université PARIS-SACLAY

INSTITUTE DATAIA
Data Science, Intelligence & Society

D2C
DATAIA CLUB CONNECTION

EXPLICABILITY
CAUSALITY


université
PARIS-SACLAY

université
évry
Val d'Essonne
université
PARIS-SACLAY

UVSQ
université PARIS-SACLAY

CentraleSupélec

école
normale
supérieure
paris—saclay

AgroParisTech

cea

INRAE

Inria

cnrs

ONERA
THE FRENCH AEROSPACE LAB

FM
JH
FONDATION MATHÉMATIQUE
JACQUES HADAMARD

CentraleSupélec
EXED

GUSTAVE
ROUSSY
CANCER CAMPUS
GRAND PARIS

Institut Mines-Télécom
Business School

INSTITUT
d'OPTIQUE
GRADUATE SCHOOL
ParisTech

IHÉS
Institut des Hautes Études Scientifiques

DATAIA PARIS-SACLAY INSTITUTE

Located within the **Paris-Saclay University** (12th Shanghai ranking), 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

14 DATAIA members

47 laboratories partners

800 full-time researchers

10 IA chairs out of 40 national

30 IA theses

450 PhD students per year

PAI
Programme d'Affiliation Industrielle

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.

D2C
DATAIA CLUB CONNECTION

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 aspects of causality, from predictive models to causal ones.

- Common definition to make clear the difference with explainability issues;
- Why: what some can do and not others;
- How to build a causal model?

2PM - 2:05PM	Introduction by Bertrand Braunschweig - Inria Director and President of the DS&AI Systematic Hub
2:05PM - 3:05PM	State of the art by Michèle Sebag (CNRS, Université Paris-Saclay, LRI) « Causal modelling & machine learning » and Julie Josse (Inria, CMAP) « Causal effects treatments theory »
3:05PM - 3:45PM	Pitch: points of view of researchers and industrialists - research angles, needs, issues
3:45PM - 4:45PM	Brainstorming: collective construction of topics of general and shared interest
4:45PM - 5:45PM	Deepening in small committees in order to identify topics for bilateral projects
5:45PM - 5:50PM	Conclusion and action plan

DATAIA RESEARCHERS

Solving discrimination and regression problems, studying causal relationships

Isabelle Guyon (Université Paris-Saclay, LRI)
Support Vector Machines (SVM), statistical data analysis, pattern recognition, statistical learning automation

Counterfactual inference to estimate treatment effects

Blaise Hanczar (Evry University, IBISC)
Deep learning, supervised learning, prediction systems, performance evaluation

How to estimate a causal effect from observational data?

Julie Josse (Inria, CMAP)
Missing data, causal inference, estimation of heterogeneous intervention effects, personalized medicine

Causale inference in information theory and statistics

Pablo Piantanida (CentraleSupélec, L2S)
Deep learning, information representation, inference mechanisms

DATAIA RESEARCHERS

Causal modelling & Machine learning

Michèle Sebag (CNRS, Université Paris-Saclay, LRI)
Inference and learning, symbolic and numerical approaches to AI

Identification of causal factors/variables in a model

Myriam Tami (CentraleSupélec, MICS)
Modeling, machine learning, complex and heterogeneous data

Causal inference from a statistical perspective: estimation and model selection

Bertrand Thirion (Inria, Neurospin)
Statistical modeling and machine learning applied to brain imaging data

DATAIA CLUB PAI COMPANIES

GE Healthcare

Elements of causality to understand predictions from medical images

Nicolas Gogin - Deep learning and image analytics
Jorge Hernandez Londono - Staff Software Engineer

GROUPE RENAULT

Interpretation of car crash calculation results, search for root courses

Yves Tourbier - Optimization and decision support expert
Benoit Laussat - PhD Student

Causal inference to inform Model Based Clinical Drug Development

sanofi

Departement R&D Digital and Data Sciences
Franck Auge - Translational sciences, Bioinformatics
Caroline Cohen - Strategy and Business Lead Europe
Paolo Piro - Clinical Data Sciences
Bernard Sébastien - Clinical Modeling and Evidence Integration

Departement Molecular Design Sciences
Hervé Minoux - In-Silico Science activity
Bruno Filoche - Compounds Data-Science activity

SERVIER moved by you

Charles Hebert - Director of R&D Data Driven Program

GUEST COMPANIES

DECISION
Augmented Intelligent Due-Diligence

Number of criteria for estimating strong causality towards more in-depth models

Yannick Grelot

FinWEDGE
ARTIFICIAL INTELLIGENCE FOR INVESTING

Using causal models to value companies

Delphine Monti

Causal inference and treatment/ action estimation solution

Jean-Yves Gerardy
Léo Dreyfus-Schmidt

INSTITUTIONAL PARTNERS

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