ELIXIR BIOINFORMATICS INDUSTRY FORUM

Enabling Ecosystems for Machine Learning in the Life Sciences

11 October 2022 | London, UK (Hybrid: first two sessions live-streamed | SliDo for questions)
Venue: Wellcome Collection, 183 Euston Road, London , NW1 2BE

09:00 Coffee and Registration (Henry Wellcome Auditorium)

09:45 Welcome and introduction to the event (Peter Maccallum and Despoina Sousoni, ELIXIR)

10:00 Session 1 (streamed online): Interoperable data and workflows to enable reproducible Machine Learning in life sciences and the role of Open Science in the value chain
Moderator: Peter Maccallum, ELIXIR Chief Technical Officer

- Setting the scene:
  - Principles of open science and interoperability of data and workflows and why that matters for machine learning.
    Speaker: Carole Goble, ELIXIR-UK
- Use cases and lessons learned from facing challenges:
  - Integrating life science data at scale to enable AI driven drug discovery.
    Speaker: James Dunbar, BenevolentAI
  - Doing the boring bit first: the importance of FAIR data and ontologies for Machine Learning and AI.
    Speaker: Jane Lomax, SciBite
  - Nextflow: a successful example of interoperable workflows.
    Speaker: Cedric Notredame, Centre for Genomic Regulation

Q&A - panel discussion (30 mins)

11:30 Coffee break

12:00 Session 2 (streamed online): Challenges and solutions in Machine Learning for the life sciences - Federated Learning and Synthetic Data
Moderator: Tim Beck, University of Leicester

- Setting the scene:
  - Artificial intelligence in the biosciences – a funder's perspective.
    Speaker: Daniela Hensen, BBSRC UKRI
- Use cases and lessons learned from facing challenges:
  - The OHDSI approach to federated analysis.
    Speaker: Sofia Bazakou, The Hyve
  - Target identification and validation leveraging Knowledge Graphs and graph-based Deep Learning.
    Speaker: Dimitrios Vitsios, Astrazeneca
  - Fostering competitive collaboration in drug discovery through federated learning: the MELLODDY project.
    Speaker: Adrien Darbier, Owkin

Q&A - panel discussion (30 mins)

13:30 Lunch break

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14:30 Round table discussions on Emerging issues in the application of Machine Learning to the Life Sciences **(Auditorium | Franks & Steels Room)**
Moderator: Vincent Zoete, University of Lausanne

Flash talk presentations of the Roundtable Topics (Auditorium)
Participants will be allocated to the roundtables based on their expression of interest during the registration process (Franks and Steel Room).

1. **Theme: Standards**
Roundtable discussion: Dome Recommendation
Presenter: Fotis Psomopoulos, ELIXIR-Greece

2. **Theme: Workflows**
Roundtable discussion: Impact on the point of care and drug discovery?
Presenter: Craig Rhodes, NVIDIA

3. **Theme: Interoperability-Open Science**
Roundtable discussion: Navigating the Data Desert
Presenter: Gemma Holliday, Catapult

4. **Theme: Federated Learning**
Roundtable discussion: Applications of federated learning and analytics in large scale consortia: how to go from proof of concepts to generalised adoption
Presenter: Sebastian Schwarz, Owkin

5. **Theme: Synthetic Data**
Roundtable discussion: Challenges with generation and adoption of privacy-preserving synthetic data
Presenter: Lora Frayling, Health Data Insight (Simulacrum)

6. **Theme: Challenges and opportunities**
Roundtable discussion: Building Trust, Confidence and Acceptance of Machine Learning Applications
Presenter: Arron Lacey, Swansea University, Alan Turing

16:00 Coffee break

16:30 Round table debrief (Auditorium)
Moderator: Nils-Christian Lübke, *de.NBI*

(The conclusion of the roundtable discussions will be published as slide deck at the end of the session)

17:00-18:00 Networking