

Antonio Canale

CONTACT

INFORMATION

Dipartimento di Scienze Statistiche
Università degli Studi di Padova
Via Cesare Battisti, 241
35121 Padova, Italy

de Castro Statistics Initiative
Collegio Carlo Alberto
Via Real Collegio, 30
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RESEARCH INTERESTS

Bayesian nonparametrics, multiscale methods, functional data analysis, applied statistics, machine learning.

CURRENT POSITION

Assistant professor, (*Ricercatore SECS-S/01, Legge 240/10 tipo B*),
Dipartimento di Scienze Statistiche, Università degli Studi di Padova. (since 03/2017)

Research Affiliate,
de Castro Statistics Initiative, Collegio Carlo Alberto (since 02/2013)

PAST POSITIONS

Academic

Assistant professor, (*Ricercatore SECS-S/01, Legge 240/10 tipo A*),
Dipartimento di Scienze ESOMAS, Università degli Studi di Torino. (from 10/2012 to 02/2017)

Postdoctoral fellow,
Dipartimento di Statistica e Matematica applicata “Diego de Castro”, Università degli Studi di Torino (from 01/2012 to 09/2012)

Business

Statistical Research Consultant, [MOXOFF S.p.A.](#), spinoff of the Polytechnic of Milan, in collaboration with the [MOX group](#), Polytechnic of Milan. (from 01/2012 to 12/2012)

Freelance Statistical Business Consultant (from 2007 to 2010)

EDUCATION

Università degli Studi di Padova, Padova, Italy

Ph.D., Statistics (*Dottorato di ricerca in Statistica*), [Department of Statistics](#) (From 1/2009 to 12/2011, thesis defense 02/2012)

- Thesis Topic: Bayesian nonparametric models for count data
- Advisor: [Bruno Scarpa](#) and [David B. Dunson](#) (co-supervisor)

M.S., Statistics and Computer Science (*Laurea Specialistica in Statistica e Informatica*), [Department of Statistics](#) (From 10/2006 to 07/2008, thesis defense 07/2008)

- Thesis Topic: Statistical Aspects of the Extended skew-normal model
- Advisor: [Adelchi Azzalini](#)

B.S., Statistics and Management (*Laurea Triennale in Statistica e Gestione delle Imprese*), [Department of Statistics](#) (From 10/2003 to 02/2006, thesis defense 02/2006)

AWARDS

- *Abilitazione Scientifica Nazionale a professore di II fascia, settore 13/D1* (National Scientific Qualification for Associate professor in Statistics), from April 2017
- Winner of the *Young Statistician Award* sponsored by the European Network on Business and Industrial Statistics (2017)
- Finalist of the *L.J. Savage Award 2013* for outstanding doctoral dissertations in Bayesian econometrics and statistics (Applied Methodology section) sponsored by the American Statistical Association, International Society of Bayesian Analysis and NBER-NSF (2014)
- Winner of the competition “*Statistica, Open Data e Società*” (“*Statistics, Open data and Society*”), Municipality of Milan and Università Cattolica, Milan, Italy (11/2013)
- Winner of the competition “*Technology foresight and Statistics for the future*”, Bar Camp, SCo 2013, Milan, Italy (09/2013)
- Young researcher travel award, 2012 ISBA world meeting, Kyoto, Japan (03/2012)
- Young researcher travel award, 8th BNP workshop, Veracruz, Mexico (03/2011)
- BEST 2006 - Bologna Experience for Superior Talents, ALMA graduate school, Bologna, Italy (09/2006)

CONFERENCES PRESENTATION

Invited presentations

- Constrained Functional Time Series: an Application to demand and supply curves in the Italian Natural Gas Balancing Platform; *ENBIS-17*, Naples, Italy, September 9-14, 2017 (invited plenary talk)
- Multiscale mixture models; *11th conference on Bayesian Nonparametrics*, Paris, France, June 26-30, 2017 (invited talk)
- Scalable multiscale density estimation; *SisBayes Meeting*, Rome, Italy, February 7-8, 2017 (invited talk)
- Statistics and Data Science; *Data Science and its Relationship to Big Data and Data-Driven Decision Making*, Google, Milan, Italy, January 17, 2017 (invited talk)
- Constrained Functional Time Series: an Application to the Italian Natural Gas Balancing Platform; *Mercati energetici e metodi quantitativi: un ponte tra Università e Aziende*, Padova, Italy, October 8, 2015 (invited talk)
- Multiscale Bernstein Polynomial for densities; *7th International Conference of the ERCIM WG on Computing and Statistics*, Pisa, Italy, December 6–8, 2014 (invited talk)
- Statistics, pushed or pulled by technology? *Barcamp @ SCo 2013*, Milan, Italy, 12 September, 2013 (invited talk)
- A Bayesian nonparametric model for data on different scale of measure; an application to customer base management of telecommunications companies; *SIS Scientific Meeting 2013*, Brescia, Italy, 16-18 June, 2013 (invited talk)
- Bayesian multivariate mixed-scale density estimation; *5th International Conference of the ERCIM WG on Computing and Statistics*, Oviedo, Spain, December 1–3, 2012 (invited talk)
- Bayesian nonparametric models for count data. Phone traffic analysis; *Final workshop on Bayesian nonparametric models for functional data: theory and applications in biometry and marketing*, Padova, Italy, October 5, 2012 (invited talk)
- Informative Bayesian inference for the skew normal distribution; *Third Palestinian Conference on Modern Trends in Mathematics and Physics*, Hebron, Palestine, July 16–18, 2012 (invited talk)

- A Bayesian nonparametric model for count functional data; *SIS Scientific Meeting 2012*, Rome, June 20-22, 2012 (invited talk)
- Dirichlet process mixture of rounded skew normal for the estimation of probability mass functions; *IV international skew workshop*, Santiago, Chile, May 16-19 2011 (invited talk)
- Some Inferential results on the extended skew-normal distribution in the scalar case; *Summer mini conference in Statistic and probability*, McMaster University, Hamilton, Ontario, Canada, July 31, 2009 (invited talk)

Contributed presentations

- Multiscale Bernstein Polynomial for densities; *10th Conference on Bayesian Nonparametrics*, Raleigh, NC, USA, June 22-26, 2015 (contributed talk)
- Age-specific probability of childbirth via bayesian nonparametric location-scale-shape mixtures; *International Biometric Conference*, Florence, Italy, 6-11 July, 2014 (contributed talk)
- Bayesian nonparametric spatial modelling of ordinal periodontal data; *SIS 2014*, Cagliari, Italy, 9-14 June, 2014 (contributed talk)
- Analysis of demand and supply curves in the Italian natural gas market through functional time series. *SCO 2013*, Milan, Italy, 9-11 September, 2013 (contributed talk)
- Bayesian nonparametric predictions for count time series; *Final Conference of PRIN 2008*, Naples, May 17–19, 2012 (contributed talk)
- Bayesian modeling of count processes; *SCo 2011*, Padova, Italy, September 19-21 2011 (contributed talk)
- Bayesian Kernel mixtures for counts; *Applied Bayesian Summer School*, Bolzano, Italy, June 11-15 2010 (participants talk)
- Statistical aspects in the extended skew normal model; *Workshop on Skew Symmetric Distributions*, Benevento, Italy, March 16–20 2009 (contributed talk)
- Some preliminar results on the information matrix of the extended skew normal model; *Workshop on Skew Symmetric Probability Distributions*, Bertinoro (FC), Italy, April 6 - 10 2008 (contributed talk)

Poster presentations

- Bayesian nonparametric location-scale-shape mixtures; *9th Bayesian Nonparametric workshop*, Amsterdam, Netherlands, 9-13 June, 2013 (poster session)
- Bayesian multivariate mixed-scale density estimation; *2012 ISBA world meeting*, Kyoto, Japan, June 25–29, 2012 (poster session)
- Bayesian Kernel mixtures for counts; *8th Bayesian Nonparametric workshop*, Veracruz, Mexico, June 26-30 2011 (poster session)

INVITED
SEMINARS

Autorità per le Garanzie nelle Comunicazioni, Roma, (14/03/2017), *Department of Decision Sciences*, Bocconi University (12/05/2016), *School of Mathematics And Statistics*, University College Dublin (31/03/2016), *School of Computer Science and Statistics*, Trinity College Dublin (30/03/2016), *Department of Statistics*, University of Bologna (19/11/2015), *Department of Statistical Sciences*, Università Cattolica, Milano (14/11/2013), *Dipartimento di Scienze Economiche, Aziendali, Matematiche e Statistiche “Bruno de Finetti”*, Università degli Studi di Trieste (16/10/2013); *Department of Economics and Statistics*, Università degli studi di Udine (26/09/2013); *PhD school in Statistics*, Università degli Studi di Padova (17/01/2013);

VISITING PERIODS

- Statistical and Applied Mathematical Sciences Institute (SAMSI), Research Triangle Park, NC, USA (6/2015)
- Department of Statistics and Data Science, University of Texas at Austin, TX, USA (10/2014)
- Department of Statistical Science, Duke University, Durham, NC, USA (07/2011 – 08/2011)
- Department of Statistical Science, Duke University, Durham, NC, USA (02/2010 – 12/2010)
- Department of Mathematics and Statistics, McMaster University, Hamilton, Ontario, Canada (07/2009 – 08/2009)

EDITORIAL ACTIVITY

- *Referee for* (in alphabetical order): Bayesian Analysis, Biometrical journal, Biometrika, Computational Statistics and Data Analysis, Electronic Journal of Statistics, International Journal of Forecasting, Journal of Applied Statistics, Journal of the American Statistical Association, Journal of Business and Economic Statistics, Journal of Multivariate Analysis, Journal of the Royal Statistical Society (Series B), Statistical Methods and Applications, Statistics and Computing;
- *Reviewer for*: [Mathematical Reviews](#)
- *Reviewer for*: CRC press, Taylor and Francis Group

FUNDING

Research projects

- Co-investigator of the *PRIN2015* project “Modern Bayesian nonparametric methods”; grantor: Italian Ministry of Education, Universities and Research (2016-2018)
- Co-investigator of the project (*Progetto di Ricerca di Ateneo*) “Bayesian inference on brain network data”; grantor: Università degli Studi di Padova (2016-2017)
- Co-investigator of the local project “Random probability measures and their applications”; grantor Università degli Studi di Torino (2015)
- Co-investigator of the local project “New statistical methods for data with complex structures”; grantor Università degli Studi di Torino (2014)
- Co-investigator of the local project “Statistical methodology and analysis for data with dependence structures”; grantor Università degli Studi di Torino (2013)
- Principal investigator of the local project “Bayesian inference for high-complexity multidimensional data”; grantor: Università degli Studi di Torino (2013-2015)

Research projects funded by private companies

- Scientific coordinator of the project “Statistical models for customer attrition in no profit organizations”, funder Moxoff S.p.A. (2014).
- Scientific coordinator of the project “Price forecast models and supply and demand curves models in Italian natural gas market”, funder Moxoff S.p.A., customer: Oil-and-gas company (2013).



ORGANIZATION OF
SCIENTIFIC
EVENTS

- Joint Organizer of the specialised session *Data Science for Business* of the [49th scientific meeting of the Italian Statistical Society](#), Florence, June 2017
- Joint Organizer of the satellite event *Start Up Research* of the [49th scientific meeting of the Italian Statistical Society](#), Pontignano, June 2017
- Member of the scientific program committee of the [48th scientific meeting of the Italian Statistical Society](#), Salerno, June 2016
- Member of the organising committee of the [2nd StaTalk on Bayesian Nonparametrics](#), Moncalieri, February 2016
- Member of the organising committee of [StatisticAll](#), Treviso, September 2015
- Chair of the conference [Statistica e Data Science per il Business](#), Padua, 8th September, 2015 (Satellite events of the SIS intermediate scientific meeting);
- Joint organiser of [Stats under the Stars](#), Padua, 8th-9th September, 2015 (Satellite events of the SIS intermediate scientific meeting);


MEMBERSHIPS

International Society for Bayesian Analysis (2011–now), Società Italiana di Statistica (2012–now), Elected member of the board (2014) and chair (2015) of the young section of the Italian Statistical Society (Y-SIS), International Biometrical Society (2014–now)

TEACHING
EXPERIENCE

( for courses taught in English,  for courses taught in Italian)

Università degli Studi di Padova


Master's degree in Statistics 

- Statistics: case studies (*Statistica Iterazione*) (AAYY 16/17)
- Data mining (seminar lab AAYY 10/11 – 15/16)


Bachelor in Statistics 

- Statistical methods for big data (*Metodi Statistici per big data*) (AAYY 16/17)
- Business Statistics (*Statistica aziendale*) (teaching assistant AAYY 11/12)


Università degli Studi di Torino

Master's degree in Stochastics and Data Science 


- Statistical Inference (AAYY 15/16);
- Statistical Machine Learning (AAYY 16/17);
- Bayesian Nonparametric Statistics (AAYY 16/17);

Master's degree in Quantitative Finance and Insurance 

- Statistics II (AAYY 13/14, 14/15);






Bachelor's degree in Management 

- Statistics I [*Statistica* (AAYY 12/13); *Matematica e Statistica* (AAYY 13/14); *Statistica per l'azienda* (AAYY 14/15, 15/16)]

Bachelor's degree in Economics 

- Statistics I (AAYY 15/16);

Business Schools, Summer Schools & Short courses

- Biostat2016 Asti Summer School in Applied Statistics, *Statistical Learning* (June, 2016) 
- CUOA Business School, Master in Business Administration and Master in Banking and Finance, *Quantitative methods for business* (March – November, 2009) 
- Short courses for private companies
 - Valueteam s.p.a. *Statistical Learning* (December, 2011) 
 - Assicurazioni Generali *Statistical Learning* (December, 2016) 
 - Assicurazioni Generali *Segmentation and customer profiling* (January, 2017) 

16. Canale, A., (2017), [msBP: An R package to perform Bayesian nonparametric inference using multiscale Bernstein Polynomials mixtures](#), *Journal of Statistical Software*, 78, 6
15. Canale, A., Prünster, I., (2017), [Robustifying Bayesian nonparametric mixtures for count data](#), *Biometrics*, 73, 174–184
14. Canale, A., De Blasi, P., (2017), [Posterior asymptotics of nonparametric location-scale mixtures for multivariate density estimation](#), *Bernoulli Journal*, 23, 379–404
13. Canale, A., Ruggiero, M., (2016), [Bayesian nonparametric forecasting of monotonic functional time series](#), *Electronic Journal of Statistics*, 10, 3265–3286
12. Canale, A., Vantini, S., (2016), [Constrained Functional Time Series: Applications to the Italian Gas Market](#), *International Journal of Forecasting*, 32, 1340–1351
11. Canale, A., Kenne Pagui, E. K., Scarpa, B., (2016), [Bayesian modeling of university first-year students' grades after placement test](#), *Journal of Applied Statistics*, 43, 3015–3029
10. Bandyopadhyay D., Canale, A., (2016), [Nonparametric spatial ordinal models for clustered periodontal data](#), *Journal of the Royal Statistical Society-Series C*, 65, 619–640.
9. Kenne Pagui, E. C., Canale, A., (2016), [Pairwise likelihood inference for multivariate ordinal responses with applications to customer satisfaction](#), *Applied Stochastic Models in Business and Industry*, 32, 273–282
8. Canale, A., Dunson, D. B., (2016), [Multiscale Bernstein polynomials for densities](#), *Statistica Sinica*, 26, 3, 1175–1195
7. Bisaglia, L., Canale, A., (2016), [Bayesian nonparametric forecasting for INAR models](#), *Computational Statistics and Data Analysis*, 100, 70–78.
6. Canale, A., Scarpa, B., (2016), [Bayesian nonparametric location-scale-shape mixtures](#), *Test*, 25, 1, 113–130.
5. Canale, A., Dunson, D. B., (2015), [Bayesian multivariate mixed-scale density estimation](#), *Statistics and Its Interface*, 8, 2, 195–201.
4. Canale, A., (2015), [A note on regions of given probability for the extended skew-normal distribution](#), *Communications in Statistics*, 44, 2507–2516
3. Canale, A., Dunson, D. B., (2013), [Nonparametric Bayes modelling of count processes](#), *Biometrika*, 100, 4, 801–816
2. Canale, A., Dunson, D. B., (2011), [Bayesian Kernel Mixtures for Counts](#), *Journal of American Statistical Association*, 106, 1528–1539
1. Canale, A., (2011), [Statistical aspects in the extended skew-normal model](#), *Metron*, LXIX, 3, 279–295

Book chapters and journal's special issues (with peer-review)

- Wang, Y., Canale, A., Dunson, D.B., (2016), [Scalable geometric density estimation](#), In *Artificial Intelligence and Statistics (AISTATS)*, *Journal of Machine Learning Research–W&P*, 51, 857–865
- Canale, A., Lijoi, A., Prünster I., (2016), [Bayesian Nonparametrics](#). In *Wiley Stat-StatRef: Statistics Reference Online*, John Wiley & Sons, Ltd.
- Canale, A., Scarpa, B., (2015), [Age-specific probability of childbirth. Smoothing via Bayesian nonparametric mixture of rounded kernels](#), *Statistica*, 75, 1, 101–110.

- Canale, A., Lunardon, N., (2015), [Churn prediction in telecommunications industry. A study based on Bagging classifiers](#), *Statistica applicata - Italian Journal of Applied Statistics*, 24, 3, 279–290
- Bisaglia, L., Canale, A., (2012), [Bayesian nonparametric predictions for count time series](#), *Quaderni di Statistica*, 14, 49–52

Conference proceedings (with peer-review)

- Canale A., Vantini, S., (2016), Daily Prediction of Demand and Supply Curves, in *XLVIII Riunione Scientifica SIS*
- Bandyopadhyay D., Canale, A., (2014), Bayesian nonparametric spatial modelling of ordinal periodontal data, in *XLVII Riunione Scientifica SIS*.
- Canale, A., Scarpa, B., (2014), Skew-normal nonparametric mixture models, in *XLVII Riunione Scientifica SIS*.
- Canale, A., Vantini, S., (2013), Analysis of demand and supply curves in the Italian natural gas market through functional time series, in *Complex Models and Computational Intensive Methods for Estimation and Prediction*.
- Canale, A., Dunson, D.B., (2013), A Bayesian nonparametric model for data on different scales of measure; an application to customer base management of telecommunications companies, in *Advances in Latent Variables*.
- Canale, A., Dunson, D.B., (2012), A Bayesian nonparametric model for count functional data, in *XLVI Riunione Scientifica SIS*.

Other publications

- Canale A., (2012), [Bayesian nonparametric models for count data with applications to customer base management](#), *PhD Thesis*, Department of Statistical Sciences, University of Padua
- Canale A., (2008), [Aspetti statistici nella normale asimmetrica estesa](#) (in Italian), *Master Thesis*, Department of Statistical Sciences, University of Padua

Software

- Canale, A., (2017), [msBP: Multiscale Bernstein Polynomials for Densities](#), *R package, version 1.3*,
- Canale, A., (2016), [rmp: Rounded Mixture Package](#), *R package, version 2.0*,
- Kenne Pagui, E. C., Canale, A., (2014), [Plordprob: Multivariate Ordered Probit Model via Pairwise Likelihood](#), *R package, version 1.0*,