

Francesco GAFFI

CURRENT POSITION: Researcher in Statistics
Bocconi Institute for Data Science and Analytics
Bocconi University, Italy
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EDUCATION

2023	Ph.D. in STATISTICS, <i>cum laude</i> Bocconi University , Milano, Italy Supervisors: Antonio Lijoi and Igor Prünster Thesis: Modeling with discrete random probability measures Defence date: January 23rd, 2023
2018	M.Sc. in PURE AND APPLIED MATHEMATICS, <i>cum laude</i> Università di Roma Tor Vergata , Italy Supervisor: Domenico Marinucci Thesis: Functional data analysis on $\mathcal{L}^2(\mathbb{S}^2)$ Defence date: July 24th, 2018
2016	B.Sc. in MATHEMATICS Università di Roma Tor Vergata , Italy
2014	M.Mus. in ORCHESTRAL REPERTOIRE AND CHAMBER MUSIC, <i>cum laude</i> Conservatorio Licinio Refice , Frosinone, Italy
2011	B.Mus. in CLARINET Conservatorio Licinio Refice , Frosinone, Italy

ACADEMIC POSITIONS

2025 - NOW	Researcher , Bocconi Institute for Data Science and Analytics, Milano, Italy
2024 - 2025	Postdoctoral Associate , University of Maryland, College Park, MD, USA
2023 - 2024	Postdoctoral Associate , University of Notre Dame, IN, USA
2022 - 2023	Ph.D. Candidate , Bocconi University, Milano, Italy
2018 - 2022	Ph.D. Student , Bocconi University, Milano, Italy

INDUSTRY EXPERIENCE

2016 - 2017	Quantitative analyst intern , Ladbrokes Coral, Roma, Italy
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AWARDS&FUNDING

2025	BNP14 Travel Award, International Society for Bayesian Analysis
2024	★ ISBA2024 Travel Award, University of California, Los Angeles ★ Scientific Exchange support, Swiss National Science Foundation
2023	★ Robert and Sara Lumpkins Postdoctoral Fellowship (3.5 years), University of Notre Dame ★ Student Paper Award, American Statistical Association - Section on Bayesian Statistical Science
2022	★ Special financial support for PhD candidates, Fondazione Invernizzi ★ ISBA2022 Travel Award, International Society for Bayesian Analysis ★ BNP2022 Travel Award, International Society for Bayesian Analysis
2018	PhD Scholarship (4 years), Bocconi University
2014	‘V. Mancini’ Award for Best Graduate Student - Winds Section, Conservatorio Licinio Refice

PUBLICATIONS

Working papers

ALAMICHEL, L., DURANTE, D., RIGON, T., GAFFI, F. **Enriched stochastic block models.**

GHIDINI, V., FRANZOLINI, B., GAFFI, F., DURANTE, D. **Bayesian stochastic block models for exchangeable multiplex networks.**

FRANZOLINI, B., GAFFI, F. **Scalable slice sampling for (hierarchical) Dirichlet process mixtures.**

GAFFI, F., FRANZOLINI, B., JOSEPHS, N., LIN, L. **Dependent random partitions for data integration in networks.**

GAFFI, F., JOSEPHS, N., LIN, L. **Exchangeable random permutations for graph matching.**

FRANZOLINI, B., GAFFI, F. **An invariance-based approach to dynamic block detection in networks.**

GAFFI, F., LIJOI, A., PRÜNSTER, I. **Transition probabilities of continual Young diagrams and Dirichlet random means.**

Journal papers

DURANTE, D., GAFFI, F., LIJOI, A., PRÜNSTER, I. (2025). **Partially exchangeable stochastic block models for (node-colored) multilayer networks.** *Journal of the American Statistical Association*, 1-32. <https://doi.org/10.1080/01621459.2025.2507825>
[2023 ASA-SBSS Student Paper Award winner]

GAFFI, F., LIJOI, A., PRÜNSTER, I. (2025). **Random probability measures with fixed mean distributions.** *Annals of Applied Probability*, 35(4), 2239-2261. <https://doi.org/10.1214/24-AAP2130>

Conference proceedings

GAFFI, F. (2025). **Modeling multiple node-colored networks with partial exchangeability.** In *Statistics for Innovation III. SIS 2025*, Italian Statistical Society Series on Advances in Statistics, Springer. https://doi.org/10.1007/978-3-031-95995-0_46

GAFFI, F. (2025). **Conditionally partially exchangeable partitions for dynamic networks.** To appear in *New Trends in Bayesian Statistics*, Springer Proceedings in Mathematics and Statistics.

GAFFI, F., LIJOI, A., PRÜNSTER, I. (2022). **Specification of the base measure of nonparametric priors via random means.** In *New Frontiers in Bayesian Statistics. BaYSM 2021*, Springer Proceedings in Mathematics and Statistics, vol 405, Springer. https://doi.org/10.1007/978-3-031-16427-9_9

Discussions

CATALANO, M., GAFFI, F. (2025). **Contributed discussion on “A tree perspective on stick-breaking models in covariate-dependent mixtures”** by Horiguchi, A., Chan, C., and Ma, L. To appear in *Bayesian Analysis*.

Theses

GAFFI, F. (2023). **Modelling with discrete random probability measures.** Bocconi University, Milano.

GAFFI, F. (2018). **Functional data analysis on $\mathcal{L}^2(\mathbb{S}^2)$** . Università di Roma Tor Vergata, Roma.

EDITORIAL WORK

Reviewer *Bayesian Analysis, Electronic Journal of Statistics, Journal of Complex Networks, Journal of Econometrics, Journal of Machine Learning Research, Journal of the American Statistical Association, Statistics and Computing, Statistics and Probability Letters, Stochastic Processes and their Applications.*

Committees 2024 ASA-SBSS Student Paper Award

NETWORKS AND SOCIETIES

Member of	International Society for Bayesian Analysis, ISBA Institute of Mathematical Statistics, IMS Complex Data Modeling Research Network, led by MiDaS Società Italiana di Statistica, SIS International Indian Statistical Society, IISA American Statistical Society, ASA
External affiliate of	BayesLab, Bocconi Institute for Data Science and Analytics

RESEARCH SUPERVISION

2025	Edoardo Stefanelli, Research Assistant, Bocconi Institute for Data Science and Analytics (<i>with Beatrice Franzolini</i>)
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PRESENTATIONS

Invited talks

DEC 2025	Bayesian Uncertainty Quantification in Large Models , Chennai Mathematical Institute, India.
SEP 2025	The Mathematics of Subjective Probability , Università di Milano-Bicocca, Italy.
JUN 2025	BNP14 , 14th International Conference on Bayesian Nonparametrics, University of California Los Angeles, USA.
JAN 2025	Recent Developments in the Techniques of the Bayesian Paradigm , Banaras Hindu University, Varanasi, India.
SEP 2024	Frontiers of Bayesian Inference and Data Science , Casa Matemática Oaxaca, Mexico.
AUG 2024	Bernoulli-IMS2024 , 11th World Congress in Probability and Statistics, Ruhr-Universität Bochum, Germany.
JUL 2024	ISBA2024 , World Meeting of the International Society for Bayesian Analysis, Università Ca' Foscari, Venezia, Italy.
JUN 2024	Satellite workshop to ISBA World Meeting , Università della Svizzera Italiana, Lugano, Switzerland. Fourth Italian Meeting on Probability and Mathematical Statistics , Roma, Italy.
AUG 2023	JSM2023 , Joint Statistical Meetings, Toronto, Canada. EcoSta2023 , 6th International Conference on Econometrics and Statistics, Waseda University, Tokyo, Japan.
JUN 2023	10th International Purdue Symposium on Statistics , Purdue University, West Lafayette, USA.
DEC 2022	IISA2022 , International Indian Statistical Association Conference, Indian Institute of Science, Bengaluru, India.
JUN 2022	Third Italian Meeting on Probability and Mathematical Statistics , Alma Mater Studiorum, Bologna, Italy.
JUN 2021	EcoSta2021 , 4th International Conference on Econometrics and Statistics, virtual.

Contributed talks

JUN 2025	SIS2025 , Statistics for Innovation, Università di Genova, Italy.
MAY 2025	BISP14 , 14th Bayesian Inference for Stochastic Processes Workshop, Consiglio Nazionale delle Ricerche, Milano, Italy.
APR 2025	BaYSM2025 , Bayesian Young Statisticians Meeting, virtual.
NOV 2023	BaYSM2023 , Bayesian Young Statisticians Meeting, virtual.
JUN 2022	ISBA2022 , World Meeting of the International Society for Bayesian Analysis, Montréal, Canada.
APR 2022	BNP2022 , BNP Networking event, University of Cyprus, Nicosia, Cyprus.
SEP 2021	BaYSM2021 , Bayesian Young Statisticians Meeting, virtual.
JUN 2021	ISBA2021 , World Meeting of the International Society for Bayesian Analysis, virtual. ISBA@CIRM , Junior session of ISBA2021 mirror event, Centre International de Rencontres Mathématiques, Marseille, France.

Poster sessions

JUN 2024	BaYSM2024 , Bayesian Young Statisticians Meeting, Università Ca' Foscari, Venezia, Italy.
JUN 2023	Approximation Methods in Bayesian Analysis , Centre International de Rencontres Mathématiques, Marseille, France.
OCT 2022	BNP13 , 13th International Conference on Bayesian Nonparametrics, Puerto Varas, Chile.

SUMMER SCHOOLS

JULY 2019	<i>Random graphs and complex networks: structure and function</i> , Bocconi Summer School in Advanced Statistics and Probability, Como, Italy
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TEACHING

Experience

2024 - 2025	Lecturer , University of Maryland, College Park ★ Applied probability and statistics, B.Sc. in Computer Science (3 semesters) ★ High-dimensional statistical models, Ph.D. in Statistics (1 guest lecture)
2023 - 2024	Lecturer , University of Notre Dame ★ Probability, B.Sc. in Applied Mathematics and Statistics (1 semester)
2020 - 2023	Adjunct lecturer , Bocconi University ★ Probability, B.Sc. in Mathematics for AI (2 semesters) ★ Probability, Ph.D. in Economics and Finance (3 semesters) ★ Statistics, B.Sc. in Economics (2 semesters)
2019 - 2023	Teaching assistant , Bocconi University ★ Optimal control, M.Sc. in Data Science (3 semesters) ★ Statistics, B.Sc. in Economics (4 semesters) ★ Stochastic processes, M.Sc. in Data Science (4 semesters) ★ Probability, B.Sc. in Mathematics for AI (2 semesters)
2017 - 2018	Teaching assistant , Università di Roma Tor Vergata ★ Discrete mathematics, B.Sc. in Computer Science

Publications

FORTINI, S., GAFFI, F. (2021). **Introduction to Probability. BAI 30456.** Bai series. Volume 2. Egea, Milano.

Certifications

2019 | Bocconi Excellence in Advanced Teaching
<https://bestr.it/award/show/8b3a93e2027f4cbb8988f46cd3ba6371a0e5d075>

COMPUTER SKILLS

Programming languages: C/C++, LATEX
Software: R, MATLAB
Environments: Microsoft Windows, Linux distributions