# D2C

## DATAIA CLUB CONNECTION

# MEDICAL IMAGING

# DATAIA PARIS-SACLAY INSTITUTE

Located within the **Paris-Saclay University** (16th in the Shanghai ranking, 1st in mathematics), it is the f**irst French ecosystem in Data Sciences, AI and their societal impacts**.

## MISSION

To bring together **multidisciplinary expertise and boost the collective strength of its partners** in the Paris-Saclay cluster with the aim of combining big data and AI technologies with social sciences and humanities for an AI at the service of humans.

## IN FIGURES

**12**
DATAIA members

**42**
laboratories partners

**1,2K**
full-time researchers

**10**
IA chairs out of 40 national

**30**
IA theses

**450**
PhD students per year

The Industrial Affiliation Plan (PAI) aims to **boost the collective strength of the Institute's academic ecosystem and its industrial members**. The services offered in response to the respective needs expressed include:

- Joint actions to support research;
- Sharing of experiences and collective needs;
- Facilitated access to recruitment;
- Access to training, seminars, workshops, etc.;
- Implementation of dedicated events (hackathons, challenges, etc.);
- Access to working places to increase exchanges.



The D2C system aims **upstream**, to present the priority research issues and to match them with the problems of industry. **Downstream**, to monitor contacts and opportunities for collaboration identified until they are set up and launched. It is part of the ambition to facilitate the establishment of several levels of collaboration and create a constructive dynamic:

1. Expertise / Student projects / Internships
2. Research collaborations / CIFRE theses
3. Joint laboratories / Joint teams
4. Multi-partner chairs

# OBJECTIVES & PROGRAM



The main objectives of this D2C are focusing on :

- Solutions for processing, reconstructing and recalibrating medical images;
- Image analysis for diagnosis, segmentation, classification;
- Detection of anomalies and lesions;
- Construction of avatars for the rehabilitation of sick people.

**2pm - 3pm**

3' pitches by DATAIA researchers on prospective research topics followed by industrialists on related issues

**3pm - 4pm**

Individual appointments of 15', with a view to setting up new collaborations

# DATAIA RESEARCHERS

### EEG. Spectoscopy, Infrared Scanner, X-Ray, Statistical signal processing
**Florent Bouchard** (CentraleSupélec, L2S)
*Robust learning in the framework of structured covariance matrices*

### Brain interfaces and time series
**Sylvain Chevallier** (UVSQ, LISV)
*Learning and geometric approaches, teledetection*

### Segmentation (cardiovascular MRI; OCT of the eye; MRI of the prostate)
**Désiré Sidibé** (UEVE, IBISC)
*Learning and image analysis, vision for robotics*

### Surgeon training - Organ reconstruction
**Hedi Tabia** (UEVE, IBISC)
*Image analysis and segmentation, human-computer vision*

### Deep learning on imaging data in cancerology
**Maria Vakalopoulou** (CentraleSupélec, CVN)
*Computer vision, machine learning, medical image analysis*

# DATAIA RESEARCHERS



### Cardiovascular imaging: quantifying blood movement
**Nora Ouzir** (CentraleSupélec, CVN, Inria OPIS)
*Image registration, topographic MRI modalities ultrasound, doppler imaging*

### Imaging in oncology and neuroimaging: nuclear imaging, MRI, ultrasound, PET, multimodal tracers



**Florent Besson** (CEA, BioMaps, AP-HP)
*PET-MRI, applied deep learning, medicine data*



**Claude Comtat** (CEA, BioMaps)
*PET-MRI, tomographic reconstruction*



**Sébastien Jan** (CEA, BioMaps)
*Radio therapy, nuclear physics*



**Florent Sureau** (CEA, BioMaps)
*PET reconstruction, deep learning*

# DATAIA CLUB PAI COMPANIES

**GE Healthcare**

## Mammography Department
image quality, noise reduction

## Interventional Imaging Department
image processing and quality, 3D reconstruction

## Radiology and Clinical Research Department

**Nicolas Gogin** - Post-processing, CT/MRI
**Vincent Jugnon** - X-Ray Interventional Imaging
**Thomas Benseghir** - Senior Scientist

**sanofi**

## Overview of imaging: supervision, segmentation, reinforcement learning

**Elton Rexhepaj** - Senior Data Scientist
**Paolo Piro** - Data Scientist

# GUEST COMPANIES

## Medexprim

### Extraction of clinical radiology data from oncology patients

**Romain Cazavan** - CEO
**Nicolas Dubost** - CTO

## CASIS
*CArdiac Simulation & Imaging Software*

### Heart failure in cardiovascular imaging

**Jean-Joseph Christophe** - CEO
**Ninon Mouillon** - Sales

# INSTITUTIONAL PARTNERS