4th Course on Computational Systems Biology of Cancer: Multi-omics and Machine Learning Approaches

September 27 - October 1, 2021 hours are in CEST zone

VIRTUAL **Institut Curie Training Unit International Course** **FEBS-SUPPORTED EVENT**

Monday, September 27th Chair: TBA	**Session 1:Machine learning in prior knowledge applications for multi-omics data analysis**	
08:50 09:00	**TBA**	Welcome and opening remarks by organisers (Plenary Hall)
09:00 10:00	**Emmanuel Barillot** Institut Curie, FR	**Didactic introductory lecture: Open challenges for computational biologists in oncology** (Plenary Hall)
10:00 11:00	**JP Vert** Google, FR	**Didactic introductory lecture: Approaches for big data analysis in cancer research** (Plenary Hall)
11:00 11:30	Coffee break / Meet the speaker (Parallel sessions: Meeting rooms A-C)	
11:30 12:30	Talks selected from abstracts	15 minutes/presentation (Parallel sessions: Plenary Hall, Meeting room A)
12:30 13:30	Lunch	
Monday, September 27th Chair: TBA	**Session 2: Network-based methods for multi-omics data interpretation**	
13:30 14:30	**Julio Saez-Rodriguez** EMBL-EBI, DE	**Causal integration of multi-omics data with prior knowledge to generate mechanistic hypotheses** (Plenary Hall)
14:30 15:30	**Magnus Rattray** Manchester, UK	**Gaussian process methods for modelling temporal and spatial omics data** (Plenary Hall)
15:30 16:30	**Joaquin Dopazo** IBIS, ES	**Mechanistic modeling and machine learning for the discovery of therapeutic targets in cancer** (Plenary Hall)
16:30 17:00	Coffee break / Meet the speaker (Parallel sessions: Meeting rooms A-C)	
17:00 18:00	Talks selected from abstracts	15 minutes/presentation (Parallel sessions: Plenary Hall, Meeting room A)
18:00 19:00	Poster session (Parallel sessions: Poster rooms 1-8)	
19:00 20:30	**Welcome cocktail / Virtual Apéro** (Parallel sessions: Meeting rooms A-C, Poster rooms 1-2)	

Tuesday, September 28th Chair: TBA	**Session 3: Patient stratification and disease classification using Artificial Intelligence methods (1)**	
09:00 10:00	**Anaïs Baudot** MMG, Marseille, FR	**Network-based heterogeneous data integration for human diseases** (Plenary Hall)
10:00 11:00	**Olivier Ayrault** Institut Curie, FR	**Using quantitative proteomics to decipher the biology of medulloblastoma** (Plenary Hall)
11:00 12:00	**Lodewyk Wessls** The Netherlands Cancer Institute , NL	**Drug combination treatment in cancer** (Plenary Hall)
12:00 12:30	Coffee break / Meet the speaker (Parallel sessions: Meeting rooms A-C)	
12:30 13:30	Poster session and Lunch (Parallel sessions: Poster rooms 1-8)	
Tuesday, September 28th Chair: TBA	**Session 4: Patient stratification and disease classification using Artificial Intelligence methods (2)**	
13:30 14:30	**Carl Herrman** BioQuant and Medical Faculty Heidelberg University, DE	**TBA**
14:30 15:30	**Andrei Zinovyev** Institut Curie, FR	**The geometry of multi-omics data spaces: applications for cancer research** (Plenary Hall)
15:30 16:00	Coffee break / Meet the speaker (Parallel sessions: Meeting rooms A-C)	
16:00 17:00	Talks selected from abstracts	15 minutes/presentation (Parallel sessions: Plenary Hall, Meeting room A)
17:00 18:00	Poster session (Parallel sessions: Poster rooms 1-8)	

Wednsday, September 29th Chair: TBA	**Session 5: Multi-omics data integration in precision medicine**	
09:00 10:00	**Yvan Saeys** Inflammation Research Center, VIB, BE	**Data Mining and Modelling for Biomedicine** (Plenary Hall)
10:00 11:00	**Chloé-Agathe Azencott** Institut Curie, FR	**Machine learning techniques for multi-modal data analysis** (Plenary Hall)
11:00 11:30	Coffee break / Meet the speaker speaker (Parallel sessions: Meeting rooms A-C)	
11:30 12:30	Talks selected from abstracts	15 minutes/presentation (Parallel sessions: Plenary Hall, Meeting room A)
12:30 13:30	Lunch	
Wednsday, September 29th Chair: TBA	**Session 6: Multi-omics data integration in precision medicine**	
13:30 14:30	**Kay Nieselt** University of Tübingen, DE	**Integrative Transcriptomics: Spatiotemporal Developmental Trajectories Using High-Throughput Single-Cell RNA Sequencing data** (Plenary Hall)
14:30 15:30	**Laura Cantini** ENS, Paris, FR	**Multi-omics data integration: towards a comprehensive view of cancer** (Plenary Hall)
15:30 16:30	**Nathalie Vialaneix** INRAE, FR	**Kernel methods and variable selection for exploratory analysis and multi-omics integration** (Plenary Hall)
16:30 17:00	Coffee break / Meet the speaker (Parallel sessions: Meeting rooms A-C)	
17:00 18:00	Poster session (Parallel sessions: Poster rooms 1-8)	

Thursday, September 30th Chair: TBA	**Session 7: Treatment response prediction and prognosis using machine learning approaches (1)**	
09:00 10:00	**Samuel Kaski** Aalto University, FI	**Improving drug response prediction by integrating multiple data sources: matrix factorization, kernel and network-based approaches** (Plenary Hall)
10:00 11:00	**Asmund Flobak** NTNU, Norway, NO	**Clinical decision support for colon cancer by computational cancer signaling simulation and patient-derived spheroid functional validation** (Plenary Hall)
11:00 11:30	Coffee break / Meet the speaker (Parallel sessions: Meeting rooms A-C)	
11:30 12:30	Poster session (Parallel sessions: Poster rooms 1-8)	
12:30 13:30	Lunch	
Thursday, September 30th Chair: TBA	**Session 8: Digital pathology**	
13:30 14:30	**Thomas Walter** Institut Curie, FR	**Predictive models in computational pathology** (Plenary Hall)
14:30 15:30	**Joakim Lundeberg** SciLifeLab, KTH, SE	**Spatial Transcriptomics for Cancer Tissues** (Plenary Hall)
15:30 16:00	Coffee break / Meet the speaker (Parallel sessions: Meeting rooms A-C)	
16:00 17:00	Talks selected from abstracts	15 minutes/presentation
17:00 19:00	Master student's journal club	Presesentation of milestone papers (Parallel sessions: Meeting rooms A-C)

Friday, October 1st	**Session 9: Machine learning approaches in bioimaging**	Chair: TBA
09:00 10:00	**Pierre Fillard** CSO de Therapixel, FR	**Breast Cancer Screening at the Era of Artificial Intelligence: Results of a multi-center, multi-geographic, retrospective study** (Plenary Hall)
10:00 11:00	**Nikos Paragios** CentralSupelec et CEO-CSO de Therapanacea, FR	**AI and medical imaging in pathophysiology** (Plenary Hall)
11:00 12:00	**Stéphanie Allassonniere** Université Paris Descartes, FR	**Mixed effect models for the spatio-temporal analysis of manifold valued data: application to cancer treatment followup** (Plenary Hall)
12:00 12:30	Meet the speaker (Parallel sessions: Meeting rooms A-C)	
12:30 13:30	Lunch	
Friday, October 1st Chair: TBA	**Session 10: Machine learning approaches in radiomics**	
13:30 14:30	**Irène Buvat** INSERM, Institut Curie, FR	**Machine learning methods for analysis of radiomics data in oncology** (Plenary Hall)
14:30 15:30	**Laure Fournier** Université de Paris, FR	**Radiomics for cancer imaging** (Plenary Hall)
15:30 16:00	Coffee break / Meet the speaker (Parallel sessions: Meeting rooms A-C)	
16:00 17:00	Master student's journal club	Presentation of milestone papers (Parallel sessions: Meeting rooms A-C)
17:00 18:00	Carreer developmnt workshop	Representatives of academia, pharma, edting bodies andn platforms
18:00 18:30	**Closing remarks, prizes for presentations and posters** (Plenary Hall)	
18:30 19:30	**Farewell cocktail / Virtual Apéro** (Parallel sessions: Meeting rooms A-C, Poster rooms 1-2)	