Postdoctoral / PhD position

Position and project
The Biomedical Signal Interpretation and Computational Simulation group at the University of Zaragoza (Spain) seeks a Postdoctoral Researcher / PhD Student to work on the development and testing of computational models of cardiac aging. The position is part of the Starting Grant MODELAGE 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 candidate will work on incorporating information obtained from processing patch-clamp, optical mapping and electrocardiographic signals as well as from cellular and molecular biology analyses into multi-scale models of cardiac electro-mechanics. Those models will serve to investigate inter-individual age-related differences in cardiac dynamics, assess underlying mechanisms and set links to arrhythmia susceptibility.

Qualifications
Candidates must hold an MSc / PhD in Engineering, Mathematics or Physics. Expertise in computational modeling and/or signal processing is recommended. 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. In the case of postdoctoral candidates, they must be main authors of relevant journal publications.

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, University of Zaragoza, 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, please contact Associate Professor Esther Pueyo (epueyo@unizar.es).