Beatrice Franzolini - CV

UPDATED: June 2023

Contact information

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Current positions

Jan 2022–present **Research Fellow**, Agency for Science, Technology and Research (**A*STAR**) , Singapore Institute for Clinical Sciences (SICS), in Singapore, Republic of Singapore.
*As part of this appointment, I am a member of the Division of Biomedical Data Science (BiDS), led by Prof. Maria De Iorio., at the National University of Singapore (**NUS**).*

Education

Sep 2017 - Feb 2022 ***PhD in Statistics*, Bocconi University** (Milan, Italy)

Thesis:	On Dependent Processes in Bayesian Nonparametrics: Theory, Methods, and Applications
Advisors:	Antonio Lijoi, Igor Prünster
Final Mark:	with honours (cum laude)

Sep 2014 - Apr 2017 ***Master of Science in Finance*, Bocconi University** (Milan, Italy)

Thesis:	Can a Consumption-Based Stochastic Discount Factor Jointly Price the Cross-section of Commodity Futures Returns?
Advisor:	Massimo Guidolin
Final Mark:	with honours (110/110 cum laude)

Sep 2011- Jul 2014 ***Bachelor in Statistics*, University of Bologna** (Bologna, Italy)

Thesis:	Utility Functions for C-CAPM: an Empirical Analysis to Compare CRRA Functions with Epstein and Zin Function.
Advisor:	Luca De Angelis
Final Mark:	with honours (110/110 cum laude)

Research interests

Bayesian nonparametric statistics, Probabilistic machine learning, Bayesian modelling of complex data, Cluster Analysis, Bayesian methodology, Gaussian graphical models, Biostatistics, Financial econometrics.

Past academic positions

Jun 2020–Jun 2023	*Research affiliate*, BayesLab of the Bocconi Institute for Data Science and Analytics (Milan, Italy)
Nov 2021–Jan 2022	*Research assistant*, Bocconi Institute for Data Science and Analytics (Milan, Italy)
Sep 2017–Jan 2022	*PhD student in Statistics* (merit-based fellowship), Bocconi University (Milan, Italy)
Sep 2019–Aug 2021	*Adjunct professor*, Bocconi University (Milan, Italy)
Sep 2018–Aug 2021	*Teaching assistant*, Bocconi University (Milan, Italy)
Sep 2019–Aug 2020	*Teaching assistant*, Catholic University of the Sacred Heart (Milan, Italy)
Apr 2017–Jul 2017	*Research assistant*, Bocconi University (Milan, Italy)
Jul 2016–Jul 2017	*Tutor* assisting MSc students with thesis preparation, Bocconi University (Milan, Italy)
Jul 2016–Sep 2016	*Research assistant*, Bocconi University (Milan, Italy)

Preprints and submitted papers

- Franzolini, B., De Iorio, M., and Eriksson, J. (2023+). Conditional partial exchangeability: a probabilistic framework for multi-view clustering. arXiv:2307.01152 (status: submitted)
- Ascolani, F., **Franzolini, B.**, Lijoi, A., and Prünster, I. (2023+). *Nonparametric priors with full-range borrowing of information* (status: revision requested)
- **Franzolini, B.** and Rebaudo, G. (2023+). *Entropy regularization in probabilistic clustering* (status: revision requested)

Articles in refereed journals

(1) **Franzolini, B.**, Beskos, A., De Iorio, M., Poklewski-Koziell, W. P., and Grzeszkiewicz, K. (2023+). *Change-point detection in dynamic Gaussian graphical models: the impact of COVID-19 pandemic on US stock market*, The Annals of Applied Statistics, *in press*.

(2) **Franzolini, B.**, Lijoi, A., and Prünster, I. (2023). *Model selection for maternal hypertensive disorders with symmetric hierarchical Dirichlet processes*, The Annals of Applied Statistics, 17(1), 313-332. `https://doi.org/10.1214/22-AOAS1628`

(3) **Franzolini, B.**, Cremaschi, A., van den Boom, W., and De Iorio, M. (2023). *Bayesian clustering of multiple zero-inflated outcomes*, Philosophical Transactions of the Royal Society A, 381(2247), 20220145. `https://doi.org/10.1098/rsta.2022.0145`

Refereed proceedings and discussions

(4) **Franzolini, B.**, Bondi, L., Fasano, A., and Rebaudo, G. (2023). *Bayesian forecasting of multivariate longitudinal zero-inflated counts: an application to civil conflict.* In Book of Short Papers CLADAG 2023, in press.

(5) Fasano, A., Anceschi, N., **Franzolini, B.**, and Rebaudo, G. (2023). *Efficient computation of predictive probabilities in probit models via expectation propagation.* In Book of Short Papers CLADAG 2023, in press.

(6) Fasano, A., Anceschi, N., **Franzolini, B.**, and Rebaudo, G. (2023). *Efficient expectation propagation for posterior approximation in high-dimensional probit models.* In Book of Short Papers SIS 2023, in press.

(7) Rebaudo G., Fasano, A., **Franzolini, B.**, and Müller, P. (2023). *A discussion on: "Evaluating sensitivity to the stick-breaking prior in Bayesian nonparametrics" by Giordano, R., Liu, R., Jordan M. I. and Broderick T.*, Bayesian Analysis, 18(1), 287-366. `https://doi.org/10.1214/22-BA1309`

(8) **Franzolini, B.** and Rebaudo, G. (2022). *A regularized-entropy estimator to enhance cluster interpretability in Bayesian nonparametrics.* In Book of Short Papers SIS 2022 (Editors: Balzanella, A., Bini, M., Cavicchia, C. and Verde, R.). ISBN 9788891932310

(9) Ascolani, F., **Franzolini, B.**, Lijoi, A., and Prünster, I. (2021). *On the dependence structure in Bayesian nonparametric priors.* In Book of Short Papers SIS 2021 (Editors: Perna, C., Salvati, N. and Schirripa Spagnolo, F.). ISBN 9788891927361

Conferences, talks, and seminars

Invited talks

- 16th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2023), Berlin, Germany (December 2023 - upcoming).
- 6th International Conference on Econometrics and Statistics (ECOSTA 2023), Tokyo, Japan (August 2023 - upcoming).
- Approximation Methods in Bayesian Analysis @ CIRM , Marseille, France (June 2023)
- 15th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2022), London, UK (December 2022).
- 2022 World Meeting of the International Society for Bayesian Analysis (ISBA 2022), Montreal, Canada (June 2022). Travel award (700 USD).
- 51st Meeting of the Italian Statistical Society (SIS 2022), Caserta, Italy (June 2022).
- 5th International Conference on Econometrics and Statistics (ECOSTA 2022), Kyoto, Japan (June 2022).
- Foundations of Objective Bayesian Methodology workshop, Oaxaca, Mexico (November 2021).
- 4th International Conference on Econometrics and Statistics (ECOSTA 2021), virtual conference - Hong Kong (June 2021).
- 13th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMSTATISTICS 2020), virtual conference (December 2020).
- 45th Arkansas Spring Lectures Series - Mathematical Sciences, virtual lectures - Fayetteville, USA (November 2020).

Contributed talks

- 13th International Conference on Bayesian Nonparametrics (BNP13 2022), Puerto Varas, Chile (October 2022). Travel award (1000 USD).
- Workshop ISBA@CIRM, Marseille, France (June 2021).
- 2021 World Meeting of the International Society for Bayesian Analysis (ISBA 2021),virtual conference (June 2021).
- 50th Meeting of the Italian Statistical Society (SIS 2021), virtual conference - Pisa, Italy (June 2021).

Awards and funding

- 2022 Travel award, BNP world meeting (1000 USD)
- 2022 Travel award, ISBA world metting (700 USD)
- 2021 Financial support, Bocconi University
- 2017-21 Merit-based Ph.D. fellowship, Bocconi University

Professional services

- **Chair-Elect** for j-ISBA section of ISBA - International Society for Bayesian Analysis (y. 2023).
- **Member of the scientific committee** for
  - the Blackwell-Rosenbluth award by j-ISBA (y. 2023) - j-ISBA liaison,
  - the BAyesian Young Statisticians Meeting (BAYSM:O 2023) conference by j-ISBA (y. 2023).
- **Session organizer** at the 6th International Conference on Econometrics and Statistics (ECOSTA 2023), Tokyo, Japan. Invited session title: "Advances in Bayesian nonparametrics and model-based clustering".
- **Referee** for *Bayesian Analysis*, *BAYSM* (BAyesian Young Statisticians Meeting), *Biostatistics*, *Computational Statistics and Data Analysis*, *Journal of the American Statistical Association*, *Stat*, and *Statistical Science*.
- **Coordinator**, monthly reading group of Statistics, at NUS and A*STAR (Singapore, Repubblic of Singapore).
- **Contributing editor**, Zanichelli editore S.p.A, 2016–2019 (Bologna, Italy).
- **Reasearch assistanship** for: Guidolin, M., and Thornton D. L. *Predictions of short-term rates and the expectations hypothesis.* International Journal of Forecasting 34.4 (2018): 636-664.
- **Writing assistanship** for Chapter 1 of the book "*Essentials of time series for financial applications*, Guidolin M. and Pedio M. , Academic Press, 2018."
- **Volonteer** for
  - RiminiInRete, a digital database for studying and improving Rimini's school system (Rimini, Italy),
  - European Researchers' Night 2019 (Milan, Italy),
  - Fondazione Rodolfo Debenedetti, project: racCONTAMI 2018, Third Census of Homeless People in Milan (Milan, Italy).

Society memberships

Institute of Mathematical Statistics (IMS) ; International Society for Bayesian Analysis (ISBA); Italian Statistical Society (SIS); Complex Data Modeling Research Network (MiDaS).

Public software

1. GitHub repository `CPE`: `R` code for *Conditional partial exchangeability: a probabilistic framework for multi-view clustering*
2. GitHub repository `DynamicGGM`: `R` code for *Change point detection in dynamic Gaussian graphical models*.
3. GitHub repository `MFMmultiHurdle`: `R` code for *Bayesian Clustering of Multiple Zero-Inflated Outcomes*.
4. GitHub repository `sHDP`: `Python` code for *Model Selection for Maternal Hypertensive Disorders with Symmetric Hierarchical Dirichlet Processes*

Teaching activities

Course title	Level	Univeristy	Type of activity*	Period	Duration
Statistica	BSc	Bocconi University	T	a.y. 2020-2021	20h
Financial Economentrics and Empirical Finance	MSc	Bocconi University	T	a.y. 2020-2021	12h
Statistica	BSc	Bocconi University	T	a.y. 2019-2020	40h
Statistica	BSc	Bocconi University	TA	a.y. 2020-2021	90h
Financial Economentric and Empirical Finance	MSc	Bocconi University	TA	a.y. 2020-2021	18h
Statistica	BSc	Bocconi University	TA	a.y. 2019-2020	90h
Financial Economentrics and Empirical Finance	MSc	Bocconi University	TA	a.y. 2019-2020	18h
Statistics	BSc	Catholic University of the Sacred Heart	TA	a.y. 2019-2020	24h
Statistica	BSc	Bocconi University	TA	a.y. 2018-2019	90h
Financial Economentrics and Empirical Finance	MSc	Bocconi University	TA	a.y. 2018-2019	18h
Metodi quantitativi per la finanza	BSc	Bocconi University	TA	a.y. 2018-2019	57h

*** T = as lecturer; TA = as teaching assistant**

Other education

2023 **Grant writing** , Introduction to grant writing: writing effective grant proposals (Singapore)
Instructor: J. Lebrun

2018 **Graphical Models**, Bocconi Summer School in Advanced Statistics and Probability (Como, Italy)
Instructors: S. Lauritzen (University of Copenhagen) and R. Evans (University of Oxford)

2018 **Bocconi Excellence in Advanced Teaching** (BEAT) by BUILT (Milan, Italy)