

UNIVERSITÀ DEGLI STUDI DI MILANO

Selezione pubblica per n.1 posto/i di Ricercatore a tempo determinato in tenure track (RTT) per il gruppo scientifico-disciplinare 13/STAT-01 - STATISTICA , settore scientifico-disciplinare STAT-01/A - Statistica presso il Dipartimento di Dipartimento di Economia, Management e Metodi Quantitativi, (avviso bando pubblicato sulla G.U. n. 9 del 31/01/2025) Codice concorso 5686

Laura Bondi | Curriculum Vitae

Human Technopole, V.le Rita Levi Montalcini 1, Milan, Italy

✉ Email: laura.bondi@fht.org

🌐 Website: <https://laurabondi.github.io/>



Academic Positions

Health Data Science Centre, Human Technopole

Milan, Italy

Postdoctoral Researcher

Jan. 2024 – Present

I am part of the Di Angelantonio - Ieva group and my research focus is on statistical models to improve precision prevention and treatment of cardiovascular diseases using proteomic and genomic data . Furthermore, I collaborate with Bocconi University and the Cancer Registry of Norway to develop flexible multi-state models for the natural history of breast cancer.

Dondena Research Centre, Bocconi University

Milan, Italy

External Researcher

Sep. 2022 – Present

MRC Biostatistics Unit, Cambridge University

Cambridge, UK

Scientific Visitor

Jan. 2024 – Dec. 2024

Emmanuel College, Cambridge University

Cambridge, UK

College Research associate

Oct. 2023 – Sep. 2024

MRC Biostatistics Unit, Cambridge University

Cambridge, UK

Research Associate

Sep. 2021 – Dec. 2023

I worked within the “Precision Medicine” theme with Prof. Sylvia Richardson and Dr. Brian Tom and I was part of the “STePUP OA” consortium, led by the Kennedy Institute at Oxford University.



Education

Bocconi University

Milan, Italy

Ph.D. in Statistics (SECS-S/01)

Sep. 2017 – Feb. 2022

Final mark: cum laude. Advisor: Prof. Marco Bonetti.

Thesis's title: “Statistical models for the natural history of breast cancer”. Main topics of my PhD thesis: likelihood-free estimation of semi-Markov multi-state models with a cure-rate structure for intermittently observed data, distance functions based on pairwise dissimilarities between observations and exact inference methods for small samples.

Università degli Studi di Padova

Padua, Italy

M.Sc. in Statistical Sciences

Jan. 2015 – Mar. 2017

Final mark: 110/110 cum laude. Main fields of interest: Biostatistics, Data Mining, Causal Inference, Mathematical Statistics. Erasmus+ exchange at KU Leuven (Sep 2016-Feb 2017).

Thesis supervisors: Prof. Irene Gijbels (KU Leuven) and Prof. Alessandra Brazzale.

Thesis title: “Kernel estimation of quantile regression curves using copula modelling”.

Publications

Articles in refereed journals.....

BONDI L, PAGANO M, BONETTI M (2024). The sparsity index in Poisson size-biased sampling: Algorithms for the optimal unbiased estimation from small samples. *Statistics and Probability Letters*. Vol 214. <https://doi.org/10.1016/j.spl.2024.110217>

THE STEP-UP OA CONSORTIUM (2024). Development of methodology to support molecular endotype discovery from synovial fluid of individuals with knee osteoarthritis: The STEPUP OA consortium. *PLoS ONE* 19(11): e0309677. <https://doi.org/10.1371/journal.pone.0309677>

BONDI L, BONETTI M, GRIGOROVA D, RUSSO A (2023). Approximate Bayesian Computation (ABC) for the natural history of breast cancer with application to data from a cohort of disease-free women in Milan. *Statistics in Medicine*. 42(18):3093-3113. <https://doi.org/10.1002/sim.9756>

Refereed conference proceedings.....

BONDI L, FRANZOLINI B, PALMA M (2025). A longitudinal study of the gender gap in school grades via flexible Bayesian Beta regression. In: Pollice, A., Mariani, P. (eds) *Methodological and Applied Statistics and Demography III*. SIS 2024. Italian Statistical Society Series on Advances in Statistics. Springer, Cham. https://doi.org/10.1007/978-3-031-64431-3_39

BONDI L, BONETTI M, HOFVIND S (2023). A model for the natural history of breast cancer: application to Norwegian screening data. *Book of Short Papers of the Italian Statistical Society*. <https://it.pearson.com/docenti/universita/partnership/sis.html>

FRANZOLINI B, **BONDI L**, FASANO A, REBAUDO G (2023). Bayesian forecasting of multivariate longitudinal zero-inflated counts: an application to civil conflict. *CLADAG 2023 Book of Short Papers*. <https://it.pearson.com/docenti/universita/partnership/sis.html>

BONDI L, BONETTI M, PICCARRETA R (2022). An exploration of Approximate Bayesian Computation (ABC) and dissimilarities. *Book of Short Papers of the Italian Statistical Society*. <https://it.pearson.com/docenti/universita/partnership/sis.html>

Working papers - submitted or close to submission.....

THE STEP-UP OA CONSORTIUM (2024). Deconvoluting synovial fluid molecular endotypes in knee osteoarthritis: primary results from the STEPUP OA Consortium. Submitted. <https://www.medrxiv.org/content/10.1101/2024.06.05.24308485v2.full.pdf>

BONDI L, TOM B, RICHARDSON S (2025+). Bayesian profile regression for high dimensional data: identifying clinically meaningful disease subtypes from osteoarthritis proteomic data. Work in progress.

BONDI L, TRIZIO L, IEVA F, BONETTI M, HOFVIND S (2025+). Bayesian multi-state semi-Markov models for breast cancer natural history: results from the Norwegian BreastScreen data. Work in progress.



Teaching activities at university level in Italy and abroad

Politecnico di Milano

Milan, Italy

MSc Thesis Co-advisor

A.y. 2024/2025

I acted as co-advisor for the MSc thesis in Mathematical Engineering of Luca Trizio on the topic of implementing a Bayesian estimation procedure for semi-Markov multi-state models with a cure-rate structure. Title: "Reconstructing the natural history of breast cancer from screening data: Bayesian estimation of semi-markov mixture models."

Cambridge University

Cambridge, UK

Teaching Assistant

A.y. 2023/2024

For the course "Applied Data Analysis" for the MPhil programme in Population Health.

Università Bocconi

Milan, Italy

Teaching Assistant

A.A. 2018/2019 – A.A. 2020/2021

For the course "Advanced Mathematics and Statistics", BEMACS - Bachelor of Science in Economics, Management and Computer Science. Prof: A. Lijoi e F. Camerlenghi.

Università Bocconi

Milan, Italy

Teaching Assistant

A.A. 2018/2019 – A.A. 2019/2020

For the course "Statistica", Laurea Triennale in Economia e Management per Arte, Cultura e Comunicazione. Prof: E. Melilli e R. Graziani.

Università Bocconi

Milan, Italy

Teaching Assistant

A.A. 2018/2019 – A.A. 2019/2020

For the course "Statistica", Laurea Triennale in Economia aziendale e Management. Prof: E. Sironi, S. Venturini, G. Monti.

Università Bocconi

Milan, Italy

Teaching Assistant

A.A. 2019/2020

For the course "Matematica - Modulo 1 (Generale)", Laurea Triennale in Economia aziendale e Management. Prof: G. Osimo e F. Maccheroni.

Università Bocconi

Milan, Italy

Certificazione per l'insegnamento

A.A. 2018/2019

BEAT course for PhD Students — Bocconi Excellence in Advanced Teaching.



Training and research activities in Italy and abroad

Completed exams as part of the PhD programme at Università Bocconi.....

A.A. 2017/2018

Introduction to Statistics, Probability 1, Probability 2, Statistical Theory 1, Statistical Theory 2, Bayesian Statistical Theory 1, Bayesian Statistical Theory 2, Introduction to Real Analysis 1, Introduction to Real Analysis 2, Advanced Data Analysis 1, Advanced Data Analysis 2, Applied Regression, Stochastic Processes 1.

A.A. 2018/2019

Asymptotic Theory, Bayesian Non-Parametrics, Topics in Statistical and Machine Learning, Topics in Computer Science and Optimization, Statistics for Extremes, Advanced Stochastic Processes, Applied Survival Data Analysis, Models for Risk Evaluation, Computational Statistics, Statistical Inference for the Information Age (at Politecnico di Milano).

Other Training Activities.....

2nd Annual Symposium on Human Proteome

Oxford, UK

Workshop

June 2024

12th International Biometric Society - Italian Region (SIB) conference

Naples, Italy

Conference

July 2019

Data Research Camp **Venice, Italy**
Workshop *July 2019*
 It was a 3-day meeting where small research groups of young scholars were asked to develop innovative methods to analyse a common dataset. I worked in a group supervised by Professor David Rossell (Pompeu Fabra University).

Modern Methods in Biostatistics and Epidemiology **Cison di Valmarino, Italy**
Summer School *June 2019*
 I attended the course "Statistical methods for population-based cancer survival analysis" by Professors Paul Dickman (Karolinska Institutet) and Paul Lambert (Leicester University and Karolinska Institutet).

Bocconi Summer School in Advanced Statistics and Probability **Como, Italy**
Summer School *July 2018*
 I attended the Bocconi Summer School in Advanced Statistics and Probability: Graphical Models.

Research activities

Dondena Research Centre, Università Bocconi **Milan, Italy**
Ricercatrice esterna affiliata *September 2022 – Present*
 Carlo F. Dondena Centre for Research on Social Dynamics and Public Policy

MRC Biostatistics Unit, Cambridge University **Cambridge, UK**
Research Associate *September 2021 – December 2024*
 Supervisors: Prof. Sylvia Richardson and Dr. Brian Tom.

Cancer Registry of Norway **Oslo, Norway**
Research Visiting Periods *November 2022, November 2023*
 At the Section for Breast Cancer Screening, invited by Prof. Solveig Hofvind.

Katholieke Universiteit Leuven **Leuven, Belgium**
Research Visiting Period *May 2017 – June 2017*
 At the Department of Mathematics, invited by Prof. Irene Gijbels.

Peer-review activities

Referee for: Statistics in Medicine, Statistical Methods & Applications, Scientific Reports.

Review editor for: Frontiers in Applied Mathematics and Statistics.

Organization of international conferences

Scientific committee member for BAYSM 2023: Bayesian Young Statisticians Meeting is the official conference of j-ISBA, the junior section of the International Society for Bayesian Analysis (ISBA). November 2023.

Organization and participation to national and international research groups

Human Technopole and research partners **International**
Member of the iCARE4CVD consortium *Jan. 2024 - Present*
 iCARE4CVD is a public-private research collaboration aiming to personalise prevention and treatment of cardiovascular disease. The project is led by Maastricht University and Novo Nordisk and joins 34 leading international partners from civil society, academia and industry. <https://icare4cvd.eu/>

Human Technopole and Cambridge University **Milan, Italy and Cambridge, UK**
Member of the 'Proteomics' research group *Jan. 2024 - Present*
 Collaboration between the Health Data Science Centre at Human Technopole and the Department of Public Health and Primary Care, University of Cambridge, involving large-scale proteomics data aimed at investigating multidimensional determinants of cardio-metabolic diseases in European and South Asian populations.

Dondena Research Centre, Bocconi University*External Researcher***Milan, Italy***Sep. 2022 - Present*

I collaborate with Dondena's researchers with a focus on public health projects. <https://dondena.unibocconi.eu/>

Cancer Registry of Norway and Bocconi University**Oslo, Norway and Milan, Italy***Founding Member of an international collaboration**Jan. 2022 - Present*

This collaboration was established with the aim of developing methodology to study the insurgence and evolution of breast cancer, with a specific focus on the Norwegian breast cancer screening data.

Kennedy Institute of Rheumatology, University of Oxford**Oxford, UK***Member of the research consortium 'STEpUP OA'**Sep. 2021 - Dec. 2023*

International collaboration led by the Kennedy Institute of Rheumatology aiming at studying the heterogeneity of osteoarthritis at a molecular level using cutting edge methods to measure over 7000 different proteins in each of the fluid samples and studying these alongside standard clinical factors. I was involved as a statistical partner from the MRC Biostatistics Unit working on dimensionality reduction and clustering methods. <https://www.kennedy.ox.ac.uk/oacentre/stepup-oa>

University of Cambridge**Cambridge, UK***Member of the 'Precision Medicine' research group**Sep. 2021 - Dec. 2023*

Active participant in the 'Precision Medicine' research theme at the MRC Biostatistics Unit as part of Prof. Richardson's and Dr. Tom's research groups. <https://www.mrc-bsu.cam.ac.uk/research/precision-medicine>

 **Talks and Seminars****IBC 2024****Atlanta, US***Abstract Accepted**December 2024*

32nd International Biometric Conference.

"Semi-Markov multi-state models for the natural history of breast cancer with application to two large screening datasets"

My abstract had been selected for an oral presentation which was given by my co-author Marco Bonetti because I could not attend the conference in person.

ISCB 2023**Milan, Italy***Contributed Talk**August 2023*

44th Conference of the International Society for Clinical Biostatistics.

"Prioritising the outcome in Bayesian profile regression: an application to osteoarthritis proteomic data"

BSU Seminar**Cambridge, UK***Invited Talk**August 2023*

Internal cycle of seminars of the MRC Biostatistics Unit.

"Bayesian profile regression for high-dimensional data: an application to osteoarthritis proteomic data"

EcoSta 2023**Tokyo, Japan***Contributed Talk**August 2023*

EcoSta 2023 - 6th International Conference on Econometrics and Statistics.

"Bayesian profile regression for high-dimensional data: an application to osteoarthritis proteomic data"

SIS 2023**Ancona, Italy***Contributed Talk**June 2023*

SIS 2023 - Statistical Learning, Sustainability and Impact Evaluation.

"A model for the natural history of breast cancer: application to a Norwegian screening dataset"

STEpUP OA**Oxford, UK***Invited Talk**January 2023*

STEpUP OA Annual Consortium Meeting 2023.

"Bayesian profile regression for high-dimensional proteomic data: semi-supervised clustering applied to identify clinical subtypes of osteoarthritis"

ISBA 2022**Montreal, Canada***Contributed Talk**June 2022*

International Society for Bayesian Analysis (ISBA) World Meeting.

"Approximate Bayesian Computation (ABC) for the natural history of breast cancer, with application to data from a Milan cohort study"

SIS 2022**Caserta, Italy***Contributed Talk**June 2022*51st Scientific Meeting of the Italian Statistical Society.

"An exploration of ABC and dissimilarities"

CMStatistics 2021**London, UK***Contributed Talk**December 2021*

14th International Conference of the ERCIM WG on Computational and Methodological Statistics.

"Unbiased estimation of the sparsity index in Poisson size-biased sampling for small sample sizes"

ISCB 2021**Virtual***Contributed Talk**July 2021*

42nd Conference of the International Society for Clinical Biostatistics.

"Models for the Natural History of Breast Cancer"

IBS-EMR 2021**Virtual***Invited Talk**April 2021*

Conference of the Eastern Mediterranean Region, International Biometric Society.

"Models for the Natural History of Breast Cancer"

IBC 2020**Virtual***Poster Session**August 2020*

30th Conference of the International Biometric Society.

"Modelling the Natural History of Breast Cancer: a study on a cohort of disease-free women"

**Awards**

*Seal of Excellence**February 2025*

I was awarded the Seal of Excellence by the European Commission for my research project "DiaBeat-Pro: Enhancing personalised prevention and early diagnosis for type 2 diabetes in South Asians using proteomic data." https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/seal-excellence_en

*Premio Maria Chiara Magri**April 2023*

I was awarded a prize (1500 Euros) in memory of Maria Chiara Magri for my article "Approximate Bayesian computation for the natural history of breast cancer, with application to data from a Milan cohort study" (for more details, see <https://epiprev.it/page/premio-maria-chiara-magri>, in Italian only).

*ISBA Travel Award**June 2022*

Junior Travel Support to attend the 2022 ISBA World Meeting in Montreal (500\$).

*Bocconi University PhD Scholarship**Sep. 2017 - Aug. 2021**Erasmus+ Scholarship**Sep. 2016 - Feb. 2017*

Merit-based scholarship by the Erasmus+ program to spend a semester at Katholieke Universiteit Leuven (KU Leuven) to write my master's thesis.

Programming Skills

Advanced: R, L^AT_EX

Basic: Stata, SAS, MATLAB, C, Python

Language Skills

Italian: Mother tongue

English: Fluent, C1 level.

Milano, 28/02/2025