



1st Workshop on Artificial Intelligence and Machine Learning in Inborn Errors of Immunity (AIPID)

*Academic Organizers: Pere Soler, Manish Butte, Jacques Rivière
Barcelona – June 19, 2023 – June 21, 2023*

Workshop Objectives:

- To develop the fundamental and applied science of artificial intelligence and machine learning for improving the diagnosis and treatment of inborn errors of immunity.
- To promote encourage trainees to enter this field through participation and the open exchange of ideas
- To keep the development of tools in the open source as much as possible
- To create consortia for grant writing, research collaboration, and implementation
- To develop innovative tools for early diagnosis of IE front line based on AI/ML
- To promote the use of AI/ML in advanced genetic studies for the diagnosis of IEI
- Discuss the integration of AI into clinical decision-support tools

Terms and themes to be covered: warning signs of IEI, clinical decision-making, decision support tools, molecular diagnosis, electronic health records, genetic databases, value-based health care.

We want to keep the conference focused on the cutting edge and strongly encourage each talk and poster to share unpublished data as much as possible. The goal of talks is not to summarize a recently published work. To protect such unpublished results, we will follow a policy like the GRC. (Excepted from GRC website) To encourage open communication, each attendee agrees that any information presented, whether in a formal talk, poster session, or discussion, is a private communication from the individual making the contribution and is presented with the restriction that such information is not for public use. The audio or video recording of lectures by any means, the photography of slide or poster material, and printed or electronic quotes from papers, presentations, and discussions at a conference without written consent of the contributing member is prohibited.

Each presenter and attendant will be responsible for maintaining undisclosed the data presented and possible patents from their centre. In case of disclosure of unpatented information, the organization will not take responsibility upon future denial of patent filing by the competent agencies.

Monday, June 19 – Welcome Reception at the Hotel

18:30 – 18:45	Registration
19:00 – 19:15	Workshop Introduction
19:15 – 19:45	Cocktails & Opening Lecture: <i>The JMF 10 Warning Signs: Historical Perspective (JMF – Fred and Vicki Modell)</i>
20:00 - 22:00	Networking Dinner at Hotel

Tuesday, June 20 – Barcelona Supercomputing Centre (BSC)

8:45 – 9:00	Registration (lobby BSC)
9:00 – 10:00	First Session – Group Discussion <i>Electronic Health Records.</i> (Jordi Piera) <i>Claims Data in the US vs. EHR.</i> (Jordan Orange; Jocelyn Farmer) <i>Economic consequences of late diagnosis - Health economics and outcomes research.</i> (Chris Runken)
10:00 – 11:00	Second Session – Panel Discussion <i>Building on Existing Knowledge About IEI Patients: The Warning Signs & Phenotypes</i> <i>Specialization of warning signs.</i> (Eleonora Gambineri)
11:00 – 11:30	Coffee Break
11:30 – 12:45	Third Session – Technical Tools to Extract Clinical Information <i>Natural Language Processing (NLP)</i> <i>EHR Mining (Lisa Bastarache)</i> <i>Policy in Data Protection and Property</i>
12:45 – 13:15	Fourth Session – AI to Reach Genetic Diagnosis <i>Human Phenotype Ontology</i> <i>Deep Learning Used for Syndromic Diagnosis</i>
13:15 – 13:45	BSC <i>MareNostrum</i> guided tour
13:45 – 15:00	Networking Lunch
15:00 – 16:40	Fifth Session – AI Solutions for Finding IEIs <i>Define the Problem – Inborn errors detection in primary care & frontline specialists.</i> <i>US and Europe current models –</i> (Helen Leavis, Manish Butte, Nicholas Rider, Jacques Rivière)
16:40-17:00	Sixth Session – Databases and interoperability Experience from LASID - (Antonio Condino-Neto) Federated learning: SNOMED

	Institutional Support and Accelerating Hubs How AI Project Flow Works in real life – (<i>Xabier Michelena</i>)
17:00 – 17:10	Wrap-up
17:10 – 18:30	Free Time
18:30 – 19:00	Transfer to Grifols
19:00 – 20:00	Networking Cocktail Hour and Tour at Grifols' Museum
20:00 - 20:30	Transfer to Ikibana Restaurant
20:30 - 22:30	Dinner at the Ikibana Restaurant

Wednesday, June 21 – Barcelona Supercomputing Centre

9:00 – 12:00	“Hackathon” Style Group Session - Moderated by Anna Sala <i>Small interdisciplinary groups mentored and moderated by an expert of innovation methodologies. Journey map of how to funnel patients from primary care to specialists.</i>
12:00 – 12:30	“Hackathon” Solutions Pitches
12:30 – 13:30	Final Wrap-up & Future Direction
13:30	Meeting closure