



PATRICIA MARTÍNEZ DÍAZ

POST-DOCTORAL RESEARCHER

I am a researcher building **patient-specific cardiac computer models** focused on cardiac electrophysiology, arrhythmia mechanisms and personalized medicine. My work integrates clinical data into computational models to make simulations reliable for clinical decisions. Currently I am working at the IHU-LIRYC in Bordeaux, France.

CONTACT

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SOFT SKILLS

- Project Management
- Teamwork
- Scientific Communication
- Critical Thinking

TECHNICAL SKILLS

- Python, MATLAB, R
- git, command line, HPC
- openCARP, Meshalyzer
- Adobe Illustrator

LANGUAGES

- Spanish (Native)
- English (C1)
- German (B2)
- French (A1)

AWARDS

- Young Investigator Award, finalist, CinC Conference 2024
- Young Investigator Award, finalist, EHRA Conference 2024
- German Heart Foundation Scholarship 2022
- Best Poster Award, winner, GRC Conference 2022
- Santander Scholarship 2019

EDUCATION

• PhD in Electrical Engineering and Information Technology

Karlsruhe Institute of Technology, Germany **OCT 2020- JUL 2024**
Dissertation: "Personalization of Computer Models for the Assessment of Atrial Fibrillation Vulnerability" (Grade: 1,0 Very Good)

• MSc in Computational Medicine

The University of Sheffield, United Kingdom **OCT 2019- OCT 2020**
Thesis: "Evaluation of the Effect of Antihypertensive Drugs using a Lumped Parameter Cardiovascular Model" (Grade: Distinction)

• Bachelor in Biomedical Engineering

Instituto Tecnológico y de Estudios Superiores de Monterrey, México **SEP 2007- DEC 2011**
(Grade: 88/100)

RESEARCH EXPERIENCE

- **Anatomical Atrial Digital Twin Modeling:** investigated the importance of the right atrium in the development of arrhythmia and the role of the interatrial connections in the maintenance of atrial fibrillation
Martínez Díaz P. et al. 2024, The Right Atrium Affects in silico Arrhythmia Vulnerability in Both Atria. DOI: [10.1016/j.hrthm.2024.01.047](https://doi.org/10.1016/j.hrthm.2024.01.047)
Martínez Díaz P. et al. 2026, Role of Interatrial Connection Ablation in Re-entry Dynamics: an in silico Evaluation DOI: [10.1093/europace/euag145](https://doi.org/10.1093/europace/euag145)
- **Functional Atrial Digital Twin Modeling:** studied the impact of functional personalization of the effective refractory period and atrial substrate from electroanatomical mapping data
Martínez Díaz P. et al. 2024, Impact of Effective Refractory Period Personalisation on Arrhythmia Vulnerability in Patient-Specific Atrial Computer Models. DOI: [10.1093/europace/euae215](https://doi.org/10.1093/europace/euae215). Dataset: [10.5281/zenodo.10726677](https://doi.org/10.5281/zenodo.10726677)
- **Machine Learning for Atrial Fibrillation:** developed a machine learning model to predict atrial fibrillation inducibility, reducing computational time and enhancing the feasibility of digital twin models for clinical applications.
Martínez Díaz P. et al. 2024, Insights from Explainable Machine Learning on Batrial Arrhythmia Vulnerability Assessment. DOI: [10.22489/CinC.2024.308](https://doi.org/10.22489/CinC.2024.308)
- **Interdisciplinary Research:** collaborated in the first consensus on the division of biatrial geometries.
Althoff T. and Martínez Díaz P. et al. 2025, Regionalization of the atria for 3D electroanatomical mapping, cardiac imaging, and computational modelling. DOI: [10.1093/europace/euaf134](https://doi.org/10.1093/europace/euaf134)

WORK EXPERIENCE

• BIOTRONIK Latin America

AGO 2015 - SEP 2019

Device expert leveraging disease and device therapy knowledge in cardiac rhythm management to support cardiologists, technicians and patients.