**Context:** Cardiac imaging has a central role for myocardial infarct from diagnosis to patient management and follow-up after revascularization. Nonetheless, despite the abundance of available data, complex and essential information contained in the images are truncated or integrated in a subjective way. Within the MI-MIX project, we target the analysis of multi-parametric cardiac imaging data from magnetic resonance imaging (MRI) and the design of integrative tools to better understand the mechanisms of myocardial ischemia-reperfusion.

![Multi-parametric imaging](image)

**Figure:** Overview of the integrative analysis targeted in the project.

**Objectives:** We plan to retrospectively explore large existing MRI studies that include multi-parametric imaging of myocardial damages and regular follow-up [BEL-16], with clinical researchers from CHU St Etienne, France. This includes developing and exploiting computational atlases tools to transport the multi-parametric data of each individual to a common reference, and statistical learning techniques to compare them within a population [DIF-19]. To better understand disease development and evolution with therapy and follow-up, we also plan to incorporate the temporality of acquisitions within the analysis, supported by the development of practical software tools to visualize and explore these data.

**Profile:** We look for a highly motivated post-doc candidate, with:
- Main background in machine learning with strong interests for medical imaging applications,
- or main background in medical imaging with solid engineering skills in image processing and analysis,
- Good programming skills (MATLAB, Python, or C/C++),
- Fluent in English (reading, writing, speaking).

**Practical information:**
- The postdoc is part of the MI-MIX project from the Fédération Française de Cardiologie (2020-2022, PI: N. Duchateau), which focuses on the analysis of myocardial infarcts from multi-parametric imaging data.
- It will take place at CREATIS Lyon, reference French lab in medical imaging, which consists of ~160 people grouped in 5 research teams. It will be supervised by N. Duchateau (Associate Professor) and P. Clarysse (Research Director), with strong interaction with clinical researchers from CHU St Etienne (P. Croisille - radiologist, and M. Viallon – medical physicist).
- Duration: **18 months, possibility to start from spring 2020.**

**Contact:** Send your CV, motivation letter, and references to: nicolas.duchateau@creatis.insa-lyon.fr

**References:**
