

# Welcome !



# Organizing committee

## **Local organizing committee**

Samuel Calvet (LPCA)

Alexandre Claude (LPCA)

Julien Donini (LPCA)

Cyril Galpier (LPCA)

Marine Hebert (LPCA)

Emille Ishida (LPCA)

Maria Pruzhinskaya (LPCA)

## **Scientific organizing committee**

Emille Ishida (LPCA, chair)

Vincent Barra (LIMOS)

Anja Butter (LPNHE)

Julien Donini (LPCA)

Tommaso Dorigo (INFN)

Adnan Ghribi (GANIL)

Francois Lanusse (CEA)

Carole Lartizien (CREATIS)

Louis Lyons (Oxford)

Paula Sanchez (ESO)

Pietro Vischia (UniOvi and ICTEA)

# Sponsors



## **AI center launched by CNRS in 2021**

Foster **dialogue between scientific disciplines** in interaction with AI.

Establish radically **new modes of collaboration** between scientific fields far beyond the mere assimilation of AI methods.

Address **domain-specific strategic** questions such as explainability, expert knowledge, robustness, ethics, frugality, etc.

Address **new scientific questions** and **accelerate scientific discovery** in sciences (physics, chemistry, materials, biology, humanities, etc).

Build **ties with other similar centers** abroad.



## **Scientific events**

**Thematic semesters** on multidisciplinary subjects

Incubator for projects: **fellowships, visiting researchers, project funding**, AI engineers in multidisciplinary projects;

**Training sessions** related to AI for researchers from different communities

**Workshops, webinars, or hackathons;**

Host **multidisciplinary teams;**

**Outreach:** AI and society.

# AISSAI IN2P3 Semester



Institut national de  
physique nucléaire et de  
physique des particules

**Series of events** planned from June 2023 to the present day

- Initiated by David Rousseau (IJCLab) and Alexandre Boucaud (APC)
- With support from Jalal Fadili and Vincent Folliard (AISSAI)

**Bring together scientist** from astro, particle physics, computer science, statistics, industry, instrumentation, medicine, ...

**Share** knowledge & experience

Create **collaborative environment**

# IN2P3 Semester



July 3-7 2023, Fréjus, <https://aissai-hackathon.astroinfo.in2p3.fr/>

Dedicated **AISSAI Hackathon** after Astroinfo 2023 school ⇒ Outcome: **3 ML projects**



# IN2P3 Semester

## OnBoardingSchool : Introduction à l'apprentissage automatique

9–13 oct. 2023  
IJCLab  
Fuseau horaire Europe/Paris

- Accueil
- Ordre du jour
- Intervenants
- Inscription
- Liste des participants
- Venir à IJCLab

### Comité d'organisation

✉ [onboardingschool@ijclab...](mailto:onboardingschool@ijclab.in2p3.fr)

### Présentation

L'apprentissage automatique est la partie de l'intelligence artificielle qui se fonde sur des modèles mathématiques pour permettre aux ordinateurs d'apprendre et d'effectuer des tâches à partir de données. L'objectif principal de cette école est de présenter les concepts généraux d'apprentissage automatique (Machine Learning -ML- et Deep Learning -DL-) et de définir ses domaines et conditions d'application à travers des cas concrets. Cette école est financée par le projet AISSAI (Artificial Intelligence for Science and Science for Artificial Intelligence) du CNRS.

### Objectifs

A l'issue de la formation, les participants seront en mesure :

- d'identifier la nature d'un problème d'apprentissage automatique : supervisé / non-supervisé, classification / régression
- de comprendre les concepts mathématiques des méthodes classiques de ML et de DL
- de mettre en œuvre les méthodes répandues de ML (SVM, arbres de décision, ...)
- de mettre en œuvre une architecture simple de réseaux de neurones (Perceptron MultiCouche et Réseau de Convolution)
- de connaître les principaux algorithmes du DL
- d'évaluer les performances de ces méthodes à travers plusieurs métriques
- de savoir interpréter les résultats des algorithmes et identifier leurs limites
- d'utiliser les outils Sklearn, Keras / Tensor Flow

La semaine sera organisée sous forme d'alternance de cours théoriques et de TP sur ordinateur.

### Public

Cette école est ouverte aux chercheurs (y compris doctorants et post-doctorants) et aux ingénieurs de tous instituts.

Oct 9-13 2023, IJCLab, <https://indico.ijclab.in2p3.fr/event/9597/>

1-week **introductory ML school** for students, engineers and physicists



# IN2P3 Semester

**ARTIFICIAL INTELLIGENCE AND THE UNCERTAINTY CHALLENGE IN FUNDAMENTAL PHYSICS**  
**27 NOV - 1 DEC 2023**

**SCIENTIFIC COMMITTEE**  
Corentin Allaire  
UCJed-Orsay  
Olaf Behnke  
DSOY  
Anja Butter  
LIPN-Paris  
Sylvain Chevallier  
LON, Université Paris-Saclay  
Valérie Gautard  
E.ON-Paris  
Louis Lyons  
Imperial College & Oxford  
David Rousseau  
UCJed-Orsay  
Jean-Roch Vlimant  
CERN  
Thomas Vuillaume  
LAPR USMB, CNRS  
Program Manager  
Vincent Follard  
ASSA

**UNCERTAINTY QUANTIFICATION**  
EXPLAINABLE/TRUSTWORTHY AI  
DATA-FRUGAL/DATA-CENTRIC AI  
SIMULATION-BASED INFERENCE,  
UNFOLDING....  
ARCHITECTURES: ADVERSARIAL,  
BAYESIAN....  
CONTROLLING UNCERTAINTIES  
IN GENERATIVE MODELS  
BENCHMARKS DATASET  
AND CHALLENGES

**INDICO.IN2P3.FR/E/AIUPHYS2023**

SCAI, PARIS AND INSTITUT PASCAL PARIS-SACLAY

AI S2 AI  
AN INNOVATION STRATEGY FOR AI

CNRS  
IN2P3

scai  
INSTITUT PASCAL

DATAIA  
INSTITUT PASCAL

PASCAL

27 Nov-1 Dec 2023, Paris, Paris-Saclay, <https://indico.in2p3.fr/event/30589/>

**Quantifying uncertainty in ML:** uncertainty prediction, controlling impact of uncertainties

And this is how we arrived here ...

A promotional banner for the AISSAI Anomaly Detection Workshop. The background features a silhouette of a mountain peak against a sunset sky, with a complex network of glowing white lines and nodes radiating from the top of the mountain. On the left side, there is a blue logo consisting of a stylized 'AI' with a brain-like structure above it, and the text 'AISSAI' in a bold, blue, sans-serif font. Below this, the text 'Anomaly Detection Workshop' is written in a smaller, white, sans-serif font. On the right side, the dates 'March 4-7, 2024' are displayed in a large, white, bold font, with 'CLERMONT-FERRAND, FRANCE' written in a smaller, white, sans-serif font below them.

**AISSAI**  
Anomaly Detection Workshop

**March 4-7, 2024**  
CLERMONT-FERRAND, FRANCE

<https://indico.in2p3.fr/e/AISSAI2024>



## 4 major scientific field

- Particles and the Universe
- Theory
- Health, Environment, Energy
- Innovation, Technology Transfer

**35 years** of involvement with **CERN on the LHC** (detectors, data analysis...)

**15 years** of activity in **Cosmology** (telescopes, brokers, supernovae...)

Research on **ionizing radiation** on living organisms and the environment

Machine learning applications in multiple science cases

# Scientific Program


- Exciting program
  - Invited talks
  - Contributed talks
  - Posters
  - Tutorials
- Update your slides  
at least **2 hours before** your talk!
- Interdisciplinary audience  
extended time of each contribution aimed  
to allow didactic introduction
- Keep an eye on the chair  
This will help to keep schedule on time
- Questions are welcome!

MON	TUE	WED	THU
4	5	6	7
Welcome, 09:30	invited - Mazen Alamir 09:30 – 10:15	Tutorial 2-Konstantin Malanchev 09:30 – 10:40	Invited - Carole Lartizien 09:30 – 10:15
Invited: Mikael Kuusela 09:55 – 10:40	C7 - Jean Michel Becu, 10:15		C20 - Florian Josselin, 10:15
coffee break, 10:40	coffee break, 10:40	coffee break, 10:40	coffee break, 10:40
C1 - Tommaso Dorigo, 11:10	C10 - Paula Sanchez, 11:10	tutorial 2-Konstantin Malanchev 11:10 – 12:00	C8 - Anastasia Voloshina, 11:10
C2 - Sabine Kraml, 11:35	C11 - Gabriela Contardo, 11:35		C22 - Ines Moreira, 11:35
C3 - David Rousseau, 12:00	C12 - Aleksandra Avdeeva, 12:00	C15 - Lilliane Nakazono, 12:00	C21 - Emmanuel Gangler, 12:00
lunch 12:25 – 14:00	lunch 12:25 – 14:00	lunch 12:25 – 14:00	lunch 12:25 – 14:00
Invited - Konstantin Malanchev 14:00 – 14:45	C13 - Louis Vasilin, 14:00	Invited - Shikma Bressler 14:00 – 14:45	C27 - Shikma Bressler, 14:00
C4 - Priscilla Pessi, 14:45	C14 - Stefano Cavuoti, 14:25	C18 - Adrian Rubio Jimenez, 14:45	C25 - Eva Mayer, 14:25
Poster lightning talks, 15:10	Tutorial 1- Gregor Kasieczka 14:50 – 15:35	C17 - Louis Moureaux, 15:10	C24 - Federica Maria Simone, 14:50
coffee break, 15:35	coffee break, 15:35	coffee break, 15:35	C23 - Etienne Russeil, 15:15
C5 - Jiechieu Kameni, 16:05	Tutorial 1- Gregor Kasieczka 16:05 – 17:20	C19 - Roberto Seidita, 16:05	Final remarks, 15:40
C6 - Artur Lobanov, 16:30		C16 - Sighiouri Mohammed, 16:30	
C26 - Marco Letizia, 16:55		excursion 16:55 – 18:25	
welcome cocktail 19:00 – 21:00		conference dinner 19:30 – 22:30	

# Scientific Program - Posters

- Posters will be displayed throughout the week
- **This afternoon:**
  - Lightning talks - 4 min
  - Dedicated poster-discussion during the afternoon coffee break



15:00	<b>Clermont-Ferrand</b>	14:45 - 15:10
	<b>Enhancing Monojet searches with ML</b>	Rafal MASELEK
	<i>Clermont-Ferrand</i>	15:10 - 15:14
	<b>Accelerating the search for mass bumps using the Data-Directed Paradigm</b>	Ms Bruna Pascual
	<i>Clermont-Ferrand</i>	15:14 - 15:18
	<b>Integrating Noisy Label Learning and Confidence Estimation</b>	Dr Navid Rabbani
	<i>Clermont-Ferrand</i>	15:18 - 15:22
	<b>A deep learning approach for videobased traffic anomaly detection</b>	Mr Tom Schumann
	<i>Clermont-Ferrand</i>	15:22 - 15:26
	<b>Anomaly Detection for Fink</b>	Maria Pruzhinskaya 
	<i>Clermont-Ferrand</i>	15:26 - 15:30
	<b>SEDAF : Prototype of a Real-Time Explainable Anomaly Detection System on Multivariate Data Stream</b>	
	<i>JIECHIEU KAMENI Florentin Flambeau</i>	
	<b>Poster dedicated Coffee break</b>	
	<i>Clermont-Ferrand</i>	15:35 - 16:05

16:00



# Logistics

- Sessions start every day at **9:30am**
- Coffee break in the balcony, close to the posters
- Feel free to use the white boards for discussions
- Lunch (thanks to our sponsors):
  - Monday, Tuesday and Wednesday – Salle Grands Jeux
  - Thursday – Balcony
- Pictures:
  - Send a private email to the LOC if you do not want your picture taken
  - **Group photo:** Today, before lunch: Monday, 4 March - 12:25h



# Logistics: Wifi

Network name: **Wifimeetingroy**

Password: **CasinoRoyat2018**

Laptop

Network name: **Wifipartouche**

no password -- register with email

Phone



# Social events

- **Welcome cocktail**

Monday, **4 March, 19:00h** - Hotel Saint Mart  
across the street



- **Walking tour to the old city of Clermont-Ferrand**

Wednesday, **6 March**

Bus will leave the Casino **at 17:30h**

- **Workshop dinner**  
Wednesday, **6 March, 19:00h**  
Brasserie Madeleine



Please confirm your  
presence with  
Marine!

# The LOC is here to help you!



Marine Hebert



Julien Donini



Maria Pruzhinskaya



Samuel Calvet



Emille Ishida



Cyril Galpier

[aissai\\_anomaly@clermont.in2p3.fr](mailto:aissai_anomaly@clermont.in2p3.fr)

# Have a nice workshop!

