Beatrice Franzolini

Contact information

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Current positions

Jan 2022–present	***Research Fellow***, Agency for Science, Technology and Research (Singapore) (*PI*: Maria De Iorio),
Jun 2020–present	***Research Affiliate***, BayesLab, Bocconi Institute for Data Science and Analytics (BIDSA)

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)

Past academic positions

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*, Bocconi University (Milan, Italy)
Jul 2016–Sep 2016	*Research assistant*, Bocconi University (Milan, Italy)

Research interests

Bayesian nonparametrics, Bayesian modelling of complex data, Gaussian graphical moodels, Cluster Analysis, Bayesian methodology, Biostatistics, Financial econometrics.

Papers and scientific publications

(1) **Franzolini, B.**, Lijoi, A., and Prünster, I. (2022) *Model selection for maternal hypertensive disorders with symmetric hierarchical Dirichlet processes*, The Annals of Applied Statistics, in press.

(2) **Franzolini, B.**, Cremaschi, A., van den Boom, W. and De Iorio, M. (2022). *Bayesian clustering of multiple zero-inflated outcomes*, Philosophical Transactions of the Royal Society A, in press.

(3) **Franzolini, B.** and Rebaudo, G. (2022). *A regularized-entropy estimator to enhance cluster interpretability in Bayesian nonparametrics.* In Book of Short Papers SIS 2022.

(4) 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

(5) **Franzolini, B.** (2022) On Dependent Processes in Bayesian Nonparametrics: Theory, Methods, and Applications. *Ph.D. Thesis.*

Submitted papers

(6) Ascolani, F., **Franzolini, B.**, Lijoi, A., and Prünster, I. (2022). *Nonparametric priors with full-range borrowing of information* (status: revision requested)

(7) **Franzolini, B.**, Beskos, A., De Iorio, M., Poklewski-Koziell, W. P. and Grzeszkiewicz, K. (2022+). *Change-point detection in dynamic gaussian graphical models: the impact of COVID-19 pandemic on US stock market* (status: under review)

Papers in preparation

(8) **Franzolini, B.**, Lijoi, A., Prünster, I. and Rebaudo, G. (2022+). *Multivariate species sampling models* (in preparation - a preliminary version can be found in Chapter 2 of the PhD thesis)

(9) **Franzolini, B.**, Lijoi, A. and Prünster, I. (2022+). *Dependent processes for panel count data* (in preparation - a preliminary version can be found in Chapter 5 of the PhD thesis)

(10) **Franzolini, B.** and De Iorio, M. (2022+). *Multi-layer probabilistic clustering* (in preparation)

(11) Cremaschi A., **Franzolini, B.** and De Iorio, M. (2022+). *Bayesian nonparametric item response models: a joint analysis of eating-behaviour questionnaires and Z-BMI trajectories in GUSTO* (in preparation)

(12) **Franzolini, B.** and De Iorio, M. (2022+). *Geometry of scale mixtures* (in preparation)

(13) **Franzolini, B.** and Rebaudo, G. (2022+). *Entropy-regularized probabilistic clustering* (in preparation)

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**

Conferences, talks, and seminars

Invited talks

- 15th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2022), London, UK (December 2022).
- 2022 International Indian Statistical Association Conference (IISA 2022), Bengaluru, India (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 activities

- Candidate as Chair-Elect for j-ISBA section of ISBA for 2022 upcoming elections.
- Referee for *Bayesian Analysis*, *Biostatistics*, *Journal of the American Statistical Association*, and *Stat*.
- Coordinator, monthly reading group of Statistics, at NUS and A*STAR (Singapore).
- Volonteer for RiminiInRete, a digital database for studying and improving Rimini's school system (Rimini, Italy).
- Contributing editor, Zanichelli editore S.p.A, 2016–2019 (Bologna, Italy).
- Volunteer for the European Researchers' Night 2019 (Milan, Italy).
- Volunteer for Fondazione Rodolfo Debenedetti, project: racCONTAMI 2018, Third Census of Homeless People in Milan (Milan, 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."

Society memberships

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

Other education

2022 **Grant writing** , Taking Science for Grant-ed: writing effective grant proposals (Singapore)

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)

Public softwares

- GitHub repository `DynamicGGM`: `R` code for *Change point detection in dynamic Gaussian graphical models*.
- GitHub repository `MFMmultiHurdle`: `R` code for *Bayesian Clustering of Multiple Zero-Inflated Outcomes*.
- GitHub repository `sHDP`: `Python` code for *Model Selection for Maternal Hypertensive Disorders with Symmetric Hierarchical Dirichlet Processes*

Language skills

Italian (native speaker), English (good), Spanish (basic).

Computer skills

R, Python, MATLAB, LaTeX, Stata, SAS, and EViews.