Biomedical Signal Interpretation
& Computational Simulation

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2 Postdoctoral positions

Positions and project

The Biomedical Signal Interpretation and Computational Simulation group at the University of Zaragoza (Spain) seeks 2 Postdoctoral Researchers to work on:

1) **Signal processing** of cardiac electrical signals
2) Development and testing of **Computational models** of cardiac aging.

The positions are part of the Starting Grant MODELAGE, led by Dr Esther Pueyo, funded by the European Research Council (ERC).

MODELAGE aims at making an important step towards the characterization of human heart aging at both the population and individual levels. An integrative methodological framework combining *in silico* modeling with *in vitro* cell and tissue analysis and *in vivo* electrocardiographic evaluation is used to investigate how cardiac aging manifests at a range of scales, from cell to body surface, and how electrical, structural and autonomic alterations contribute to such manifestations in humans.

The candidates will work on: 1) processing patch-clamp, optical mapping and electrocardiographic signals; 2) incorporating the information extracted from the signals together with the results of cellular and molecular biology analyses into multi-scale models of the heart and the autonomic nervous system. The aim is to investigate inter-individual age-related differences in cardiac dynamics, assess underlying mechanisms and set links to arrhythmia susceptibility.

Qualifications

Candidates must hold a PhD in Engineering, Mathematics or Physics and be main authors of relevant journal publications. Expertise in computational modeling and/or signal processing is required. Strong oral and written communication skills in English are a must. Experience in Matlab or C programming is preferred. Previous experience with experimental techniques in electrophysiology is considered a plus.

The I3A Institute at University of Zaragoza

The Aragon Institute of Engineering Research (I3A), within the University of Zaragoza, comprises more than 500 researchers and a vibrant environment for multidisciplinary research. Every year I3A participates in more than 300 research projects funded with over 10 M€ and more than 200 contracts with industry with 5 M€ turnover. Around 50 PhD theses supervised by I3A members are defended and nearly 300 papers are published in JCR journals every year. The Biomedical Signal Interpretation and Computational Simulation group at I3A is a leading expert in the development of signal processing tools to aid in the diagnosis, prognosis and treatment of cardiovascular diseases and conditions. This expertise is combined with modeling and simulation of cardiac electrophysiology to investigate causes and consequences of the phenomena observed from the processed signals.

Application

For additional information about the position and details on how to apply, please contact Associate Professor Esther Pueyo (epueyo@unizar.es).