D2C

DATAIA CLUB CONNECTION

MEDICAL IMAGING

June 24, 2021

université PARIS-SACLAY

INSTITUT DATAIA
Science des données, Intelligence & Société

The DATAIA Paris-Saclay Institute

Located within the Paris Saclay University (16th in the Shanghai ranking, 1st in mathematics), it is the first 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
academic members

42
partner laboratories

1200
professors-researchers

10
IA Chairs out of 40 national

18
research projects launched

450
PhD Students

Industrial Affiliation Plan (PAI)

The Industrial Affiliation Plan (IAP) 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.

DATAIA Club Connection (D2C)

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 and program

The main objectives of the D2C « *Medical Imaging* » to address are:

- 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

Deep Learning on imaging data in cancerology

Maria Vakalopoulou (CentraleSupelec CVN)
Research: computer vision, machine learning, medical image analysis

Segmentation (cardiovascular MRI; OCT of the eye; MRI of the prostate)

Désiré Sidibé (University of Evry, IBISC)
Research: learning and image analysis, vision for robotics

Surgeon training - Organ reconstruction

Hedi Tabia (University of Evry, IBISC)
Research: image analysis and segmentation. Human-computer interaction

EEG. Spectroscopy / Infrared. Scanner / X-ray. Statistical signal processing

Florent Bouchard (CentraleSupelec, L2S)
Research: Robust learning in the framework of structured covariance matrices

Brain interfaces and time series

Sylvain Chevalier (UVSQ, LISV)
Research: learning and geometric approaches. Teledetection

DATAIA researchers

Cardiovascular imaging: quantifying blood movement

Nora Ouzir (CentraleSupelec CVN, Inria OPIS)
Research: Image registration. Topographic MRI modalities Ultra sound. Doppler imaging

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

Sebastien Jan (CEA, BioMaps)
Research: Radio therapy - Nuclear physics

Claude Comtat (CEA, BioMaps)
Research: PET-MRI. Tomographic reconstruction

Florent Sureau (CEA, BioMaps)
Research: PET reconstruction: deep learning

Florent Besson (CEA, BioMaps)
Research: PET-MRI. Applied deep learning. Medicine data warehouse APHP

DATAIA Club PAI Companies

Mamography Department: image quality, noise reduction
Interventional Imaging Department: image processing and quality, 3D reconstruction
Radiology and Clinical Research Department

GE Healthcare

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

Overview of imaging:
supervision, segmentation, reinforcement learning

SANOFI

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

Invited companies

Extraction of clinical radiology data from oncology patients

Medexprim

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

Heart failure in cardiovascular imaging

CASIS
CArdiac Simulation & Imaging Software

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

Institutional partners

université PARIS-SACLAY

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