is mandatory.
- Basic understanding of mathematical concepts related to modeling in neuroscience.
- Strong written and verbal communication skills.



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Additional Information:

Position Duration: until December 2024 (extension possible depending of funding availability)

Estimated annual gross salary: 39.758,76€

Collaboration Opportunities: Working closely with the Brain Modeling team of Neuroelectrics (Barcelona), University of Pablo de Olavide (Seville), and external academic partners in the context of the Neurotwin project.

Applications should be submitted to <jordi.g.ojalvo@upf.edu> before October 8, 2023. Please use "Postdoc Neurotwin" as the subject of your email.