

FEDERICO CAMERLENGHI

PERSONAL INFORMATION

- Birth: July 20, 1988, Mantova, Italy.
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- Office number: +39 0264483271

CURRENT POSITION

- **November 2019 – today:** Senior assistant Professor (RTDb), Department of Economics, Management and Statistics, University of Milano-Bicocca, Milano, Italy.

OTHER AFFILIATIONS

- **December 2016 – today:** Affiliate, BIDSa (Bocconi Institute for Data Science and Analytics), Bocconi University, Milano.
- **July 2014 – today:** Affiliate, *de Castro* Statistics Initiative, Collegio Carlo Alberto, Moncalieri (TO).

PAST POSITIONS

- **January 2018 – October 2019:** Junior assistant Professor (RTDa), Department of Economics, Management and Statistics, University of Milano-Bicocca, Milano, Italy.
- **January 2017 – December 2017:** Postdoctoral fellow, Department of Statistical Sciences, University of Bologna, Bologna.
- **January 2016 – December 2016:** Postdoctoral fellow, Department of Decision Sciences, Bocconi University, Milano.

EDUCATION

- **October 2012 – November 2015:** Ph.D. in Mathematics and Statistics, University of Pavia. Supervisors: Prof. Antonio Lijoi and Prof. Igor Prünster. Thesis defense: December 1, 2015.
- **November 2012 – December 2016:** Student of the Biomedical University Residence, Pavia.
- **October 2010 – September 2012:** Master of Science in Mathematics, University of Milano. Degree: 110/110 cum laude.
- **October 2007 – September 2010:** Bachelor of Science in Mathematics, University of Modena and Reggio Emilia. Degree: 110/110 cum laude.
- **September 2002 – July 2007:** Scientific high school (*liceo*) "Belfiore", Mantova. Diploma: 100/100.

HONORS AND AWARDS

Awards:

- **2019:** National Scientific Qualification (ASN) to the role of Associate Professor in the area 13/D1 STATISTICS from 20/12/2019 to 20/12/2028.
- **2019:** Winner of the award "Premio Giovani Talenti 2019", University of Milano – Bicocca, Italy.
- **December 2018:** Joint recipient of a European Research Council (ERC) Consolidator Grant. Research team: Federico Camerlenghi, Emanuele Dolera, Stefano Favaro (PI).
- **2017:** Savage award in Theory and Methods, International Society for Bayesian Analysis.
- **2016:** award for the best Ph.D. thesis in Statistics, Italian Statistical Society.
- **2012:** Phd Scholarship, University of Pavia, Italy.
- Received the merit-based tuition refund scholarship (granted to the top students of the Faculty of Science at the University of Modena and Reggio Emilia) for the academic years **2007-2008, 2008-2009, 2009-2010**.
- Received the merit-based Student Prize "Premio di Studio" at the University of Modena and Reggio Emilia in the academic years

2007-2008, 2008-2009, 2009-2010.

- Received the merit-based Student Prize "Premio di Laurea" at the University of Modena and Reggio Emilia for the academic year 2009-2010: first place among all the students of the Faculty of Science.
- Received the merit-based Prize "Premio al Merito" from Mantova Industrial Federation for the exceeding Liceo final result.

Travel awards:

- **2016:** travel award grant from the Biomedical University Residence (Pavia) to attend the Statalk Computational tools for Statistical Modeling, Roma, September 2016.
- **2016:** ISBA travel award to attend ISBA world meeting 2016, Santa Margherita di Pula (CA), Italy.
- **2015:** travel award grant from the Biomedical University Residence (Pavia) to attend the 10th conference on Bayesian Nonparametrics (BNP10), Raleigh, USA.
- **2015:** US National Science Foundation travel award to attend O-Bayes15, Valencia, Spain.
- **2014:** travel award grant from the Biomedical University Residence (Pavia) to attend the ISBA 2014 world meeting, Cancun, Mexico.
- **2013:** travel award to attend the ERC School on Geometric Measure Theory and Real Analysis, organized by the "Centro De Giorgi" (Pisa, Italy).

VISITING PERIODS

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- **April 4 – May 4, 2016:** Department of Statistics, University of Michigan, USA (invited by Prof. Xuanlong Nguyen).

TALKS & POSTER PRESENTATIONS

Invited talks:

- **July 29 – August 2, 2019:** 21st European Young Statisticians Meeting, Belgrade, Serbia. Title of the talk: *Hierarchical Nonparametric Processes*.
- **June 18 – 21, 2019:** SIS 2019 Smart Statistics for Smart Applications, Milan, Italy. Title of the talk: *Hierarchies of nonparametric priors*.
- **December 14 – 16, 2018:** 11th international conference of the ERCIM, Pisa, Italy. Title of the talk: *Bayesian prediction with heterogeneous populations: an application to feature sampling*.
- **September 9 – 13, 2018:** Japanese Joint Statistical Meeting 2018, Tokyo, Japan. Title of the talk: *Full Bayesian inference for dependent nonparametric priors*.
- **July 29 – August 3, 2017:** Joint Statistical Meeting (JSM 2017), Baltimore, USA. Title of the talk: *Hierarchical and nested random probability measures with statistical applications*.
- **June 19 – 22, 2017:** First Italian meeting on probability and mathematical statistics, Torino, Italy. Title of the talk: *Dependent hierarchical processes for multi-armed bandits*.
- **September 8, 2016:** Department of Economics, Sapienza University, Roma, Italy. Title of the talk: *Distribution theory for hierarchical processes with statistical applications*.
- **June 13 – 17, 2016:** ISBA 2016 world meeting, Santa Margherita di Pula (CA), Italy. Title of the talk: *Nested processes based on completely random measures*.
- **June 8 – 10, 2016:** 48th Scientific Meeting of the Italian Statistical Society, Salerno, Italy. Title of the talk: *Hierarchical and nested random probability measures with statistical applications*. (Specialized session for the Best Ph.D. Thesis prize)
- **December 12 – 14, 2015:** 8th international conference of the ERCIM WG on computational and methodological Statistics, University of London, UK. Title of the talk: *Nonparametric hierarchical models based on completely random measures*.
- **September 12, 2014:** Workshop on *Random Structures and Models in Medicine, Biotechnology, Material Science and Environment*, Department of Mathematics, Milano. Title of the talk: *Estimation of the mean density of random closed sets: theoretical results and numerical experiments*.

Contributed talks:

- **14 – 16 dicembre 2019:** 12th international conference of the ERCIM WG on computational and methodological Statistics, University of London, UK. Title of the talk: *Missing mass estimation in feature sampling*.
- **June 24 – 28, 2019:** 12th conference on Bayesian Nonparametrics (BNP11), Oxford, UK. Title of the talk: *Bayesian Prediction in Feature Models*.

- **June 26 – 30, 2017:** 11th conference on Bayesian Nonparametrics (BNP11), Paris, France. Title of the talk: *Dependent nonparametric priors for partially exchangeable data*.
- **January 23 – 25, 2017:** YES VIII workshop on uncertainty quantification, EURANDOM, Eindhoven, The Netherlands. Title of the talk: *Hierarchical hazard rates for partially exchangeable survival times*.
- **March 1 – 4, 2016:** 12th German Probability and Statistics Days, Ruhr-Universität Bochum, Germany. Title of the talk: On the “Minkowski content”-based estimator of the mean density of lower dimensional random closed sets.

Poster presentations:

- **June 24 – 29, 2018:** ISBA 2018 world meeting, Edinburgh, UK.
- **June 20 – 22, 2018:** 49th meeting of the Italian Statistical Society, Palermo, Italy.
- **December 9, 2016:** Workshop on Practical Bayesian Nonparametrics at NIPS 2016, Barcelona, Spain.
- **June 22 – 26, 2015:** 10th conference on Bayesian Nonparametrics (BNP10), Raleigh, USA.
- **June 1 – 5, 2015:** 11th international workshop on Objective Bayes Methodology (O-Bayes15), Valencia, Spain.

ORGANIZATION OF CONFERENCES & SESSIONS

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- **June 26 – 27, 2020:** member of the scientific committee of *Bayesian Young Statisticians Meeting BAYSM 2020*, Kunming, China. (to be held).
 - **December 14 – 16, 2019:** organizer of the invited session *Bayesian Inference via Discrete Nonparametric Priors* at the 12th international conference of the ERCIM, London, UK.
 - **December 14 – 16, 2018:** organizer of the invited session *Computational and Methodological Advances in Bayesian Nonparametrics* at the 11th international conference of the ERCIM, Pisa, Italy. The session was sponsored by jISBA.
 - **June 20 – 22, 2018:** co-organizer of the specialized session *Young contributions to Statistical Learning* at the 49th meeting of the Italian Statistical Society, Palermo, Italy. The session was sponsored by ySIS.
 - **June 25 – 27, 2017:** member of the local organizing committee of Start up Research, Certosa di Pontignano, Siena, Italy. Start up Research was a satellite event of the SIS conference on Statistics and Data Science.

SCHOOLS

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- **June 16 – 20, 2014:** Applied Bayesian Statistics School (ABS14). Applied Bayesian Nonparametrics, Como, Italy. Lecturers: Micheal Jordan, Francois Caron.
 - **September 30 – October 4, 2013:** ERC School on Geometric Measure Theory and Real Analysis, organized by the “Centro De Giorgi” (Pisa, Italy). Lecturers: Vladimir Bogachev, Roberto Monti, Emanuele Spadaro, Davide Vittone.
 - **July 1 – 19, 2013:** Summer School in Cortona, Italy. Introduction to Distributional Approximation and Stein's Method. Lecturers: Larry Goldstein, Yosef Rinott. Final grade: A.

TEACHING ACTIVITY

Ph.D. courses:

- **January – February 2020:** Instructor for the courses *Probability 1* and *Probability 2*, PhD in Economics and Statistics, University of Milano-Bicocca, Milan, Italy. (30 hours).
- **January – February 2019:** Instructor for the courses *Probability 1* and *Probability 2*, PhD in Economics and Statistics, University of Milano-Bicocca, Milan, Italy. (30 hours)

Ordinary courses:

- Co-instructor for the course *Advanced Mathematics and Statistics*, BEMACS (Bachelor of Science in Economics, Management and Computer Science), Bocconi University, Milano, Italy. (aa.yy. 2018/2019, 2019/2020, 2020/2021)
- Co-instructor for *Statistica 2*, Bachelor degree in Statistical and Economics Sciences, University of Milano-Bicocca, Milano, Italy. (aa.yy. 2018/2019, 2019/2020, 2020/2021)
- Instructor for the course *Metodi per le Indagini Campionarie M*, Master degree in Statistics and Economics, University of Milano-Bicocca, Milano, Italy. (aa.yy. 2017/2018, 2018/2019, 2019/2020, 2020/2021)
- Tutor for the course of *Inference* (Bayesian Statistics) at the department of Statistical Sciences, University of Bologna, Bologna, Italy. (a.y. 2016/2017)

- Teaching assistant for the course *Analisi Matematica 1* at the department of engineering, University of Pavia, Pavia, Italy. (aa.yy. 2014/2015, 2015/2016)
- Teaching assistant for the course *Analisi Matematica 2* (calculus for functions in several variables) at the department of engineering, University of Pavia, Pavia, Italy. (a.y. 2013/2014)

LOCAL ADMINISTRATIVE DUTIES

- **2020 – today:** board member of the program committee of the Ph.D. program in Economics and Statistics (ECOSTAT), University of Milano – Bicocca.

EDITORIAL & OTHER ACADEMIC ACTIVITIES

- **Referee for:** The Annals of Statistics; Bayesian Analysis; Computational Statistics & Data Analysis; Electronic Journal of Statistics; Statistical Methods and Applications; Statistics and Probability Letters; International Journal of Approximate Reasoning; Statistics and Computing; Journal of the American Statistical Association; Statistica Sinica; IEEE Transactions on Information Theory; Journal of Statistical Planning and Inference.
- **2019:** Chair of the junior ISBA board (junior section of the International Society for Bayesian Analysis).
- **2018:** Chair-elect member of the junior ISBA board (junior section of the International Society for Bayesian Analysis).
- **2017:** Chair of the board of the young group of the Italian Statistical Society (ySIS).
- **2016:** Member of the board of the young group of the Italian Statistical Society (ySIS).

SOCIETY MEMBERSHIP

Italian Statistical Society; International Society for Bayesian Analysis; National group for Mathematical Analysis, Probability and their Applications (GNAMPA) of the national institute of Mathematics (INdAM).

RESEARCH PROJECT GRANTS

- Co-investigator, European Research Council (ERC) project (2019-2024): *Nonparametric Bayes and empirical Bayes for species sampling problems: classical questions, new directions and related issues*. Research team: Federico Camerlenghi, Emanuele Dolera, Stefano Favaro (PI).
- Co-investigator of the GNAMPA research project 2017 Bayesian methods for the analysis of exchangeable and partially exchangeable sequences of observations, with applications to species sampling problems, scientific coordinator Prof. Emanuele Dolera (12 months).
- Co-investigator of the GNAMPA research project 2016 Partially exchangeable sequences of observations in Bayesian Statistics, scientific coordinator Prof. Federico Bassetti (12 months).
- Co-investigator of the GNAMPA research project 2014 Some problems of statistical inference for partially exchangeable sequences of observations, scientific coordinator Prof. Federico Bassetti (12 months).
- Co-investigator of the GNAMPA research project 2013 Markovian quantum evolution, scientific coordinator Prof. Raffaella Carbone (12 months).

LANGUAGES

- Italian: native speaker.
- English: good knowledge.

PUBLICATIONS

Articles in refereed journals:

- F. Ayed, M. Battiston, F. Camerlenghi, S. Favaro (2020+). On consistent and rate optimal estimation of the missing mass. *Annales de l'Institut Henri Poincaré - Probabilités et Statistiques*, to appear.
- F. Camerlenghi, C. Macci, E. Villa (2020). Asymptotic behavior of mean density estimators based on a single observation: the

Boolean model case. *Annals of the Institute of Statistical Mathematics*, to appear.

- F. Camerlenghi, B. Dumitrascu, F. Ferrari, B. E. Engelhardt, S. Favaro (2020). Nonparametric Bayesian multi-armed bandits for single cell experiment design. *The Annals of Applied Statistics*, to appear.
- F. Camerlenghi, A. Lijoi, I. Prünster (2020+). Survival analysis via hierarchically dependent mixture hazards. *The Annals of Statistics*, to appear.
- F. Camerlenghi, S. Favaro, Z. Naulet, F. Panero (2020+). Optimal disclosure risk assessment. *The Annals of Statistics*, to appear.
- F. Ayed, M. Battiston, F. Camerlenghi (2020). An Information theoretic approach to Post Randomization Methods under Differential Privacy. *Statistics & Computing*, **30**, 1347-1361.
- F. Ayed, M. Battiston, F. Camerlenghi, S. Favaro (2019). A Good-Turing estimator for feature allocation models. *Electronic Journal of Statistics*, **13**, 3775-3804.
- F. Camerlenghi, D.B. Dunson, A. Lijoi, I. Prünster, A. Rodriguez (2019). Latent nested nonparametric priors. *Bayesian Analysis, Bayesian Anal.*, **14**, 1303-1356. (with discussion)
- F. Camerlenghi, A. Lijoi, P. Orbanz, I. Prünster (2018). Distribution theory for hierarchical processes. *The Annals of Statistics*, **47**, 67-92.
- F. Camerlenghi, A. Lijoi, P., I. Prünster (2018). Bayesian nonparametric inference beyond the Gibbs-type framework. *Scandinavian Journal of Statistics*, **45**, 1062-1091.
- F. Camerlenghi, E. Villa (2017). Large and moderate deviations for kernel-type estimators of the mean density of Boolean models. *Electron. J. Stat.*, **12**, 427-460.
- F. Camerlenghi, A. Lijoi, I. Prünster (2017). Bayesian prediction with multiple-sample information. *J. Multivariate Anal.*, **156**, 18-28.
- F. Camerlenghi, C. Macci, E. Villa (2016). Asymptotic results for multivariate estimators of the mean density of random closed sets. *Electron. J. Stat.*, **10**, 2066-2096.
- F. Camerlenghi, E. Villa (2015). Optimal bandwidth of the "Minkowski content"-based estimator of the mean density of random closed sets: theoretical results and numerical experiments. *J. Math. Imaging Vision*, **53**, 264-287.
- F. Camerlenghi, V. Capasso, E. Villa (2014). Numerical experiments for the estimation of mean densities of random sets. *Image Anal. Stereol.*, **33**, 83-94.
- F. Camerlenghi, V. Capasso, E. Villa (2014). On the estimation of the mean density of random closed sets. *J. Multivariate Anal.*, **125**, 65-88.

Conference proceedings:

- F. Ayed, M. Battiston, F. Camerlenghi (2019). A formal approach to data swapping and disclosure limitation techniques. Book of Short Papers SIS2019 Smart Statistics for Smart Applications, 47-54.
- F. Camerlenghi, C. Carota, S. Favaro (2019). Issues on Bayesian nonparametric measures of disclosure risk. Book of Short Papers SIS2019 Smart Statistics for Smart Applications, 119-124.
- F. Camerlenghi, S. Favaro, L. Masoero (2019). Hierarchies of nonparametric priors. Book of Short Papers SIS2019 Smart Statistics for Smart Applications, 125-132.
- F. Camerlenghi, S. Favaro, Z. Naulet, F. Panero (2019). Issues with nonparametric disclosure risk assessment. Book of Short Papers SIS2019 Smart Statistics for Smart Applications, 133-139.
- F. Camerlenghi, A. Lijoi, I. Prünster (2019). Bayesian nonparametric prediction with multi-sample data. In ISNPS 2018 proceedings, Springer, to appear.
- F. Camerlenghi, A. Lijoi, I. Prünster (2018). Density estimation via hierarchies of nonparametric priors. In *JSM Proceedings, Section on Bayesian Statistical Science*. Alexandria, VA: American Statistical Association, 2596-2605.
- M. Battiston, F. Camerlenghi, E. Dolera, S. Favaro (2018). Estimating the number of unseen species under heavy tails. Proceedings of the 49th Scientific Meeting of the Italian Statistical Society.
- F. Camerlenghi, A. Lijoi, I. Prünster (2017). On some distributional properties of hierarchical processes. In *JSM Proceedings, Section on Bayesian Statistical Science*. Alexandria, VA: American Statistical Association, 853-860.
- F. Camerlenghi, I. Prünster, M. Ruggiero (2016). On time-dependent Gibbs-type random probability measures. In *JSM Proceedings, Section on Nonparametric Statistics*. Alexandria, VA: American Statistical Association, 1969-1976.

Books:

- F. Camerlenghi (2019). Hierarchical and nested random probability measures with statistical applications. Best Phd Thesis In Statistics And Applications. Demography. Statistics. Applied Statistics. Cleup.

Submitted papers:

- F. Denti, F. Camerlenghi, M. Guindani, A. Mira (2020+). A common atom model for Bayesian nonparametric analysis of nested data.
- L. Masoero, F. Camerlenghi, S. Favaro, T. Broderick (2020+). More for less: Predicting and maximizing genetic variant discovery via Bayesian nonparametrics.
- F. Ayed, M. Battiston, F. Camerlenghi, S. Favaro (2018+). Consistent estimation of the missing mass for feature models.

Milan, 15/11/2020

Federico Camerlenghi