M4CAST/MLAcc

Réunion annuelle 2025

25 / 26 novembre 2025

Programme

- Jour 1

  - Retour sur l'année 2025
    Travaux, propositions, …

  - Prospectives 2026
    Besoins en ressources, calcul, stockage, missions, …

- Jour 2 :

  - Hands-on Indigo-IA-m4cast

  - Préparation EAP MLAcc

Propositions nationales

- Hackathon AISSAI

- SYNAPSE - ANR TSIA - answer in December

- Postdoc AISSAI - XAI for anomaly detection and classification

- Francis : Internship master student | Anomaly detection

- Vadim : Young researcher ANR - Optima LS Pre-proposal for PhD - automation of commissioning of Soleil 2 => answer in Jan. 26

Propositions Européennes

- SCIANCE

- IRIS

- TwinRISE

- MODULARITY

Travaux

- A vous la parole

  - Valérie : EUCLID RAG + LLM

  - Kevin : HOPSWORKS feature store

  - Charly : Anomalies detection in SP2 LLRF

  - Barbara/Quentin :DBSCAN + Time2Feat for BPM anomalies detection at SuperKEK B

  - Francis : anomaly detection within the beam distribution (ex. Halo). eps_x 2D => img processing | successfully denoised emittance figures at different RI : SPIRAL2, ARRONAX, Strasbourg, HRS

  - Damien : ALESIA for magnets design - spin rotator model for EIC - ECR (id SP2) AI aided design - HTS magnets - precursors of quench detection in magnets

  - Hayg : Segmented surrogates for ThomX -Neural ODE for time series data / forecasting / anomalies detection

  - Hayg : Neural ODE for collective effects interplay

  - Kevin/IJCLab team : Data / features and code sharing for benchamarks

Students seminars

Francesca, Hayg and Valérie in charge

1. List all ongoing PhD and ongoing/planned internships

2. Choose a fixed monthly time slot

3. Define rotating schedule

Website

- Damien + Adnan

- Need one additional volunteer

- M4CAST —> ARTIFACT-network-France

- Artifact-network france subdomain

- Coherent branding, shared resources with ARTIFACT, both hosted at CCIN2P3

Hackathon
AISSAI 2026

- 30 k€ for organisation through AISSAI

- Location (TBC) : Mont Saint Michel

- Steps/Organisaton :

  - People involved in the organisation : Adnan, Valérie, Hayg, Francesca, Damien (more welcome)

  - Dedicated preparation meeting/workshop/hackathon

  - Select the teams and the subjects

  - Comics book

  - Outputs/outcomes to be published as a poster

- Choose the target week between October and November => choose one of the first two weeks of October before the end of the week.

Preparing next year

- Maintain allocated resources at CCIN2P3 ? Decision before Christmas

- Computing resources (CPU/GPU) centralized requests for regional and national computing centres.

- Missions/travel - resources from IN2P3 MLACC

- Students grants (committee TBD)

- Local resources / material / acquisition system

- MALAPA -> bpm abstract | M4cast/ARTIFACT-France abstract -> decide before next week

- Seminars hybrid - 6 k€/y

Preparing next year

- Barbara : ANR PRCI with EPFL - Simulation for FCC-ee and HL-LHC + active learning + emittance tuning + continuation BPM studies

- Barbara : DataIA : internship funding for 2026 on BPM

- Francis : systematic benchmarking - enlarge the tests to other facilities. Call for interest/collaboration among partner RI.

- Damien : HTS magnets with CERN

- Valérie : connection with astro ?

- Hayg : DataIA - causal modeling for particle accelerators - response beginning next year | internships : dataIA for anomaly detection | student group yearly project at Ecole centrale : 1. Anomaly detection for ThomX ; 2. Neural ODE | multi-agent reinforcement learning

- Adnan : state observers for superconducting cavities / isotopes identification | segmented surrogates for FCCee | active learning for FCCee booster studies |

- SYNPASE (ANR TSIA) re-submission if response is negative

- Re-convene in the spring to redefine strategy and priorities depending on the feedback from the EU