

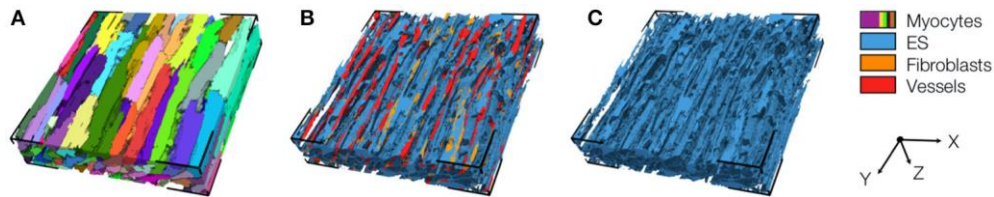
Modelling of Atrial Fibrillation at a very Fine Scale

Post-doctoral position, fixed-term contract, 24 months

Context

The post-doctoral researcher will work in the context of the [MICROCARD](#) European project which will develop a simulation platform able to exploit future exascale computers and to simulate cardiac electrophysiology on models with micrometer resolution.

The detailed meshes of cardiac tissue that this project requires will have unprecedented size, ultimately in the order of 10 elements. To create such meshes, powerful parallel mesh generation software must be developed.



3D reconstruction of segmented confocal images of healthy cardiac tissue:
(A) cardiomyocytes, (B) complementary tissue constituents, (C) extracellular space (Figure from [1])

Mission

Atrial fibrillation (AF) remains difficult to treat as the recurrence rate after ablation remains high. This project will look at the influence of structural and electrical heterogeneity on AF at an unprecedented scale, both on triggering and maintenance.

The postdoc will create very high resolution atrial models incorporating shape, fibre architecture, fibrosis and electrical remodelling data. A major challenge will be working with the large datasets produced, including their analysis and visualization. The person for this position is expected to have a strong knowledge of both computer modelling/numerical methods and electrophysiology, with a proficiency in analyzing data.

Desired profile

You have a PhD and you are specialized in building and running cardiac electrophysiological models. Basic knowledge about meshes would be appreciated.

Competences

- Scientific computing: basic knowledge of computational electrophysiology.
- Programming: knowledge of at least one of Python, MatLab, C, or C++
- Linux environment.
- Other: fluency in English, ability to draft reports and to work independently.

Employer : Université de Bordeaux

Location : IHU Liryc – avenue du haut leveque 33600 Pessac

Starting date: 01/01/2022

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