

Federico Di Marco

PhD Student in Computer Science
Bioinformatician



About Me

With 7 years of experience as a bioinformatician in life sciences, I have honed my skills in a range of techniques, from molecular dynamics to omics data analysis. I applied these skills in a multidisciplinary research setting, at the San Raffaele Scientific Institute, leveraging my interest for bioinformatics to analyze complex multi-omics data in microbiology and host-pathogen interaction. I am driven by a deep passion for bioinformatics and I'm always looking for the next challenge in this exciting field

My Contact

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📍 Via Cassanese 12, Segrate, Milan, Italy

🐙 Allen13x (github.com)

Hard Skill

- Programming languages (Python, R, Bash)
- Statistical analysis and machine learning algorithms (SVM, Random Forest)
- Deep learning frameworks (TensorFlow, PyTorch)
- Omics data analysis (WGS, Rna-seq, Methyl-seq, Single-cell, Spatial Transcriptomics)
- HPC workflow management (Slurm)
- Reproducibility (Git, Conda, Singularity, Nextflow)

Soft Skill

- Passionate
- Communication
- Adaptability
- Multi-tasking

Education Background

- Università degli Studi di Milano

2021 **Masters** in Bioinformatics and Functional Genomics

- Università degli Studi di Padova

2016 **Masters** in Theoretical and Computational Chemistry

2014 **Bachelor** in Theoretical and Computational Chemistry

Professional Experience

San Raffaele Scientific Institute,
Università degli Studi Milano Bicocca | PhD Student

2023 – Present

Key responsibilities:

- Design and development of AI models for Spatial Transcriptomics data in the Host-Pathogen interaction field

San Raffaele Scientific Institute | Bioinformatician
Emerging Bacterial Pathogens Unit

2021 – Present

Key responsibilities:

- Development of bioinformatics pipelines for microbial genomic surveillance
- Implementation of third-generation sequencing data analysis strategy
- Investigation of host-pathogen interaction through multi-omics data integration

San Raffaele Scientific Institute | Data Analyst
Urological Research Institute

2017 – 2020

Key responsibilities:

- Bioinformatics analysis of omics data in the field of kidney disease

Achievements

2022 – 2024 Responsible for all bioinformatics-related activities for the entire laboratory, acknowledged as WHO collaborator centre.

2022 – 2024 Teacher in the field of bioinformatics for online and on-site courses

2021 – 2024 Automatization of the routine genomics investigation processes with a 20x turnaround time

Language

Italian: Mother tongue

English: C1

Main Publications and Contributions

- *Dual spatial host-bacterial gene expression in Mycobacterium abscessus respiratory infections. Communications Biology. 2024.*
<https://doi.org/10.1038/s42003-024-06929-5>
Experimental Design, Data Analysis
- *Single-Cell RNA Sequencing Shows that Circulating Monocytes Enriched in IFN Signaling Are Associated with Nontuberculous Mycobacteria Pulmonary Disease in Cystic Fibrosis. American Journal of Respiratory and Critical Care Medicine. 2024.*
<https://doi.org/10.1164/rccm.202312-2279le>
Data Analysis
- *Advantages of long- and short-reads sequencing for the hybrid investigation of the Mycobacterium tuberculosis genome. Frontiers in Microbiology. Volume 14 – 2023.*
<https://doi.org/10.3389/fmicb.2023.1104456>
Experimental Design, Data Analysis

Research Interests

- Artificial Intelligence
- Spatial transcriptomics
- Host-Pathogen interaction
- Bacterial Genomics

Courses

- “The Data Science Course 2020: Complete Data Science Boot Camp” – Udemy: 2020
- “R for Biological Statistics – R4BS” – Infobiology/ReveloDatalabs; 2019
- “Functional Genomics with R – FunGR” – Infobiology/ReveloDatalabs; 2019

Reference

- Dr. Andrea Spitaleri, Human Technopole, Milan, Italy
andrea.spitaleri@fht.org
- Dr. Luca Mollica, Università degli Studi di Milano, Milan, Italy
luca.mollica@unimi.it

Hobbies



Musician



Historical Fencer

Personal Data

I hereby authorize you to use and process my personal details contained in this document in compliance with the provisions of the EU General Data Protection Regulation (GDPR) 2016/679, as well as the Italian Legislative Decree no. 196 dated 30/06/2003.

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