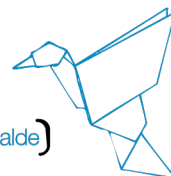


Ph.D. position in Predoctoral Fellow in machine learning and computational neuroscience

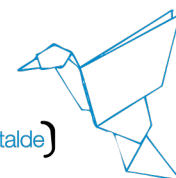
Job Offer	
Topics:	Transformers as nonequilibrium neural network models of hippocampal spatial maps. Recently, striking similarities have been drawn between models of spatial memory in the hippocampus and transformer models in deep learning. Transformers are highly successful models using self-attention mechanisms for weighting contextual information in sequential processing, leading to impressive performances in applications like large language models (BERT, GPT-3). Recent findings also show that transformers can be described as asymmetric versions of modern Hopfield neural networks, which promises to facilitate their integration with neuroscientific models. This project will exploit the connection between transformers, hippocampal models and asymmetric (nonequilibrium) Hopfield networks
PI in charge:	Miguel Aguilera
Salary and conditions:	<p>The gross annual salary of the Fellowship will be 19.188€ the first year, and the following years must be reviewed yearly based on Spanish EPIF legislation.</p> <p>Additionally, we offer a moving allowance up to 1.000€.</p> <p>Should the researcher have a family at the time of recruitment:</p> <ol style="list-style-type: none"> 1.000€ gross in a single payment will be offered (you must be married-official register or with children and the certificate to prove it must be sent). 600€ gross per year/per child (up to 2 children) will be offered (the certificate to prove it must be sent).



	<i>Free access to the Public Health System in Spain is provided to all employees.</i>
Contract and offer:	36 months
Deadline:	June 9th 2023, 14:00 CET
How to apply:	Applications must be submitted on-line at: http://www.bcamath.org/en/research/job

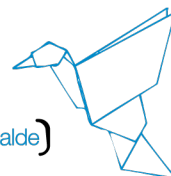
Scientific Profile Requested	
Requirements:	Bachelor and Master Degree in Computer Science, Machine learning, Artificial Intelligence, Computational Neuroscience and related fields.
Skills and track-record:	<ul style="list-style-type: none"> * Solid programming skills * Knowledge about Hopfield networks, associative memories, Boltzmann machines or Ising models * Experience and knowledge of transformer models and attention mechanisms * Demonstrated ability to work independently and as part of a collaborative research team. * Ability to present and publish research outcomes in spoken (talks) and written (papers) form. * Fluency in spoken and written English.
Scientific Profile:	<p>The preferred candidate will have:</p> <ul style="list-style-type: none"> * Strong background in machine learning and neural network modelling * Background in statistical modelling and inference * Interest and experience in interdisciplinary research projects

Application and Selection Process	
Formal Requirements:	<p>The selected candidate must have applied before the application deadline online at the webpage http://www.bcamath.org/en/research/job</p> <p>The candidates that do not fulfil the mandatory requirements will not be evaluated with respect to their scientific profile. Additional documents could be requested during the evaluation process so as to check this fulfilment.</p>



Application:	Required documents: <ul style="list-style-type: none">▪ CV▪ Letter of interest▪ 2 recommendation letters▪ Statement of past and proposed future research (2-3 pages)
Evaluation:	Based on the provided application documents of each candidate, the evaluation committee will evaluate qualitatively: the adaption of the previous training and career to the profile offered, the recommendation letters, the main results achieved (papers, proceedings, etc.), the statement of past and proposed future research and other merits; taking in account the alignment of these items to the topic offered.

Incorporation:	<i>1 July 2023</i>
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**IC2023_05 BCAM
International Call**

