

Aula Magna

08:45-09:15 Opening Remarks

08:45-09:10 Opening Remarks

09:15-09:30 Opening Scientific Introduction

Chair: Davide Chicco

09:15-09:30 **ELIXIR-IT: the Italian Research Infrastructure for Big Data in Life Sciences**
Graziano Pesole

09:30-10:30 BIOINF Main Track 1

Chair: Davide Chicco

09:30-09:45 **An Enhanced Pipeline for Multi-Omic Integration Based on Topological Data Analysis**
Veronica Paparozzi · Anna Plaksienko · Marco Pedicini · Christine Nardini

09:45-10:00 **Analysis of biological networks using Krylov subspace trajectories**
H. Robert Frost

10:00-10:15 **Evaluating SMT-Based Formal Inference for GRN Synthesis: From Data Density to Structural Rules**
Ofri Caspi · Michal Greenberg · Eitan Tannenbaum · Hillel Kugler

10:15-10:30 **A Pipeline for Predicting Variant Associations with Complex Disorders via Functional Annotations**
Francesco Gualdi · Zeno Darani · Daniele Malpetti · Marco Scutari · Francesca Mangili

10:30-11:00 Coffee Break

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11:00-12:00 SS11: GPU-accelerated analysis of single-cell and spatial omics

Chair: Dario Righelli

11:00-11:15 **GPU-accelerated single-cell and spatial transcriptomics on NVIDIA DGX H100: a systematic benchmark of speed, scalability, and biological concordance**
Luca Vedovelli · Corrado Lanera · Daniele Sabbatini · Dario Gregori

11:15-11:30 **CudaMon: An R Package to Monitor NVIDIA GPUs, Showcased by Monitoring a GPU-accelerated Single-cell Analysis Workflow in R**
Mohammad Amin Zadenoori · Riccardo Ceccaroni · Davide Risso · Gabriele Sales

11:30-11:45 **DualBioGraph: Patient-Held-Out Tumor--Normal Classification Using Dual Graph Neural Networks**
Al Hamna Asif · Rana Abubakar · Amna Younus · Juan Jose Vegas Olmos · Filippo Cugini

11:45-12:00 **A topological object-proposal pipeline for cellular fiber segmentation**
Riccardo Ceccaroni · Valerio Reffo · Camilla Pezzini · Roberta Sartori · Marco Sandri · Pierpaolo Brutti · Davide Risso

12:00-13:15	SS10: Computational tools for the effective design of mRNA-based therapeutics Chair: Duccio Medini, Giuseppe Maccari
12:00-12:15	Secondary structure design for efficient translation initiation Tobias von der Haar · Corina Keller
12:15-12:30	Manufacturability of mRNA Therapeutics: Native vs. N-1-Methyl-Pseudouridine Roland Huber · Kuo Chieh Liao · Yue Wan
12:30-12:45	Optimizing RNA yield using deep neural networks coupled to massively parallel screening Adrien Villain
12:45-13:00	MAP-Net: An Interpretable Deep Learning Framework for Universal mRNA Manufacturability Giorgio Ciano
13:00-13:15	Toward Simulation-Informed Lipid Nanoparticle Design with Martini Coarse-Grained Models Mariana Valério · Pablo Cardona Perez · Salma Maaquili · Mariia Borbuliak · Paulo C. T. Souza
13:15-14:15	Lunch
13:15-14:15	Lunch
14:15-16:00	BIOINF Main Track 2
14:15-14:30	Sequence-Derived Physicochemical Features and Stacked Learning for SUMOylation-Site Prediction Junyan Li · Qiaobin Yao · Danda Rawat · Jiang Li · Shaolei Teng
14:30-14:45	LLM-Guided Integer Linear Programming for Antibody Library Design Mikel Landajuela Larma
14:45-15:00	Cell Senescence Identification Using Single-Cell Transcriptomics Foundation Model Yongqi Zhao · Fan Tong · Xiangwen Zheng · Yuanyuan Ma · Huajian Mao · Yuting Zhou · Peixiang Yang · Dongsheng Zhao
15:00-15:15	OmicsGPT: Multi-Agent Bioinformatics Orchestration for Evidence-Grounded RNA-seq Interpretation Patrick Roney · James Li
15:15-15:30	Single-cell characterization of HERV-K transcriptional landscapes in acute and chronic HIV infection Lucrezia Pierfederici · Elisabetta Lazzari · Gabriella Rozera · Lavinia Fabeni · Flavia Smoquina · Giulia Berno · Federica Forbici · Valentina Mazzotta · Andrea Antinori · Daniele Pietrucci · Daniele Maria Papetti · Fabrizio Maggi · Isabella Abbate · Giovanni Chillemi
15:30-15:45	Identifying functional drivers of Hepatoblastoma outcomes via agent-based modeling and transcriptomics Alessandro Ravoni · Yuanhua Liu · Stefano Cairo · Filippo Castiglione · Christine Nardini
15:45-16:00	CellChat Hotspot: A Focused Lens on Tumor Microenvironment Communication Dario Monaco · Mirea Dioguardi · Maria Dipalma · Eliseo Mattioli · Francesco Alfredo Zito · Francesco Giovannelli · Angela Ricco · Oronzo Brunetti · Antonella Argentiero · Simona De Summa
16:00-16:45	Keynote — Nicola Segata
16:00-16:45	Computational metagenomics to unravel person-to-person microbiome transmission Nicola Segata

19:00-20:00	Welcome Cocktail + MUSA Jazz Concert
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