Giorgia Gandolfi

Education

2016-2019 **Bachelor Degree in Biology (L-13)**, *University of Parma*, Italy
Via Università, 12, 43121 Parma (Italy)

- Thesis project: *Study of the cellular localization of the Lpt toxin using fluorescence microscopy*
- Final grade: 110/110 cum laude

2019-2021 **International Second Cycle Degree in Bioinformatics (LM-6)**, *University of Bologna*, Italy
Via Zamboni, 33, 40126 Bologna (Italy)

- Thesis project: *Network based models for the molecular build-up of human tissues from gene expression data*
- Final grade: 110/110

2023- **PhD candidate in Applied Data Science and Artificial Intelligence**, *University of Trieste*, Italy
Piazzale Europa, 1, 34127 Trieste TS

- Main study field: mathematical and machine learning models to understand cancer development from Next Generation Sequencing data
- Main project: generation of synthetic data and benchmarking of bioinformatics methods for bulk and single cell sequencing

Work Experience

2022-2023 **Bioinformatics scientist**, *IRCCS San Raffaele Hospital, Milan*, Italy
Center for Omics Sciences

- Analysis and interpretation of Next-Generation Sequencing (NGS) data in cancer genomics.
- Application of state-of-the-art pipelines for somatic variant calling, with a focus on the `nf-core/sarek` pipeline.
- Development of genomics analysis pipelines using Snakemake.
- Experience in the analysis of Whole Genome Sequencing (WGS) and single-cell RNA sequencing (scRNA-seq) data.
- Involvement in a project funded by the Alliance Against Cancer, the National Oncology Network established in 2002 by the Ministry of Health, focusing on comprehensive cancer patient care and research.
- Participation in the Beyond 1 Million Genomes (1+MG) project aimed at building a pan-European network of genetic and clinical data.
- As a member of Working Package 7, contribution to the development of cancer-related use cases and support to Working Group 9 in identifying requirements for cancer data integration and evaluating their implementation across deliverables and infrastructure proof-of-concept initiatives.

2021 **Erasmus+ Trainership student**, *Tampere University*, Finland
FHAIVE

- Development of co-expression network–based models for the molecular characterization of human tissues using gene expression data.
- Use of RNA-Seq expression data from the GTEx database.

- Initial expression-level analysis leveraging GTEx metadata.
- Inference of co-expression networks for 39 non-diseased human tissues through a custom analysis pipeline.
- Analysis of co-expression networks including identification of central genes, detection of co-expression modules, and pathway enrichment analysis.
- Implementation of the complete analysis workflow using R and Bioconductor packages, with extensive use of network analysis tools such as `igraph`.

Computer skills

Programming languages	R, Python
Workflow managers	Nextflow, Snakemake
Reproducibility	Docker, Singularity
HPC environments	Experience working in High-Performance Computing (HPC) environments
VCS	Git
Operating Systems	Windows, Linux

Language skills

English	Listening: C1 Reading: C1 Writing: C1 Spoken Production: C1 Spoken Interaction: C1
Spanish	Listening: A2 Reading: A2 Writing: A2 Spoken Production: A2 Spoken Interaction: A2

Conferences and Seminars

2017 *Keep An Eye On The Cancer*, University of Parma
2018 *Workshop of Molecular Cytogenetics and Cytogenomics*, Genetic School in Cortona (Italy)
2018 *Keep An Eye On Genes*, University of Parma
2019 *Luce per la Biofisica (Light for Biophysics)*, University of Parma
2022 *7th Annual Meeting of the Alliance Against Cancer*, Policlinico Gemelli, Rome
2023 *Giornata Milanese NGS (NGS Milano Meeting)*, University of Milan-Bicocca
2023 *19th Annual Meeting of the Bioinformatics Italian Society*, Bari
2023 *8th Annual Meeting of the Alliance Against Cancer*, Ospedale Policlinico San Martino, Genova
2025 *Bioinformatics meets AI*, Basel, Switzerland

Summer Schools and Workshops

2020 *21st Bologna Winter School*, University of Bologna
2022 *Reproducible Research and Data Analysis Using Containers & Nextflow*, Center for Genomic Regulation (Online)
2023 *cBioPortal Workshop*, EOSC4Cancer / GDI Project (Online)
2025 *Summer School on Mathematical Modeling in Cancer Research*, HCEMM, Szeged, Hungary

Publications

- **The 1+Million Genomes Minimal Dataset for Cancer.** Riba, M., Sala, C., Culhane, A.C. et al. Nat Genet 56, 733–736 (2024).

- **Scalable integration of multiomic single-cell data using generative adversarial networks** Valentina Giansanti, Francesca Giannese, Oronza A Botrugno, et al., Bioinformatics, Volume 40, Issue 5, May 2024, btae300

Personal Details

Full Name	Giorgia
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