France Life Imaging: Plugin development for medical imaging research platform

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Scientific contacts:
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Location: Empenn (ex. Visages) U1228 Inserm research team, Inria/Inria Rennes (https://team.inria.fr/visages)

Starting date: as soon as possible

Duration: 12 months

Salary: starting from 2 075.91€ per month (gross pay, "brute mensuelle") according to job experience

Context:

France Life Imaging (FLI) is a large-scale research infrastructure project aimed at establishing a coordinated and harmonized network of biomedical imaging in France. This project was selected by the call "investissements d’avenir" as an "Infrastructure in Biology and Health". Its objective is a) to coordinate nationwide research activities concerned with in vivo imaging and combine the skills to push the current technological barriers, and b) to provide scientists a convenient access to a complete range of imaging technologies (150 imaging systems) and integrated services. In addition, the infrastructure will be open to collaborations with industrial partners.

Within this infrastructure the node "Image Analysis and Management" (IAM) is coordinated by Inria (http://www.inria.fr). The objective of this node is to build and operate an infrastructure to store, manage and process in-vivo imaging data coming from human or pre-clinical procedures.

In this job offer, we will extend the functionality of the platform. Today medInria, developed at Inria (http://med.inria.fr), is one of the image viewers/processors within FLI-IAM. medInria is available as an open-source repository and as a released desktop application (Linux, Mac, Windows). Boutiques (http://boutiques.github.io/) is a cloud tool to automatically publish, integrate, and execute applications across computational platforms and is used within FLI-IAM, for example in VIP (https://vip.creatis.insa-lyon.fr), to host image processing applications (Docker or Singularity).

Goal of the position:

The overall goal of this Inserm engineering position is to develop a plugin for integrating Boutiques platforms (providing pipelines from FLI) inside an intuitive graphical interface using medInria. In the ideal scenario, the user looks for a pipeline with a keyword in a search-field in medInria. medInria then connects to the application index offered by Boutiques and returns a list of available image processing applications and their unique identifiers. The user chooses the desired application and enters afterwards its inputs, e.g. via drag-and-drop and medInria calls Boutiques to start the application and displays the results after they have been imported. Internally Boutiques downloads the corresponding Docker or Singularity container and executes it. The communication between medInria and Boutiques is set up via the command line on using bosh, the Boutiques shell.
**Scientific and technical qualifications:**

- High level education in computer science (university or grande-école) specialized in image or signal processing
- 1-2 years of software development experience
- Good knowledge of C++ language and related development tools
- Good knowledge in Qt development and command line applications
- Knowledge of Python
- Rigor, autonomy, technical curiosity, passion for new technologies and for multidisciplinary work
- Good capability in English
- Knowledge in the field of medical imaging and image processing would be a bonus

**This position offers:**

- Rich communication and exchange with top level research teams in France dealing with medical imaging, image processing and medical image distributed data
- The chance to work in an interdisciplinary environment between health care, radiology and computer science
- A working environment with innovative technological software solutions and highly motivating operational goals

**For eligibility applications must include:**

- A detailed motivation letter
- A complete CV with past experience and relevant education
- Letters of recommendation from people able to support the application if available