CALL FOR POSTDOCTORAL RESEARCH POSITION FOR DEVELOPING A NOVEL MACHINE LEARNING FRAMEWORK BASED ON VISION AND NEUROSCIENCE

SPANISH NATIONAL RESEARCH COUNCIL (CSIC), MADRID

Description

Artificial Neural Networks (ANNs) use as neuron elements an extremely simplified abstraction of how biological neurons work. In a recent article we have proposed a novel type of neuron model that is more biologically plausible, called the intrinsically nonlinear receptive field (INRF):

https://www.nature.com/articles/s41598-020-73113-0

We have proved that ANNs with INRF modules have a remarkably improved performance: they generalize better, they are more robust to adversarial attacks, and they need much less data for training.

The main goal of this position is to further develop the framework of ANNs based on the INRF formulation.

The work will involve performing interdisciplinary research in vision science and machine learning, and it will be supervised by Marcelo Bertalmío in the Instituto de Óptica, Spanish National Research Council (CSIC), in Madrid:

https://www.io.csic.es/marcelo-bertalmio/

This is a full-time position associated with a recent grant from the Spanish Ministry of Science, with an annual salary of up to 38K€ and a contract duration of one year, and the estimated starting date is Jan 1st, 2024.

Hosting Institution

The Spanish National Research Council (CSIC) is the largest public research organisation in Spain, the fourth-largest public research institution in the European Union and the sixth in the world. CSIC produces 20% of the national scientific output and remains the first institution in Spain in the generation of patents. In the Horizon2020 programme of the EU (2014-2020), CSIC obtained 891 projects with a total EU financial contribution of 382M€, and is ranked as the first organisation in Spain and the 3rd European participant by number of projects. Attached to the Ministry of Science and Innovation, with independent legal personality, the CSIC plays a key role in scientific and technological policy in Spain and around the world.

Requirements

Successful candidates must hold a PhD degree in Vision Science, Mathematics, Computer Science or a related discipline.

Application procedure

Send application letter, CV and contact information of 3 academic references to: marcelo.bertalmio@csic.es