

# Andrea Gilardi | Curriculum Vitae

– Milan, Italy

✉ andrea.gilardi@unimib.it • 🌐 agila5.github.io • 🔄 agila5 • 📄 agila

## Summary

I am a research fellow in Statistics at the University of Milano - Bicocca, Department of Economics, Management and Statistics (DEMS). My main research interests are spatial and spatiotemporal models on linear networks.

## 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)*

SET.15–OTT.17

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

### Università of Milano - Bicocca

*Bachelor Degree in Statistics (L-41)*

SET.12–SET.15

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

## Teaching

**Teaching Assistant:** Introduction to Statistical Inference, University of Milano - Bicocca SEP.17–FEB.22

**Teaching Assistant:** Lab Data Challenges, University of Milano - Bicocca FEB.21–MAY.21

**Teaching Assistant:** R for Road Safety. RAC Foundation. Program and Materials. OCT.19–OCT.19

**Tutor:** Introduction to R, University of Milano - Bicocca. Materials. MAR.19–APR.19

**Tutor:** Introduction to *tidyverse* and *plumber*, University of Turin - Master in Data Science OCT.18–OCT.18

**Teaching Assistant:** Economic Statistics, University of Milano - Bicocca APR.18–JUL.18

**Teaching Assistant:** Informatics, University of Milano - Bicocca MAY.17–SEP.17

## Working Experience

### University of Milano - Bicocca

*Research fellow*

**Milan (Italy)**

JAN.21–Present

I work on a project entitled "Spatio-temporal models for spatial network data".

### Catholic University of the Sacred Heart

*Consultant*

**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.

### 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

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**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

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- 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

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1. **Gilardi, A.**, Borgoni, R., Presicce, L., Mateu, J., Measurement Error Models for Spatial Network Lattice Data: Analysis of Car Crashes in Leeds. Under review. Preprint;
2. **Gilardi, A.**, Borgoni, R., Mateu, J., A non-separable first-order spatio-temporal intensity for events on linear networks: an application to ambulance interventions. Under review. Preprint;
3. **Gilardi, A.**, Lovelace, R., Padgham, M., Data structures and methods for reproducible street network analysis: overview and implementations in R. Under review. Preprint;
4. **Gilardi, A.**, Mateu, J., Borgoni, R., Lovelace, R., Multivariate hierarchical analysis of car crashes data considering a spatial network lattice. *Journal of the Royal Statistical Society: Series A (Statistics in Society)*. <http://doi.org/10.1111/rssa.12823>;
5. **Gilardi, A.**, Borgoni, R., Presicce, L., & Mateu, J., 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>;
6. **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). Pearson Italia. Link;
7. 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>;
8. 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. Link;
9. **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. Link;
10. **Gilardi, A.**, Borgoni, R., & Zappa, D. (2019). Spatial Logistic Regression for Events Lying on a Network: Car Crashes in Milan. In Smart Statistics for smart applications (pp. 1165-1170). Pearson Italia. Link;
11. **Gilardi, A.**, Borgoni, R., Pagliosa, A., & Bonora, R. (2018). Spatiotemporal Prevision for Emergency Medical System Events in Milan. In 49th Scientific Meeting of the Italian Statistical Society (pp. 1697-1702). Person Italia. Link.

## Summer Schools and Workshops

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- Contributing to R, Online workshop held during useR! 2021. Recordings.
- Spatial Statistics for huge datasets and best practices, Online workshop held during useR! 2021. Recordings.
- 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

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### Invited.....

- OpenGeoHub Summer School 2021, 1-3 September 2021, Online Event.

### Contributed.....

- CLADAG 2021, 13th Scientific Meeting Classification and Data Analysis Group, Online, September 9-11, 2021.
- UseR! 2021 Meeting, 5-9 July 2021, Online event.
- 50th meeting of the Italian Statistical Society, 21-25 June 2021, Online event.
- 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.....

- 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

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- 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

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- Tidy Spatial Networks in R funded by the R Consortium. 9000\$

## Awards

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- Scholarship for the OpenGeoHub 2020 - Summer School. Project: *plotKML functionality to support sf and stars objects*. 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

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### Referee service

AStA Advances in Statistical Analysis; Spatial Statistics; rOpenSci.

### Affiliations

Società Italiana di Statistica (SIS); rOpenSci.

## Software

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I am a proficient R user, with a particular interest in the `r-spatial` world and the 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). I contributed to several R packages like `ggplot2`, `recipes`, `sf`, `stplanr` and `osmdata`. I attended the *Tidyverse Developer Day* in Toulouse during the UseR! 2019 conference.

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

## Badges

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**SAS:** SAS Certified Base Programmer for SAS 9

**SAS:** SAS Certified Predictive Modeler Using SAS Enterprise Miner 7

## Additional Information

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

## Notes

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Autorizzo il trattamento dei miei dati personali ai sensi del Decreto Legislativo 30 giugno 2003, n. 196 "Codice in materia di protezione dei dati personali".