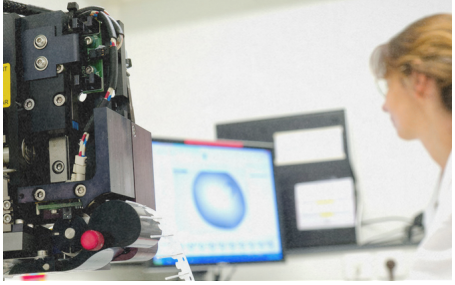
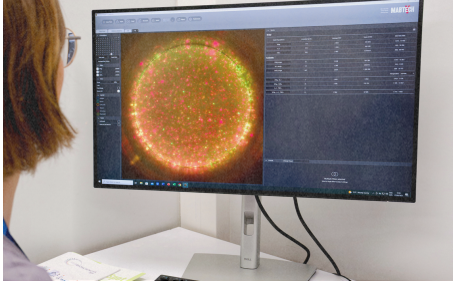
SFRBIOSCIENCES Lyon





SFR Scientific Day 2024

Advanced data analysis for modern biology

7 June 2024

Amphitéatre Mérieux, ENS site Monod, Lyon

8:30-9:00: Welcome

9:00: Introduction to the SFR - Yann Leverrier, SFR Director

9:15: Keynote lecture: AI as a diagnostic tool in hematology - Pierre Sujobert (CIRI, HCL)

10:00: How to train interdisciplinary students - Anna-Sophie Fiston-Lavier (Université de Montpellier)

10:30: Coffe break

11:00: CAN presentation - O. Gandrillon (ENS, LBMC)

11:05: Parallel and AI-driven Image Analysis - David Cluet (LBMC)

11:25: Using Bayesian modeling approaches to disentangle transcriptional signals in RNAseq data - Mathilde Paris (IGFL)

11:45: Analysis of metagenomic background in public RNASeq data in sarcoidosis patients - Thomas El Jammal (LBTI)

12:05: Company Flash Talks

12:15: Lunch Break, coffee, poster and exhibition tables

14:00: 4 Flash Talks Technology Development SFR-funded projects

14:30: Keynote lecture: The use (and abuse) of artificial intelligence in biomedical image analysis- Damian Dalle Nogare (Human Technopole, National Facility for Data Handling and Analysis)

15:15: Coffee break

15:45: How to analyse polymorphic transposable elements in 1000 genomes?- Marie Verneret (IVPC)

16:05: Molecular Dynamics Simulations as Computational Microscopy -Jackson Crowley (MMSB)

16:25: Structure of the replication complex of vesicular stomatitis virus by cryogenic electron microscopy- Louis-Marie Bloyet (CIRI)

16:45: Numerical reconstruction of plant seeds, from multiangle acquisition to FEM-ready meshes. - Elsa Gascon (RDP)

17:05: Concluding remarks

TECNIPLAST Clini Sciences Miltenyi Biotec BMG LABTECH The Microplate Reader Company

cnrs Université de Lyon Université Claude Bernard Lyon 1 Inserm La science pour la santé From science to health Université de Lyon ENS DE LYON

https://www.sfr-biosciences.fr/

Flash talks Technology Development SFR funded project 2023
3D-Imaging of embryonic tooth germs with light-sheet technology at Platim - Sophie Pantalacci

Virometry Prospects. Counting VLPs by Cytometry - Philippe Mangeot (CIRI)

Abstracts

The use (and abuse) of artificial intelligence in biomedical image analysis-
Damian Dalle Nogare (Human Technopole, National Facility for Data Handling and Analysis)

The application of artificial intelligence (AI) approaches in bioimage analysis applications has exploded in recent years. From the early days of supervised image restoration and enhancement to today's plethora of new tools leveraging new deep learning architectures and models, AI is becoming a ubiquitous part of the analysis toolbox. These approaches have not only improved on the performance in common image processing tasks such as image denoising and segmentation, but also enable tasks such as automated classification, image decomposition, and image generation, with high fidelity. Due in large part to these new approaches, the way in which bioimage analysis projects are undertaken has undergone a seismic shift, creating enormous opportunity for scientific advancement, but also enormous risk, as the application of deep learning models on out-of-distribution datasets can (but do not always) produce misleading or incorrect results.This presents a challenge to the widespread adoption of these important technologies, both for developers, who must communicate these risks and build robust, transparent and FAIR systems, as well as for users, who must ensure that they choose the right models and approaches for their particular application.