

Andrea Gilardi | Curriculum Vitae

– Milan, Italy

✉ andrea.gilardi@polimi.it • 🌐 agila5.github.io • 🌐 agila5
📞 0000-0002-9424-7439 • 🏠 agila

Summary

I am an Assistant Professor (Ricercatore SECS-S/01, Legge 240/10 tipo A) at the [Department of Mathematics of Politecnico di Milano](#). I am a member of the [MOX](#) laboratory of mathematical modelling and scientific computing. My main research interests focus on the analysis of spatial and spatio-temporal data on linear networks.

Current Position

Politecnico di Milano

Milan, Italy

Assistant Professor (RTDA)

JUN. 23 - Today

I am working on a project named [GRINS: Growing Resilient, INclusive and Sustainable](#) which is part of the Next Generation EU program (National Recovery and Resilience Plan).

Education

University of Milano - Bicocca

PhD in Statistics and Mathematical Finance

NOV.17–APR.21

University of Milano - Bicocca

Master Degree in Statistics (LM-82)

Final mark: 110/110 e lode (Magna cum laude)

SET.15–OTT.17

Università of Milano - Bicocca

Bachelor Degree in Statistics (L-41)

Final mark: 110/110 e lode (Magna cum laude)

SET.12–SET.15

Teaching

Lecturer (Docente)

- *Lab - Data Science for Industrial Engineering*, Politecnico di Milan, Master degree in Mechanical Engineering, 45 hours, a.y. 2024-2025, Co-Lecturer. [Details](#).
- *Statistical Learning for Healthcare Data*, Politecnico di Milano, Master degree in Biomedical Engineering, 30 hours, a.y. 2024-2025. [Details](#).
- *Basics of Statistics and Biomedical Signals*, Politecnico di Milano, Bachelor degree in Biomedical Engineering, 30 hours, a.y. 2023-2024. [Details](#).
- *R for Data Science*, University of Milano - Bicocca, PhD in Economics, Management and Statistics, Curriculum Statistics, 12 hours per year, aa.yy. 2022-2023; 2023-2024. [Materials](#).
- *Livellamento al Software R* (Introduction to the R Software), University of Milano - Bicocca, Master degree in Statistics and Economics, 14 hours per year, aa.yy. 2022-2023; 2023-2024; 2024-2025.

Teaching Assistant (Esercitatore)

- *Basics of Statistics and Biomedical Signals*, Politecnico di Milano, Bachelor degree in Biomedical Engineering, 15 hours, a.y. 2023-2024. [Details](#).
- *Statistica II* (Statistics II), University of Milano - Bicocca, Bachelor degree in Statistical and Economic Sciences, 20 hours per year, aa.yy. 2017-2018; 2022-2023; 2023-2024.

Tutor

- *Statistica II* (Statistics II), University of Milano - Bicocca, Bachelor degree in Statistical and Economic Sciences, 40 hours per year, aa. yy. 2018-2019; 2019-2020; 2020-2021; 2021-2022.
- *Lab Data Challenges*, University of Milano - Bicocca, Master degree in Statistics and Economics, 20 hours, a.y. 2020-2021.

- *R for Road Safety*, RAC Foundation, 12 hours, Oct. 2019, [Program](#) and [Materials](#).
- *Introduction to R*, University of Milano - Bicocca, Bbetween 2019 MULTIMEDIA, 20 hours, a.y. 2018-2019, [Materials](#).
- *Introduction to tidyverse and plumber*, University of Turin - Master in Data Science, 4 hours, Oct. 2018.
- *Statistica Economica M* (Economic Statistics), University of Milano - Bicocca, Master degree in Statistics and Economics, 20 hours, a.y. 2017-2018.
- *Informatica* (Informatics), University of Milano - Bicocca, Bachelor degree in Statistical and Economic Sciences, 20 hours, a.y. 2016-2017.

Working Experience

POLIMI Graduate School of Management

Professor

Milan, Italy

NOV. 23 - DEC.23

I held a 16 hours course entitled "Analytics - Tools di Analisi" for approximately 30 employees of [ACEA](#). We focused on descriptive and exploratory statistics, supervised and unsupervised clustering techniques, and principal components analysis with practical examples in JASP.

University of Milano - Bicocca

Research fellow (Assegnista di Ricerca)

Milan, Italy

JAN. 21 - JUN. 23

I worked on a project entitled "Spatio-temporal models for spatial network data" under the supervision of Prof. [Riccardo Borgoni](#).

Catholic University of the Sacred Heart

Tutor

Milan (Italy)

OCT.20-NOV.20

I worked on a project named *Black Box and Big Data per la stima e la previsione dei sinistri* under the supervision of Prof. [Diego Zappa](#).

University of Milano - Bicocca

Tutor

Milan (Italy)

JUN.20-OCT.20 & JUN.21 - OCT.21 & JUN.22 - OCT.22 & JUN.23-OCT.23

I prepared and organized the admission tests for the master degree in Statistics and Economics, Department of Economics, Management and Statistics.

GR & Partner S.A.S

Consultant

Milan (Italy)

APR.18-OCT.18

I developed a User Interface using R and Shiny.

PhD Thesis

Title: *Statistical Models and Data Structures for Spatial Data on Road Networks*

Supervisor: Prof. Riccardo Borgoni and Prof. Jorge Mateu

Summary: The thesis introduces data structures, vital pre-processing steps, and statistical models to analyse spatial data lying on road networks using point-pattern and network-lattice approaches.

Master Degree Thesis

Title: *Previsione spaziotemporale per gli interventi in emergenza delle ambulanze nel comune di Milano*

Supervisor: Prof. Riccardo Borgoni

Summary: We developed a spatiotemporal model to predict the distribution of the emergency medical interventions in Milan.

Visiting Periods

- I spent seven months in Castellón de la Plana (ES), from February 2020 to June 2020 and May 2021 to July 2021, working with Prof. [Jorge Mateu](#) on statistical models for events on road networks.
- I stayed in Leeds (UK) for three months, from September 2019 to November 2019, working with Prof. [Robin Lovelace](#) on R packages and classes for road networks. [Final presentation](#).

Publications

1. **Gilardi, A.**, Ieva, F., Statistical methods for evaluating the environmental sustainability. (2024) Book of short papers SIS 2024. Springer. Electronic ISSN: 3059-2143. [Link](#);
2. D'Angelo, N., Albano, A., **Gilardi, A.**, Adelfio, G., Spatio-temporal modelling of fires in Sicily. (2024) Book of short papers SIS 2024. Springer. Electronic ISSN: 3059-2143. [Link](#);
3. **Gilardi, A.**, Borgoni, R., Mateu, J., A non-separable first-order spatio-temporal intensity for events on linear networks: an application to ambulance interventions. (2024) *Annals of Applied Statistics* Volume 18, No. 1, 529-554. <http://dx.doi.org/10.1214/23-AOAS1800>.
4. **Gilardi, A.**, Borgoni, R., The impact of traffic flow and road signs on road accidents: an approach based on spatiotemporal point pattern analysis on linear networks. In: Book of the Short Papers - SIS 2023 (pp. 702-707), Pearson, ISBN: 9788891935618AAVV, Ancona (IT). [Link](#);
5. **Gilardi, A.**, Borgoni, R., Presicce, L., Mateu, J. (2023) Measurement Error Models for Spatial Network Lattice Data: Analysis of car crashes in Leeds. *Journal of the Royal Statistical Society: Series A (Statistics in Society)* Volume 186, Issue 3, July 2023, Pages 313–334, <https://doi.org/10.1093/jrsss/qnad057>;
6. **Gilardi, A.**, Borgoni, R., Mateu, J. (2022). Geographically weighted regression for spatial network data: an application to traffic volumes estimation. In 51th Scientific Meeting of the Italian Statistical Society (pp. 1504 - 1509). Torino:Pearson Italia. ISBN: 9788891932310, Caserta (IT). [Link](#).
7. **Gilardi, A.**, Borgoni, R., Mateu, J. (2022). Spatial statistical calibration on linear networks: an application to the analysis of traffic volumes. In Proceedings of the 10th International Workshop on Spatio-Temporal Modelling, Lleida (Spain), 1-3 June 2022. ISBN 978-84-9144-364-3. http://doi.org/10.21001/METMA_X.
8. Borgoni, R., **Gilardi, A.**, Zappa, D. (2022). Optimal Subgrids from Spatial Monitoring Networks. In: (a cura di): Lombardo R; Camminatiello I; Simonacci V, IES 2022 Innovation & Society 5.0: Statistical and Economic Methodologies for Quality Assessment - Book of Short Papers. p. 148-152, Sesto San Giovanni:Professional Knowledge Empowerment, ISBN: 978-88-94593-35-8, Capua, 2022. [Link](#).
9. **Gilardi, A.**, Mateu, J., Borgoni, R., Lovelace, R. (2022) Multivariate hierarchical analysis of car crashes data considering a spatial network lattice. *Journal of the Royal Statistical Society: Series A (Statistics in Society)* Volume 185, Issue 3, July 2022, Pages 1150–1177, <http://doi.org/10.1111/rssa.12823>;
10. **Gilardi, A.**, Borgoni, R., Presicce, L., Mateu, J. (2021) Measurement error models on spatial network lattices: car crashes in Leeds. In 13th Scientific Meeting of the Classification and Data Analysis Group, Firenze, September 9-11, 2021. <https://doi.org/10.36253/978-88-5518-340-6>;
11. **Gilardi, A.**, Borgoni, R., Mateu, J. (2021). A spatio-temporal model for events on road networks: an application to ambulance interventions in Milan. In 50th Scientific Meeting of the Italian Statistical Society (pp. 702 - 707). Torino:Pearson Italia. ISBN: 9788891927361, Pisa - Virtual. [Link](#);
12. Borgoni, R., **Gilardi, A.**, Zappa, D. (2020). Assessing the Risk of Car Crashes in Road Networks. *Social Indicators Research*, 1-19. <https://doi.org/10.1007/s11205-020-02295-x>;
13. Borgoni, R., **Gilardi, A.**, Zappa, D. (2020). Spatial modelling of driver crash risk using georeferenced data. In NESPUTT 2019 - New Economic & Statistical Perspectives on Urban & Territorial Themes. (NESPUTT 2019). E-book. vol. libreriauniversitaria, ISBN: 9788833592091, University of Milan - Bicocca, 2019. [Link](#);
14. **Gilardi, A.**, Borgoni, R., Zappa, D. (2020). Assessing the Risk of Car Accidents in Road Networks. In NESPUTT 2019 - New Economic & Statistical Perspectives on Urban & Territorial Themes. (NESPUTT 2019). E-book. vol. libreriauniversitaria, ISBN: 9788833592091, University of Milan - Bicocca, 2019. [Link](#);
15. **Gilardi, A.**, Borgoni, R., Zappa, D. (2019). Spatial Logistic Regression for Events Lying on a Network: Car Crashes in Milan. In: Book of Short Papers SIS2019. (pp. 1165-1170), Pearson, ISBN: 9788891915108, Milano, 2019. [Link](#);
16. **Gilardi, A.**, Borgoni, R., Pagliosa, A., Bonora, R. (2018). Spatiotemporal Prevision for Emergency Medical System Events in Milan. In: Book of short Papers SIS 2018 (pp. 1697-1702). ISBN: 9788891910233, Palermo, Italia, 2018. [Link](#).

Summer Schools and Workshops

- *GRINS Workshop: Geostatistical harmonisation of large environmental and climate datasets for the AMELIA platform: inter-spoke coordination and first results*, University of Bergamo, March 22nd, 2024.
- *R Project Sprint 2023*, University of Warwick (UK), August 30 - September 1, 2023. [Webpage](#).

- *Contributing to R*, Online workshop held during useR! 2021.
- *Spatial Statistics for huge datasets and best practices*, Online workshop held during useR! 2021.
- *Tidyverse developer day*, Toulouse (FR), July 2019. [Announcement](#).
- *Robust Statistics : Foundations and Recent Developments*, University of Milano-Bicocca, March 2019.
- *CLADAG, Summer School on Clustering and Classification*, University of Catania - May 2018.

Conferences

Invited

- 65th ISI World Statistics Congress 2025, The Hague (Netherlands)
- Stat Data Camp 23 - 27 September 2024 - University of Padova (Bressanone). This is a workshop organised by the University of Padova where I will present my work on the R package `sfnetworks`.
- Stataalk, 30-31 May 2024, Department of Statistics, Computer Science, Applications G. Parenti, University of Florence (Italy)
- 2023 IMS International Conference on Statistics and Data Science (ICSDS), December 18-21, 2023, Lisbon (Portugal)
- 15th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 17-19 December 2022) - King's College London, London (United Kingdom).
- Summer Institute in Computational Social Science (SICSS-Covenant), 22-29 June 2022, Covenant University, Ogun State (Nigeria). Online.
- OpenGeoHub Summer School 2021, 1-3 September 2021, Online Event.

Contributed

- METMA XI, 11th International Workshop on Spatio-Temporal Modelling, 23-25 July 2024, Lancaster (UK)
- useR! 2024 Meeting, 8-11 July, Salzburg (AU)
- 52th meeting of the Italian Statistical Society, 17 - 20 June 2024, Bari (Italy)
- Free and Open Source Software for Geospatial (FOSS4G), 22-28 August 2022, Florence (Italy).
- 51th meeting of the Italian Statistical Society, 22-24 June 2022, Caserta (Italy).
- METMA X, 10th International Workshop on Spatio-Temporal Modelling, 1-3 June 2022, Lleida (Spain)
- CLADAG 2021, 13th Scientific Meeting Classification and Data Analysis Group, 9-11 September 2021, Online.
- UseR! 2021 Meeting, 5-9 July 2021, Online.
- 50th meeting of the Italian Statistical Society, 21-25 June 2021, Online.
- OpenGeoHub 2020, 16-23 August 2020, Wageningen (Netherlands).
- Nesputt 2019: New Economic & Statistical Perspective, 21-22 November 2019, Milan (Italy).
- Meeting of the Italian Statistical Society, 18-21 June 2019, Milan (Italy).
- 49th Meeting of the Italian Statistical Society, 20-22 June 2018, Palermo (Italy).

Attended

- Stataalk, September 15th, 2023, Università di Roma - Sapienza (Italy).
- GRASPA 2023, 10-11 July 2023, Palermo (Italy).
- Workshop Young Environmental Statistician (YES), February 3rd, 2023, University of Bologna (Italy).
- e-Rum 2020: European R User Meeting, 17-20 June 2020, Online event.
- UseR! 2019 Meeting, 9-12 July 2019, Toulouse (France).
- Stataalk, March 29th, 2019, University of Bologna (Italy).
- Stataalk, November 17th, 2017, University of Padova (Italy).

Organized Conferences

- I'm a member of the Organizing Committee for the SDS 2025 Conference.

- I'm organizing a session for the CFE-CMStatistics 2024 conference which will be held at King's College London (UK) from December, 14th to December, 16th 2024.
- I'm a member of the Organizing Committee of the [Mathematics for planet Earth \(M4E\)](#) Workshop. This workshop will be held on November 11-12, 2024 at Politecnico di Milano (Italy)
- I organized an online Webinar and Hackathon related to the R package [sfnetworks](#) as official satellite event of the e-Rum 2020 Conference. [Materials](#), [slides](#) and [recordings](#).
- I was a member of the Local Organizing Committee of [Nesputt 2019: New Economic & Statistical Perspective](#) conference, Milan (Italy).

Grants

- [Tidy Spatial Networks in R](#) funded by the [R Consortium](#). 9000\$. Joint project with [Lucas van der Meer](#), [Lorena Abad](#), and [Robin Lovelace](#).

Awards

- [IMS New Researcher Travel Award](#) to attend the ICSDS 2024 Conference (750 USD)
- Travel award to attend the [R Project Sprint 2023](#) event. 650£.
- Scholarship for the OpenGeoHub 2020 - Summer School. Project: *plotKML functionality to support sf and stars objects*. 800€. [Final presentation](#).
- [SIS](#) award for the best poster at the SIS-2019 conference.
- [Young-SIS](#) award for the best poster at the SIS-2018 conference.

Community activities

Referee service

AStA Advances in Statistical Analysis (2); Journal of Transport Geography (1); PLOS ONE (1) Scientific Reports (2); Spatial Statistics (3); Statistical Methods & Applications (1); Stochastic Environmental Research and Risk Assessment (1); Technometrics (1).

Affiliations

Institute of Mathematical Statistics (IMS); International Statistical Institute (ISI); rOpenSci; Società Italiana di Statistica (SIS); Sezione Giovani della Società Italiana di Statistica (Y-SIS).

Projects and activities with public engagement

- Member of the group working on Progetto di Terza Missione entitled *Analisi della dislocazione spaziale e spaziotemporale degli interventi extraospedalieri e definizione di criteri per monitorare e dimensionare la flotta dei mezzi di soccorso*, University of Milano - Bicocca, 2023.
- *Corso di Formazione Tavolo territoriale | Elementi di geo-statistica e microsimulazione spaziale*. This is a workshop organised by [PoliS](#) and [Istat](#) that was held online and in presence at the end of June 2024. I presented a 90 minutes talk which was entitled *Incidentalità stradale in Lombardia*.

Software

I am a proficient R user, with a particular interest in the `r-spatial` world and tidyverse environment. I am the author of two R packages, namely [osmextract](#) ([reviewed](#) by rOpenSci foundation and now on [CRAN](#)) and [sfnetworks](#) (also on [CRAN](#)). The first package focuses on the management and downloading of Open Street Map data extracts obtained from several providers (like [Geofabrik](#)), while the second package provides a tidy approach to spatial network analysis.

I contributed to several R packages like `ggplot2`, `recipes`, `sf`, `stplanr`, `dodgr`, and `osmdata`. I attended the [Tidyverse Developer Day](#) in Tolouse during the UseR! 2019 conference and I attended the [R Project Sprint 2023](#) event at the University of Warwick (UK).

I can write scientific documents and presentations using \LaTeX and I have a basic knowledge of Rust, GDAL, POSTGIS, JASP, SAS, Python, and STATA.

Badges

SAS: [SAS Certified Base Programmer for SAS 9](#)

SAS: [SAS Certified Predictive Modeler Using SAS Enterprise Miner 7](#)

Additional Information

Associazioni: Volunteer at Volontari del Soccorso di Calolziocorte from July 2016.

Notes

Autorizzo la pubblicazione ai sensi del D.Lgs. n. 33/2013 "Riordino della disciplina riguardante gli obblighi di pubblicità, trasparenza e diffusione di informazioni da parte delle pubbliche amministrazioni" e acconsento all'utilizzo delle informazioni ivi contenute ai sensi del D.L. n. 196/2003 "Codice in materia di protezione dei dati personali".

Le dichiarazioni rese nel presente curriculum sono da ritenersi rilasciate ai sensi degli artt. 46 e 47 del D.P.R. 445/2000.