

Agnese Maria Di Brisco

Curriculum Vitae et Studiorum

Born in Novara (NO), Italy, on the 23rd of November 1988.

Nationality: Italian.

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CURRENT AND PREVIOUS POSITIONS:

March 2020 – present: assistant professor in statistics (RTD-B), University of Piemonte Orientale.

January 2018 – February 2020: *Postdoctoral researcher*. Project: “Regression for mixture models”, supervisor prof. Sonia Migliorati, University of Milano-Bicocca. (*Assegno di ricerca di 24 mesi di cui all'art. 22 della Legge 240/2010, SSD SECS-S/01 STATISTICA*). Maternity leave from 15/09/2019 to 15/02/2020.

January 2016 – November 2017: *Postdoctoral researcher*. Project: “Methods and applications for mixture models”, supervisor prof. Sonia Migliorati, University of Milano-Bicocca. (*Assegno di ricerca di 23 mesi di cui all'art. 22 della Legge 240/2010, SSD SECS-S/01 STATISTICA*).

EDUCATION:

November 2012 - December 2015: *PhD in Statistics*. University of Milano-Bicocca. Title: “Statistical Network Analysis: a Multiple Testing Approach”, supervisor prof. Piero Quatto.

September 2010 - September 2012: *Master's degree in Statistics*, 110/110 cum laude. University of Milano-Bicocca.

September 2007 - September 2010: *Bachelor's degree in Statistics*, 110/110 cum laude. University of Milano-Bicocca.

SCHOLARSHIPS:

November 2012 – December 2015: Scholarship for the *PhD in Statistics*, University of Milano-Bicocca.

RESEARCH INTERESTS:

Mixture models, compositional data analysis, regression models, Bayesian analysis, functional data analysis

PUBLICATIONS:

INTERNATIONAL JOURNALS

1. Ratti, M., Concina, D., Rinaldi, M., Salinelli, E., Di Brisco, A. M., Ferrante, D., Volpe, A., Panella, M. (2022). Vaccination Strategies against Seasonal Influenza in Long Term Care Setting: Lessons from a Mathematical Modelling Study. *Vaccines*. (Accepted for publication)
2. Di Brisco, A. M., Bongiorno, E.G., Goia, A., Migliorati, S. (2022). Bayesian flexible beta regression model with functional covariate. *Computational Statistics*. doi: 10.1007/s00180-022-01240-5

3. Di Brisco, A.M., Migliorati, S. (2020). A spatial mixed-effects regression model for electoral data. *Stat Methods Appl.* <https://doi.org/10.1007/s10260-020-00534-6>
4. Di Brisco, A. M., Migliorati, S. (2020). A new mixed-effect mixture model for longitudinal constrained data. *Statistics in Medicine.* <https://doi.org/10.1002/sim.8406>
5. Di Brisco, A. M., Migliorati, S., & Ongaro, A. (2019). Robustness against outliers: A new variance inflated regression model for proportions. *Statistical Modelling.* <https://doi.org/10.1177/1471082X18821213>.
6. Migliorati, S., Di Brisco, A. M., Ongaro, A. (2018). A New Regression Model for Bounded Responses. *Bayesian Analysis.* 13 (3): 845-872. <https://doi.org/10.1214/17-BA1079>.
7. Di Brisco, A. M. & Farina, P. (2018). Measuring Gender Gap from a Poset Perspective. *Social Indicators Research.* 163 (3): 1109-1124. <https://doi.org/10.1007/s11205-017-1582-8>.
8. Scarduelli, L., Giacchini, R., Parenti, P., Migliorati, S., Di Brisco, A. M. & Vighi, M. (2017). Natural variability of biochemical biomarkers in the macro-zoobenthos: Dependence on life stage and environmental factors. *Environmental Toxicology and Chemistry,* 36 (11): 3158-3167. <https://doi.org/10.1002/etc.3893>.

CONTRIBUTION IN BOOKS AND PROCEEDINGS

1. Di Brisco, A. M., Ascari, R., Migliorati, S., Ongaro, A. (2022). Simulation Studies for a Special Mixture Regression Model with Multivariate Responses on the Simplex. In: *Data Analysis and Related Applications 1.* p. 115-131, ISBN: 9781786307712.
2. Di Brisco, A. M., Ascari, R., Migliorati, S., Ongaro, A. (2022). The State of the Art in Flexible Regression Models for Univariate Bounded Responses. In: *Data Analysis and Related Applications 1.* p. 99-112, ISBN: 9781786307712.
3. Bongiorno, E.G., Di Brisco, A. M., Goia, A. (2022). Hilbert principal component regression for bimodal bounded responses. *Book of Short Papers SIS2022.* p. 895-900, ISBN: 9788891932310.
4. Ascari, R., Di Brisco, A. M., Migliorati, S., Ongaro, A. (2021). Alternative parameterizations for regression models with constrained multivariate responses. In *Book of Short Papers SIS 2021.* pp. 930-935. ISBN: 9788891927361.
5. Di Brisco, A. M., Migliorati, S. (2021). A Flexible Mixture Regression Model for Bounded Multivariate Responses. In *Applied Modeling Techniques and Data Analysis 2.* pp. 169-184. <http://dx.doi.org/10.1002/9781119821724.ch12>.
6. Nicolussi, F., Di Brisco, A. M., Cazzaro, M. (2021). Classification through graphical models: evidences from the EUSILC data. In *Data Analysis and Rationality in a Complex World.* pp. 197-204. ISBN: 978-3-030-60104-1.
7. Migliorati, S., Di Brisco, A. M., Ongaro, A. (2019). The Flexible Beta Regression Model. In *Data Analysis and Applications 1: Clustering and Regression, Modeling-estimating, Forecasting and Data Mining.* pp. 39-52. Publisher: ISTE Group. ISBN: 978-1-786-30382-0.
8. Di Brisco, A. M., Ascari, R., Migliorati, S., Ongaro, A. (2019). A new regression model for bounded multivariate responses. In *Book of Short Papers SIS2019,* pp. 817-822. Publisher: Pearson. ISBN: 9788891915108.

9. Di Brisco, A. M., Farina, P. (2019). Le differenze di genere. In Vita e percorsi di integrazione degli stranieri in Italia. pp. 123-135. Istat. ISBN: 978-88-458-1968-1.
10. Di Brisco, A. M., & Migliorati, S. (2018). Spatial mixed model for areal data on the simplex. In Book of Abstracts of the 11th International Conference of the ERCIM (European Research Consortium for Informatics and Mathematics) Working Group on Computational and Methodological Statistics (CMStatistics 2018). ISBN: 978-9963-2227-5-9.
11. Di Brisco, A. M., & Migliorati, S. (2018). A new augmented mixed regression model for proportions. In Book of Abstracts of the 23rd International Conference on Computational Statistics (COMPSTAT 2018). ISBN: 978-9963-2227-3-5.
12. Di Brisco, A. M., & Migliorati, S. (2017). A Special Dirichlet Mixture Model for Multivariate Bounded Responses. In Cladag 2017 Book of Short Papers. Universitas Studiorum srl. ISBN: 9788899459710.
13. Migliorati, S., Di Brisco, A. M., & Ongaro, A. (2017). The Flexible Beta Regression Model. In Book of Abstracts of the 17th Applied Stochastic Models and Data Analysis International Conference with the 6th Demographics Workshop (pp. 134-135). ISAST: International Society for the Advancement of Science and Technology. ISBN: 978-618-5180-22-5.
14. Di Brisco A. M. (2015). Statistical Network Analysis: a Multiple Testing Approach. (PhD thesis). University of Milano-Bicocca.

SCIENTIFIC ACTIVITIES

ORGANIZED SESSIONS

- Organizer and chair of session entitled "Advances in statistical methods for bounded data" at ERCIM WG on Computational and Methodological Statistics (CMStatistics 2022). 17-19 December 2022, King's College, London, UK.
- Organizer of session entitled "Methods for high-dimensional and non-standard data" at ERCIM 2021 (14th International Conference of the ERCIM WG on Computational and Methodological Statistics). 18-20 December 2021, King's College, London, UK.
- Organizer and chair of session entitled "Regression models for bounded responses" at SMTDA 2020 (6th Stochastic Modeling Techniques and Data Analysis International Conference). 2-5 June 2020, virtual conference.
- Chair of session entitled "Discrete choice models" at SIS2019 Conference - Smart Statistics for Smart Applications. 18-21 June 2019, Università di Milano, Milano, Italy.

TALKS

- Hilbert regression model for complex responses. Invited talk at the 15th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2022). 17-19 December 2022, King's College, London, UK.
- Hilbert principal component regression for bimodal bounded responses. SIS 2022. 22-24 June 2022, Caserta, Italy.
- Functional flexible beta regression: a Bayesian approach. Invited seminar at the Dipartimento di Economia e Statistica Cognettis de Martiis. 23/05/2022, Torino, Italy.

- Flexible beta regression with functional covariates: a Bayesian approach. Invited talk at the 14th International Conference of the ERCIM WG on Computational and Methodological Statistics. 18-20 December 2021, King's College, London, UK.
- The state of the art in flexible regression models for univariate bounded responses. Invited talk at the 19th Applied Stochastic Models and Data Analysis International Conference. 1-4 June 2021, turned to only virtual conference.
- Simulation studies for a special mixture regression model with multivariate responses on the simplex. Invited talk at the 6th Stochastic Modeling Techniques and Data Analysis International Conference. 2 - 5 June 2020, turned to only virtual conference.
- Classification through graphical models: evidences from the EUSILC data. Invited talk at the 16th Conference of the International Federation of Classification Societies. 26-29 August 2019, Thessaloniki, Greece.
- A new regression model for bounded multivariate responses. Contributed talk at the SIS2019 Conference - Smart Statistics for Smart Applications. 28-21 June 2019, University of Milan, Italy.
- A Flexible Regression Model for Compositional Data. Contributed talk at the 18th Applied Stochastic Models and Data Analysis International Conference. 11-14 June 2019, University of Florence, Italy.
- Spatial mixed model for areal data on the simplex. Contributed talk at the 11th International Conference of the ERCIM WG on Computational and Methodological Statistics. 14-16 December 2018, University of Pisa, Italy.
- A new augmented mixed regression model for proportions. Contributed talk at the 23rd International Conference on Computational Statistics. 28-31 August 2018, Iasi, Romania.
- A Special Dirichlet Mixture Model for Multivariate Bounded Responses. Contributed talk at the 11th Scientific Meeting of the CLASSification and Data Analysis Group of the Italian Statistical Society. 13-15 September 2017, University of Milano-Bicocca, Italy.
- The Flexible Beta Regression Model. Contributed talk at the 17th Applied Stochastic Models and Data Analysis International Conference. 6-9 June 2017, London Mathematical Society, UK.
- Multiple testing for fMRI data analysis with an application about age-related changes in resting state functional connectivity. Poster at the 2nd NeuroMI International Meeting. 10 July 2015, University of Milano-Bicocca, Italy.

SOFTWARE (R PACKAGES)

- *FlexDir: Tools to Work with the Flexible Dirichlet Distribution*, published on CRAN (2017). Sonia Migliorati (author), Agnese Maria Di Brisco (author, maintainer), Matteo Vestrucci (author).
- *FlexReg: Regression models for compositional data*, forthcoming on CRAN. Agnese Maria Di Brisco (author, maintainer), Roberto Ascari (author, mantainer), Sonia Migliorati (author), Andrea Ongaro (author).

SUMMER/WINTER SCHOOLS PARTICIPATIONS

- March 2013 – Short course on “Compositional Data Analysis” by J. Egozcue and V. Pawlowsky-Glahn, University of Milano-Bicocca.
- May 2013 – Short course on “Bayesian data analysis” by R. Craiu, University of Milan.

- October 2013 – SIS School on “Teoria e pratica dei modelli ad effetti casuali per dati multilivello e longitudinali” by L. Grilli and C. Rampichini, University of Florence.

OTHER SCIENTIFIC ACTIVITIES

- Reviewer for the following international journals: *Computational Statistics, Social Indicators Research, Statistical Methods in Medical Research, Statistical Papers, Statistical Modelling*.
- Indagine sugli effetti delle attività di orientamento di ateneo X edizione (with Bertarelli, G., Mecatti, F.) Università degli studi Milano-Bicocca.

TEACHING ACTIVITIES:

COURSES

- Probability (2021-2022). PhD program in Economics and Statistics – 15 hours, University of Milano-Bicocca.
- Statistics (2021). Master in Servitization of the automotive sector – 12 hours, University of Piemonte Orientale.
- Statistica (2020-2021; 2021-2022). Bachelor’s degree in “Economia Aziendale” sede di Alessandria, University of Piemonte Orientale.
- Metodi statistici per l’impresa (2019-2020; 2020-2021). Master’s degree in “Amministrazione, controllo e professione”, University of Piemonte Orientale. (co-owner of the course with Prof. Bongiorno).
- Introduction to R (2017-2018; 2018-2019). Master’s degree in “Scienze statistiche ed economiche”, University of Milano-Bicocca (Lecturer).
- “Statistica I” (2016-2017; 2017-2018; 2018-2019). Bachelor’s degree in “Scienze statistiche ed economiche”, University of Milano-Bicocca (Assistant).
- “Statistica” (2015-2016; 2016-2017). Bachelor’s degree in Sociology, University of Milano-Bicocca (Assistant).
- “Statistica I - Complementi” (2015-2016). Bachelor’s degree in “Statistica e gestione delle informazioni”, University of Milano-Bicocca. (Assistant)
- “Calcolo delle probabilità” (2013-2014; 2015-2016). Bachelor’s degree in “Scienze statistiche ed economiche”, University of Milano-Bicocca (Assistant).
- “Demografia” (2013-2014). Bachelor’s degree in Sociology, University of Milano-Bicocca (Assistant).
- Demografia Sociale (2012-2013). Bachelor’s degree in “Statistica e gestione delle informazioni”, University of Milano-Bicocca (Tutor).

SUPERVISED STUDENTS

- Second thesis advisor for Master’s degree in “Biostatistica”. Students: Bertolazzi, G. (2016), Gallo, F. (2017), De Carolis, L. (2017).
- Second thesis advisor for Master’s degree in “Scienze statistiche ed economiche”. Student: Gerosa, F. (2018).

ADDITIONAL SKILLS

Languages: Italian (mother tongue), English (good)

Statistical software: R, SAS, winBUGS, STAN

Other software: LaTeX, Microsoft Office

Novara, 23/12/2022

Agnese Maria Di Brisco

I give my permission to use my private data as for the Italian DL 196/03.