

Curriculum Vitae of MATTEO RUGGIERO

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Contact information

University of Torino

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Collegio Carlo Alberto

Via Real Collegio 30
10024 Moncalieri (TO), Italy

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Academic positions

Current

From 2015: Deputy program coordinator, [Master's Degree in Stochastics and Data Science](#)

From 2014: Qualified for Associate Professor of Statistics by the Italian Ministry of Education,
University and Research (National Scientific Habilitation)

From 2012: Carlo Alberto Affiliate, Collegio Carlo Alberto

From 2011: Assistant Professor of Statistics, ESOMAS Department, University of Torino

From 2010: Research Affiliate, [“de Castro” Statistics Initiative](#)

Past

2008-2011: Assistant Professor of Statistics, Department of Economics and Quantitative Methods,
University of Pavia

2007-2008: Postdoctoral Fellow, Department of Statistics and Applied Mathematics,
University of Torino

2010-2013: Adjunct Faculty, Allievi Honors Program, Collegio Carlo Alberto

2007-2013: Adjunct Faculty, Ph.D. Program in Theoretical Economics, Finance and Statistics,
University of Torino

Education

2007: Ph.D. in Statistics, Bocconi University

Thesis: *Urn-based particle processes for Fleming-Viot models in Bayesian nonparametrics*

Supervisor: Stephen G. Walker (University of Texas at Austin)

2003: Laurea *cum laude* in Economic and Social Disciplines (DES), Bocconi University

Thesis: *Stochastic calculus and optimal control: an application*

Supervisor: Donato M. Cifarelli

Honors and awards

- ISBA Travel Award (2013)
- Visiting fellow, Institute for Computational and Experimental Research in Mathematics, USA (Sep-Nov 2012)
- Joint recipient of a European Research Council (ERC) Starting Grant (2012). Research team: Pierpaolo De Blasi, Stefano Favaro, Antonio Lijoi, Igor Prünster (PI), Matteo Ruggiero.
- Visiting fellow, Collegio Carlo Alberto, Moncalieri, Italy (Sep-Dec 2010)
- Prize for Best Graduates, Bocconi University (2003)

Professional service

Editorial activity

- *Referee for*: AISTATS; Applied Mathematics E-Notes; Biometrika; IEEE Transactions on Computers; IEEE Transactions on Pattern Analysis & Machine Intelligence; International Journal of Stochastic Analysis; Journal of Applied Statistics; Journal of the American Statistical Association; Journal of the Royal Statistical Society; Mathematical Problems in Engineering; Psychometrika; Quality Technology and Quantitative Management; Statistical Methods & Applications; Statistics and Probability Letters; Stochastic Models; Stochastic Processes and Their Applications.
- *Reviewer for*: Mathematical Reviews/MathSciNet (2010-current).
- *Project evaluator*: Italian Ministry of University and Research (2013).

PhD activity

- Board Member, PhD in Statistics, Bocconi University (Set 2013-current)
- Member of the Evaluating Committee (*Comité tutorial*), PhD in Mathematical Sciences, UNAM, Mexico (Set 2013-current)

Scientific events

- Joint organizer of the track “Bayesian semi- and nonparametric modelling”, with A. Lijoi (University of Pavia) and Li Ma (Duke University), *6th ERCIM International Conference on Computing and Statistics*, London, UK (12-14 Dec 2015)
- Joint organizer of the 3-sessions track “Bayesian semi- and nonparametric modelling”, with A. Lijoi (University of Pavia) and Li Ma (Duke University), *5th ERCIM International Conference on Computing and Statistics*, Pisa, Italy (6-8 Dec 2014)
- Member of the Organizing Committee, *3rd Carlo Alberto Stochastics Workshop* (10-11 Jan 2014)
- Organizer of the invited session “Stochastic processes for frequency models”, *XI Symposium of Probability and Stochastic Processes*, Guanajuato, Mexico (18-22 Nov 2013)
- Member of the Organizing Committee, *2nd Carlo Alberto Stochastics Workshop* (23 Mar 2012)
- Member of the Organizing Committee, *1st Carlo Alberto Stochastics Workshop* (10 Jun 2010)
- Member of the Local Committee, *7th Workshop on Bayesian Nonparametrics* (21-25 Jun 2009)

- Member of the Local Committee, *Carlo Alberto Research Programme in Bayesian Nonparametrics* (21 Jun - 5 Jul 2009)

Talks, seminars and visiting

Invited talks

- Advances in Bayesian nonparametric statistics: A gathering with Stephen Walker, Mexico City (26-27 Nov 2014)
- 37th Conference on Stochastic Processes and their Applications, Buenos Aires, Argentina (28 Jul - 1 Aug 2014)
- 12th ISBA World Meeting, Cancún, Mexico (14-18 Jul 2014)
- 7th International Workshop on Applied Probability, Antalya, Turkey (16-19 Jun 2014)
- Workshop on Random Measures and Measure-Valued Processes, Banff International Research Station, Canada (9-12 Sep 2013)
- 59th World Statistics Congress, Hong Kong, China (25-30 Aug 2013)
- 36th Conference on Stochastic Processes and their Applications, Boulder, CO, USA (29 Jul - 2 Aug 2013)
- ISBA Regional Meeting & International Workshop/Conference on Bayesian Theory and Applications, Varanasi, India (6-10 Jan 2013)
- 5th ERCIM International Conference on Computing and Statistics, Oviedo, Spain (1-3 Dec 2012)
- The impact of statistical thinking in economics and life sciences, Milan, Italy (13-15 Sep 2012)
- 7th Conference on Statistical Computation and Complex Systems (S.Co.), Padova, Italy (19-21 Sep 2011)
- 8th Workshop on Bayesian Nonparametrics, Veracruz, Mexico (26-30 Jun 2011)
- 35th Conference on Stochastic Processes and their Applications, Oaxaca, México (19-24 Jun 2011)
- 3rd ERCIM International Conference on Computing and Statistics, London, UK (10-12 Dec 2010)
- Joint Statistical Meetings (discussant), Vancouver, Canada (31 Jul - 5 Aug 2010)
- 5th International Workshop on Applied Probability, Colmenarejo, Spain (5-8 Jul 2010)
- 6th Conference on Statistical Computation and Complex Systems (discussant), Milan, Italy (14-16 Sep 2009)
- 6th Young European Probabilists Workshop, Eurandom, Eindhoven, The Netherlands (23-27 Mar 2009)
- 15th European Young Statisticians Meeting, Castro Urdiales, Spain (10-14 Sep 2007)
- Construction and properties of Bayesian nonparametric regression models, Cambridge, UK (6-10 Aug 2007)

Contributed talks and posters

- 38th Conference on Stochastic Processes and their Applications, Oxford, UK (13-17 Jul 2015)
- 9th Workshop on Bayesian Inference in Stochastic Processes, Istanbul, Turkey (14-16 Jun 2015)
- 10th Conference on Bayesian Nonparametrics, Raleigh, NC, USA (22-26 Jun 2015)

- 47th Meeting of the Italian Statistical Society, Cagliari, Italy (11-13 Jun 2014)
- 9th Conference on Bayesian Nonparametrics (poster), Amsterdam, Netherlands (10-14 Jun 2013)
- 8th Workshop on Bayesian Inference in Stochastic Processes (poster), Milano, Italy (6-8 Jun 2013)
- 46th Meeting of the Italian Statistical Society, Rome, Italy (20-22 Jun 2012)
- 19th Congress of the Italian Mathematical Union, Bologna, Italy (12-17 Sep 2011)
- 7th Workshop on Bayesian Inference in Stochastic Processes, Getafe, Spain (1-3 Sep 2011)
- 7th Workshop on Bayesian Nonparametrics (poster), Moncalieri, Italy (21-25 Jun 2009)
- 7th World Congress in Probability and Statistics, Singapore (14-19 Jul 2008)
- 5th Workshop on Bayesian Inference in Stochastic Processes, Valencia, Spain (14-16 Jun 2007)

Seminars

- Department of Economics, Ca' Foscari University of Venice, Italy (26 Jan 2015)
- Institute of Mathematics, Vietnam Academy of Science and Technology, Hanoi, Vietnam (7 Aug 2013)
- Department of Decision Sciences, Bocconi University, Italy (22 Nov 2012)
- Department of Statistical Science, Duke University, USA (5 Oct 2012)
- Department of Probability and Statistics, UNAM, México (13 Jan 2010)
- Department of Quantitative Methods, University of Navarra, Spain (18 Nov 2009)
- Department of Economics and Quantitative Methods, University of Pavia, Italy (1 Apr 2008)

Visiting

- Department of Statistics and Data Sciences, University of Texas at Austin, USA (12-22 Nov 2014)
- Department of Probability and Statistics, IIMAS, UNAM, México (24-28 Nov 2014)
- Department of Statistics and Data Sciences, University of Texas at Austin, USA (30 Nov-5 Dec 2013)
- Department of Probability and Statistics, IIMAS, UNAM, México (23-28 Nov 2013)
- Department of Economics, Pompeu Fabra University, Spain (28-31 Oct 2013)
- Department of Statistics, University of Oxford, UK (1-4 Oct 2013)
- Department of Economics, Pompeu Fabra University, Spain (4-8 Dec 2012)
- Visiting fellow, Institute for Computational and Experimental Research in Mathematics, USA (27 Sep - 3 Nov 2012)
- Department of Economics, Pompeu Fabra University, Spain (5-10 Jul 2012)
- Visiting fellow, Collegio Carlo Alberto (15 Sep - 14 Dec 2010)
- Department of Probability and Statistics, IIMAS, UNAM, México (7-16 Jan 2010)
- Department of Quantitative Methods, University of Navarra, Spain (16-22 Nov 2009)
- Visiting scholar and visiting postdoctoral fellow, IMSAS, University of Kent, UK (Sep 2005 - Jun 2006, Feb-Jun 2007, 13-23 Oct 2008)

Research funding

2014: Coordinator of the Department Research Project *New statistical methods for data with*

- complex structures*, University of Torino. Research team: Luigi Bollani, Antonio Canale, Pierpaolo De Blasi, Stefano Favaro, Bernardo Nipoti, Igor Prünster, Mauro Reginato.
- 2013: Coordinator of the Department Research Project *Statistical methodology and analysis for data with dependence structures*, University of Torino. Research team: Luigi Bollani, Antonio Canale, Pierpaolo De Blasi, Stefano Favaro, Consuelo Nava, Bernardo Nipoti, Igor Prünster, Mauro Reginato.
- 2012-2016: Co-investigator of the European Research Council (ERC) project *New directions in Bayesian nonparametrics*. Research team: Pierpaolo De Blasi, Stefano Favaro, Antonio Lijoi, Igor Prünster (PI), Matteo Ruggiero.
- 2010-2012: Co-investigator of the Carlo Alberto Research Project *New approaches to stochastic modeling in Economics via Bayesian nonparametrics*. Principal investigator: Igor Prünster.
- 2008-2010: Co-investigator of the National Research Project (PRIN 2008) *Bayesian nonparametric inference and limit theorems for dependent data*. National coordinator: Eugenio Regazzini.
- 2008: Co-investigator of the research project *Infinite population asymptotics in Bayesian nonparametrics*, funded by CRT Foundation, Torino. Project supervisors: Massimo Marinacci and Igor Prünster.
- 2007: Co-investigator of the research project *Ambiguity and evolution by means of urn models*, funded by CRT Foundation, Torino. Project supervisors: Massimo Marinacci and Igor Prünster.
- 2006-2008: Co-investigator of the National Research Project (PRIN 2006) *Bayesian nonparametric methods for clustering, survival analysis and predicting the number of species*. National coordinator: Igor Prünster.
- 2003-2006: PhD scholarship, Fratelli Confalonieri Foundation, Milan.

Society Memberships

Bernoulli Society; Institute of Mathematical Statistics; International Society for Bayesian Analysis; Italian Statistical Society.

Local administrative duties



- Nov 2013-current: Member of the Executive Council, School of Management and Economics, University of Torino
- Feb 2012-current: Member of the Executive Council, ESOMAS Department, University of Torino
- Sep 2010-current: Statistics Seminar Series coordinator, Collegio Carlo Alberto
- Sep 2012: Member of the Committee for the Department Bylaw, ESOMAS Department, University of Torino
- Apr 2010-Mar 2011: Department's website developer and administrator, Department of Economics and Quantitative Methods, University of Pavia
- Mar 2008-Mar 2011: Statistics seminars coordinator, Department of Economics and Quantitative Methods, University of Pavia
- Mar 2008-Sep 2008: Stages Committee Member, Faculty of Economics, University of Pavia

Selected students


- Vito Musci, *Optimal filtering of one dimensional diffusive signals* (2014). Senior Allievi Honors Program, Collegio Carlo Alberto.
- Gianluca Detommaso, *Scaling limits for output dynamics in economies with Poisson-Dirichlet innovations* (2015). Master's Degree in Mathematics, University of Torino.
- Matteo Sordello, *Diffusion approximation for cluster dynamics in a generalized gamma population model* (2015). Master's Degree in Mathematics, University of Torino.

Teaching

2015/2016

- *Stochastic modelling for statistical applications* () [Master's Degree in Stochastics and Data Science](#), University of Torino
- *Statistics* () [Bachelor Degree in Management](#), University of Torino



2014/2015

- *Statistics* () [Bachelor Degree in Economics](#), University of Torino



2013/2014

- *Statistics* () [Bachelor Degree in Banking, Stock Exchange and Insurance](#), University of Torino





2012/2013

- *Statistics* () [Bachelor Degree in Banking, Stock Exchange and Insurance](#), University of Torino
- *Measure Theory* () [PhD Program in Theoretical Economics, Finance and Statistics](#), University of Torino, and Allievi Honors Program, Collegio Carlo Alberto

2011/2012

- *Statistics* () [Bachelor Degree in Banking, Stock Exchange and Insurance](#), University of Torino
- *Measure Theory* () [PhD Program in Theoretical Economics, Finance and Statistics](#), University of Torino, and Allievi Honors Program, Collegio Carlo Alberto

2010/2011

- *Data analysis* () [Bachelor Degrees of the Faculty of Economics](#), University of Pavia
- *Stochastic processes* () [Bachelor Degree in Banking and Finance](#), University of Pavia
- *Statistical Inference* () [PhD Program in Theoretical Economics, Finance and Statistics](#), University of Torino, and Allievi Honors Program, Collegio Carlo Alberto
- *Measure Theory* () [PhD Program in Theoretical Economics, Finance and Statistics](#), University of Torino, and Allievi Honors Program, Collegio Carlo Alberto

2009/2010

- *Data analysis* (🇮🇹), Bachelor Degrees of the Faculty of Economics, University of Pavia
- *Stochastic processes* (🇮🇹), Bachelor Degree in Banking and Finance, University of Pavia
- *Statistical Inference* (🇬🇧), PhD Program in Theoretical Economics, Finance and Statistics, University of Torino, and Allievi Honors Program, Collegio Carlo Alberto
- *Measure Theory* (🇬🇧), PhD Program in Theoretical Economics, Finance and Statistics, University of Torino, and Allievi Honors Program, Collegio Carlo Alberto

2008/2009

- *Data analysis* (🇮🇹), Bachelor Degrees of the Faculty of Economics, University of Pavia
- *Statistical Inference* (🇬🇧), PhD Program in Theoretical Economics, Finance and Statistics, University of Torino, and Allievi Honors Program, Collegio Carlo Alberto
- *Measure Theory* (🇬🇧), PhD Program in Theoretical Economics, Finance and Statistics, University of Torino, and Allievi Honors Program, Collegio Carlo Alberto

2007/2008

- *Statistical Inference* (🇬🇧), PhD Program in Theoretical Economics, Finance and Statistics, University of Torino, and Allievi Honors Program, Collegio Carlo Alberto
- *Measure Theory* (🇬🇧), PhD Program in Theoretical Economics, Finance and Statistics, University of Torino, and Allievi Honors Program, Collegio Carlo Alberto

Publications

Publications in refereed journals

- Mena, R.H. and Ruggiero, M. (2015)
Dynamic density estimation with diffusive Dirichlet mixtures.
Bernoulli, in press.
- De Blasi, P., Favaro, S., Lijoi, A., Mena, R., Prünster, I. and Ruggiero, M. (2015)
Are Gibbs-type priors the most natural generalization of the Dirichlet process?
IEEE Transactions on Pattern Analysis and Machine Intelligence **37**, 212–229.
- Papaspiliopoulos, O. and Ruggiero, M. (2014)
Optimal filtering and the dual process.
Bernoulli **20**, 1999–2019.
- Ruggiero, M. (2014)
Species dynamics in the two-parameter Poisson-Dirichlet diffusion model.
Journal of Applied Probability **51**, 174–190.
- Ruggiero, M., Walker, S.G. and Favaro, S. (2013)
Alpha-diversity processes and normalized inverse-Gaussian diffusions.
The Annals of Applied Probability **23**, 386–425.
- Prünster, I. and Ruggiero, M. (2013)
A Bayesian nonparametric approach to modeling market share dynamics.

Bernoulli **19**, 64–92.

- Mena, R.H., Ruggiero, M. and Walker, S.G. (2011)
Geometric stick-breaking processes for continuous-time Bayesian nonparametric modeling.
Journal of Statistical Planning and Inference **141**, 3217–3230.
- Martinelli, A., Ruggiero, M. and Walker, S.G. (2010)
A note on convergence rates for posterior distributions via large deviations techniques.
Statistical Papers **51**, 337–347.
- Favaro, S., Ruggiero, M. and Walker, S.G. (2009)
On a Gibbs sampler based random processes in Bayesian nonparametrics.
Electronic Journal of Statistics **3**, 1556–1566.
- Ruggiero, M. and Walker, S.G. (2009)
Countable representation of infinite-dimensional diffusions derived from the two-parameter Poisson-Dirichlet process.
Electronic Communications in Probability **14**, 501–517.
- Ruggiero, M. and Walker, S.G. (2009)
Bayesian nonparametric construction of the Fleming-Viot process with fertility selection.
Statistica Sinica **19**, 707–720.

Conference proceedings and technical reports

- Papaspiliopoulos, O., Ruggiero, M. and Spanò (2014)
Bayesian inference for dynamically evolving distributions.
Proceedings of the 47th Meeting of the Italian Statistical Society.
- Papaspiliopoulos, O. and Ruggiero, M. (2013)
Optimal filtering and the dual process. [extended version w.r.t. the journal article]
Carlo Alberto Notebook No. 299 and [arXiv:1305.4571v2](https://arxiv.org/abs/1305.4571v2).
- Ruggiero, M. (2012)
On the role of normalized inverse-Gaussian priors in continuous-time models.
Proceedings of the 46th Meeting of the Italian Statistical Society.
- Ruggiero, M. (2011)
On a prediction problem for an infinite dimensional hidden Markov model.
Proceedings of the S.Co. 2011 Conference.
- Ruggiero, M. (2007)
Bayesian nonparametric construction of Fleming-Viot models in population genetics.
Proceedings of the 15th European Young Statisticians Meeting.
- Favaro, S., Ruggiero, M., Spanò, D. and Walker, S.G. (2007)
The neutral population model and Bayesian nonparametrics.
ICER Working Paper 18/2007.