

JOB OFFER

Software developer Big data analysis of medical images

Keywords: big data, machine learning, image analysis, medical imaging

The topic: machine learning from massive datasets of medical images

The ARAMIS lab develops automatic tools to assist clinicians in the diagnosis and prognosis of neurological diseases. These tools rely on advanced machine learning algorithms that are trained using datasets of patients. In particular, we develop machine learning approaches for brain imaging data such as magnetic resonance imaging (MRI). Very large datasets (containing tens of thousands of patients) are key for learning efficient models and for reliably assessing their performance. However, the use of such very large datasets raises numerous computational challenges.

Your mission:

You will be in charge of developing and applying software tools for processing massive medical imaging datasets. Such tools include: database management, conversion of the data to a standard format, feature extraction from MRI data, quality control, training and validation of machine learning algorithms. More precisely, you will be in charge of specific developments to adapt our software to the processing of big data and for its deployment on the distributed computing infrastructure of our partners. In link with the other members of the team, you will also be in charge of integrating the developed tools into the open source software platform Clinica (www.clinica.run) devoted to multimodal image analysis and developed by the team. Finally, you will deploy the tools on large databases of patients and contribute to the interpretation of results.

A vibrant scientific, technological, clinical and ethical environment:

You will work within the ARAMIS lab (www.aramislab.fr) at the Brain and Spine Institute (<http://www.icm-institute.org>), one of the world top research institutes for neurosciences. The institute is ideally located at the heart of the Pitié-Salpêtrière hospital, downtown Paris.

The ARAMIS lab, which is also part of Inria (the national French research institution for computer science), is dedicated to the development of new computational approaches for analysis of large neuroimaging and clinical data sets.

You will be strongly involved in scientific aspects of the work, such as discussion of methodological issues and interpretation of results. You will interact locally with the PhD students, postdoctoral fellows and engineers of the ARAMIS lab, as well as our medical collaborators. You will take part in the communications and publications resulting from the use of the software.

We are conscious of ethical and fairness responsibilities of research in all aspects. Amongst others we have the support of Fondation Abeona (www.fondation-abeona.org), whose objective is to promote gender sensitive use of data science.

Your profile

- Engineer in computer science or electrical engineering
- Strong programming skills in Python
- Knowledge of the following technologies would be a plus but is not mandatory: HDFS (Hadoop), Spark, SQL, Docker
- Knowledge of digital image processing and medical imaging would be a plus but is not mandatory
- Good relational and communication skills to interact with professionals from various backgrounds.

Salary: depending on experience

Type of contract: fixed-term contract

Ready to take up the challenge?

Send your CV to Olivier.Colliot@upmc.fr and to Ninon.Burgos@icm-institute.org .