

1 Predoctoral position (4-year PhD Scholarship)

Positions and project

The Biomedical Signal Interpretation and Computational Simulation (BSiCoS) group at the University of Zaragoza (Spain) seeks 1 Predoctoral Researcher to work on the development of transfer and representation learning models to optimize population-based cardiac risk stratification and prediction.

The position is one of the *Health Technologies* research lines from the Horizon Europe Marie Skłodowska-Curie Action Cofund *Iberus Inter-Doc* Doctoral Programme, led by Prof Juan Pablo Martínez and Dr Julia Ramírez, funded by the European Union, Campus Iberus through the University of Zaragoza, and the Aragon Institute of Engineering Research.

This project aims to improve population-based cardiac risk prediction using a transfer and representation unsupervised deep learning approach. Our goal will be to develop models based on disentangled representation learning to identify generative factors in ECG signals characterizing different cardiac risks. This will be combined with pretrained models optimized for simpler tasks using unlabelled ECG signals to enhance performance in general and in specific populations.

The candidate will be involved in 1) designing and implementing deep learning architectures for unsupervised representation learning, focusing on disentangling generative factors of ECG signals for different cardiac risks; 2) developing and fine-tuning transfer learning strategies using pretrained models on large-scale unlabelled ECG datasets, optimizing them for cardiac risk stratification; 3) Validating and evaluating the models to ensure robustness and generalizability across diverse demographic and clinical subgroups; 4) Secondments in both Medtronic BRC and Skåne University Hospital, gaining practical insights into clinical workflows and industrial research environments.

Eligibility criteria

The researcher must be an Early-Stage Researcher, meaning that they must be holding a Higher Education Degree granting access to a doctoral programme and must not be in possession of a Doctoral Degree before the deadline of the call. Moreover, the researcher must comply with the mobility rule of the Marie Skłodowska-Curie Actions: not having resided or carried out their main activity (work, studies, etc.) in Spain for more than 12 months in the 3 years immediately before the call deadline.

Research Group

The research candidate will join the [Biomedical Signal Interpretation and Computational Simulation \(BSiCoS\) group](#), belonging to the University of Zaragoza. The research group is a multidisciplinary team formed by 34 researchers: 12 faculty members, 8 post-doctoral researchers and 16 PhD students. In addition, the group has an extensive network of international collaborations with groups at a wide range of universities.

Application

Applications must be submitted on-line via the [Interdoc program website](#) and using the available templates. Applications received by other means will not be eligible. Please read this [Guide for applicants](#).

The **closing date** for applications is March 31st 2025.

The candidate is expected to start in December 2025.