

Giulia Brunelli

Curriculum Vitae

Personal Information

Date of Birth

Address

Mobile

Email

Current position

- 1 November 2021 **PhD Student**, *University of Siena*, Siena (Italy).
My research project focus on the study of association of rare variants and breast cancer occurrence.

Work Experience

- 1 March 2021 **Part-time Statistician**, *Cogitars*, Full Remote.
– 1 February 2022 I was mainly involved in reviewing and updating protocols, fitting Bayesian models for phase 2 clinical trials, descriptive statistical analysis and data visualization.
- 15 July 2021 – 31 December 2021 **Internship**, *CNR Pisa*, Pisa (Italy).
I did this internship as part of my master's thesis project, which focused on the integration of multiomics data for the identification of colorectal cancer subtypes.
- 1 January 2020 – 1 January 2021 **PHD student**, *ETH*, Zurich (Switzerland).
I have worked mainly in the application of geostatistical and epidemiological models for studying the resistance of certain bacteria to antibodies in livestock animals.
- 1 July 2019 – 30 September 2019 **Biostatistics Internship**, *Novartis company*, Basel (Switzerland).
I worked mainly on the adaptation of machine learning models and neural networks for predicting the levels of a biomarker related to heart failure, and on the development of a Shiny app for visualizing the descriptive statistical results of several clinical trials.

Education

- 25 February 2021 – 1 February 2022 **Second-level master in Bioinformatics and Data Science**, *University of Siena*, Siena (Italy).
- August 2020 **Summer school: Digital Spatial Epidemiology**, *University of Zurich*, Zurich (Switzerland).
- 2016–2019 **Master's Degree in Statistics**, *University of Padua*, Padua (Italy).
Course of biostatistics and epidemiology

2012–2016 **Bachelor's Degree in Math**, *University of Trient*, Trient (Italy).

Course for life science

2006–2011 **High School Diploma at Classic Lyceum**, *Liceo Classico F.A Gualterio*, Orvieto (Italy).

Computer skills

Basic SAS,SQL, PYTHON
Intermediate LINUX
Advanced R

Languages

Italian **Native Speaker**
English **Independent/Proficient user**

Average IELTS bands score: 7.5

Technical skills

Quantitative skills.

- *Statistical inference*
- *Parametric Bayesian inference*
- *Analysis of expression data using R packages*
- *Simulation algorithms*
- *MCMC algorithms and Bayesian inference applications*
- *Analysis of disease risk*
- *Propensity score matching*
- *Models with simultaneous equations*
- *Models for multivariate time series*
- *Point pattern analysis*
- *Point pattern simulations*
- *Genome wide association analysis*
- *PRS*
- *Inference based on the likelihood function*
- *Alignment algorithms*
- *Models for duration data*
- *Monte Carlo integration*
- *Measures for occurrence of disease and mortality*
- *Analysis of contingency tables*
- *Data mining*
- *Models for panel data*
- *State space models*
- *Friction Surface analysis*
- *Models for Infectious Disease Dynamics*
- *Rare-variants association analysis*
- *CNV analysis*

Informatics/Bioinformatics Tools.

- *RShiny App*
- *String*
- *David*
- *Netphos*
- *Bioconductor*
- *SpotFrire*
- *Uniprot*
- *Revigo*
- *QuickGO*
- *UK Biobank Research Analysis Platform (DNA-nexus platform)*
- *IGV: Integrative Genomics Viewer*
- *PubMED*
- *DRAGEN Germline Small Variant Caller*
- *Ensembl Variant Effect Predictor (VEP)*

Conferences And Publications

Journal Articles

- 2022 Whitaker J, Brunelli G, Van Boeckel TP, Dube A, Amoah AS, Rickard RF, Leather AJM, Davies J., *Access to care following injury in Northern Malawi, a comparison of travel time estimates between Geographic Information System and community household reports*, *Injury*. 2022 May;53(5):1690-1698. doi: 10.1016/j.injury.2022.02.010. Epub 2022 Feb 5. PMID: 35153068.
- 2022 Privitera F, Trusso MA, Valentino F, Doddato G, Fallerini C, Brunelli G, D'Aurizio R, Furini S, Goracci A, Fagiolini A, Mari F, Renieri A, Ariani F., *Heterozygosity for Neuronal Ceroid Lipofuscinosis predisposes to Bipolar Disorder.s*, *Braz J Psychiatry*. 2022 Jul 25. doi: 10.47626/1516-4446-2022-2650. Epub ahead of print. PMID: 35881528.
- 2022 Russo V, Lallo E, Munnia A, Spedicato M, Messerini L, D'Àurizio R, Ceroni EG, Brunelli G, Galvano A, Russo A, Landini I, Nobili S, Ceppi M, Bruzzone M, Cianchi F, Staderini F, Roselli M, Riondino S, Ferroni P, Guadagni F, Mini E, Peluso M., *Artificial Intelligence Predictive Models of Response to Cytotoxic Chemotherapy Alone or Combined to Targeted Therapy for Metastatic Colorectal Cancer Patients: A Systematic Review and Meta-Analysis.*, *Cancers* 2022, 14, 4012. <https://doi.org/10.3390/cancers14164012>
- 2023 Bergantini L, Baldassarri M, d'Alessandro M, Brunelli G, Fabbri G, Zguro K, Degl'Innocenti A; GEN-COVID Multicenter study; Fallerini C, Bargagli E, Renieri A., *Ultra-rare RTEL1 gene variants associate with acute severity of COVID-19 and evolution to pulmonary fibrosis as a specific long COVID disorder.*, *Respir Res*. 2023 Jun 16;24(1):158. doi: 10.1186/s12931-023-02458-7. PMID: 37328761; PMCID: PMC10276396.
- 2024 Rosati D., Palmieri M., Brunelli G., Morrione A., Iannelli F., Frullanti E., Giordano A., *Differential gene expression analysis pipelines and bioinformatic tools for the identification of specific biomarkers: A review.*, *Computational and Structural Biotechnology Journal*, 2024
- 2024 Whitaker J., Edem I., Togun E., Amoah A.S., Dube A., Chirwa L., Munthali B., Brunelli G., Van Boeckel T., Rickard R., Leather A.J.M. Davies, J., *Health system assessment for access to care after injury in low- or middle-income countries: A mixed methods study from Northern Malawi.*, *PLoS Medicine*, 2024
- 2024 Daga S., Loberti L., Rollo G., Adamo L., Colavecchio OL., Brunelli G., Zguro K., Tripodi SA., Guarnieri A., Garosi G., D'Àurizio R., Ariani F., Tita R., Renieri A., Pinto AM., *Slowly progressive autosomal dominant Alport Syndrome due to COL4A3 splicing variant.*, *Eur J Hum Genet*, 2024

Conference

- 2022 Brunelli G, D'Aurizio R., *Identification of CRC sub-types by multi-omic data integration*, *Applied Bioinformatics in Life Sciences (4th edition)*, 10-11 MARCH 2022, LEUVEN, BELGIUM.
- 2023 Brunelli G., Adamo L., Zguro K., Daga S., Carullo M., Rollo G., Bruttini M., Antolini E., Longo I., Furini S., D'Aurizio R., Renieri a., *Sensitive Computational Workflow for Copy Number Variants Detection up to single exon for clinical exomes sequencing*, *ESHG conference 2023*, 10-13 JUNE 2023, GLASGOW, SCOTLAND

2024 Brunelli G., Idarola D., Tatoni D., Furini S., Renieri a., D'Aurizio R., *Extending Breast Cancer Associated Rare Variants at Population Level Using Bayesian Hierarchical Generalized Linear Model*, SIGU conference 2024,
2-4 OCTOBER 2024, PADUA, ITALY

Autorizzo il trattamento dei dati personali contenuti nel mio curriculum vitae ai sensi dell' art.13 del D.Lgs.196/2003 e all' art.13 del Regolamento UE 2016/679 per la protezione delle persone fisiche e giuridiche riguardo al trattamento dei dati personali

Ai sensi dell' art. 46 e 47 del DPR 445/2000, dichiaro che le informazioni inserite nel mio CV corrispondono a verità, essendo consapevole dell' eventuale applicazione dell' art.76 dello stesso articolo in caso di dichiarazione mendace.