Mirko Armillotta

University of Rome Tor Vergata
Department of Economics & Finance
Columbia Street, 2, 00133
Room 2B3-3, second floor, Building B
Rome, Italy

Email: mirko.armillotta@uniroma2.it
Homepage: mirkoarmillotta.github.io
ORCiD: orcid.org/0000-0002-0548-6957

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Research Interests

Statistical Theory and Methods	Time Series Analysis
Integer-valued time series	Inference for dynamic models
Observation-driven models	Econometrics
Network time series	Forecasting

Professional Experience

- University of Rome Tor Vergata, Italy
  - **Assistant Professor of Statistics (Tenure-track, STAT-01/A)**
    Department of Economics & Finance — 11/2024 – present
- Vrije Universiteit Amsterdam, The Netherlands
  - **Research Associate**, Department of Econometrics & Data Science — 9/2022 – 11/2024
- Tinbergen Institute, The Netherlands
  - **Candidate Fellow** — 5/2023 – 11/2024
- University of Cyprus, Cyprus
  - **Postdoctoral Researcher**, Department of Mathematics & Statistics — 11/2020 – 8/2022
- Lancaster University, UK
  - **Visiting Researcher**, Department of Mathematics & Statistics — 1/2020 – 5/2020
- University of Bologna, Italy
  - **Tutor**, Department of Statistics and Department of Economics — 2017 – 2019

Education

- **Ph.D. in Statistical Sciences**, University of Bologna, Italy, 11/2017 – 5/2021
  - Dissertation Title: *Essays on discrete valued time series models* (Link)
  - Thesis Advisors: *Alessandra Luati, Monia Lupparelli*
  - External Advisor: *Konstantinos Fokianos*
  - External Reviewers: *David Matteson, Christian Francq*
- **M.A. in Statistics, Economics and Business (cum laude)**
  University of Bologna, Italy, 9/2015 – 9/2017
  - Dissertation Title: *Analisi delle serie economiche e finanziarie con i modelli Markov-Switching Vector Autoregressive*
  - Thesis Advisor: *Giuseppe Cavaliere*
- **B.Sc. in Statistical Sciences (cum laude)**, University of Bologna, Italy, 9/2012 – 7/2015
  - Dissertation Title: *La previsione della volatilità con dati a diverse frequenze: I modelli MIDAS*
  - Thesis Advisor: *Luca De Angelis*

Awards & Fellowships

- PI for the project "Bayesian Dynamic Modelling of Underreported Count Time Series" for the call "Ricerca Scientifica di Ateneo 2024" financed by the University of Rome Tor Vergata (02/2025 – 02/2027).
- Best Young Contribution Award for the best proceeding presented at SIS 2024, awarded by the Young Italian Statistical Society.
- **Marie Skłodowska-Curie Individual Fellowship (187K euro)** financed by the European Commission (4/2023 – 12/2024).
- **Award for the Best Ph.D. Thesis in Statistics 2022**, awarded by the Italian Statistical Society.
- Marco Polo Ph.D. fellowship to Lancaster University, 2020, University of Bologna.
- Erasmus fellowship to Alexandru Ioan Cuza University, 2017, University of Bologna.
- Award for the best students, 2014-2015, University of Bologna.

Peer-Reviewed Articles

1. M. Armillotta and K. Fokianos: "Mirko Armillotta and Konstantinos Fokianos' contribution to the Discussion of "New tools for network time series with an application to COVID-19 hospitalisations" by Nason et al.", *Journal of the Royal Statistical Society Series A: Statistics in Society*, To appear.

2. M. Armillotta and P. Gorgi: "Pseudo-variance quasi-maximum likelihood estimation of semi-parametric time series models", *Journal of Econometrics*, 246: 105894, 2024. (Link)

3. M. Armillotta, K. Fokianos, and A. Guizzardi: "Unveiling Venice's hotels competition networks from dynamic pricing digital market", *Journal of the Royal Statistical Society Series A: Statistics in Society*, 187(1): 132-159, 2024. (Link)

4. M. Armillotta and K. Fokianos: "Count Network Autoregression", *Journal of Time Series Analysis*, 45(4): 584-612, 2024. (Link) **Top-viewed and Top-cited article 2023.**

5. M. Armillotta and K. Fokianos: "Nonlinear Network Autoregression", *The Annals of Statistics*, 51(6): 2526-2552, 2023. (Link) (Working paper)

6. M. Armillotta, M. Tsagris, and K. Fokianos: "Inference for Network Count Time Series with the R Package PNAR", *The R Journal*, 15(4): 255-269, 2023. (Link)

7. M. Armillotta, A. Luati and M. Lupparelli: "Observation-driven models for discrete-valued time series", *Electronic Journal of Statistics*, 16(1): 1393–1433, 2022. (Link)

Peer-Reviewed Articles in Conference Proceedings

1. M. Armillotta and P. Gorgi: "On the Estimation of INAR Models with Pseudo-Variance Quasi-Maximum Likelihood", *Methodological and Applied Statistics and Demography III, SIS 2024, Short Papers, Contributed Sessions 1*, Springer, 2025, pp. 71-76. (Link)

2. M. Armillotta: "Two-stage weighted least squares estimator of multivariate conditional mean observation-driven time series models", *Book of short Papers SIS 2023*, Pearson, 2023, pp. 770-775. (Link)

3. M. Armillotta, K. Fokianos and I. Krikidis: "Generalized Linear Models Network Autoregression", *Network Science*, Springer, 2022, pp. 112–125. (Link)

4. M. Armillotta, A. Luati and M. Lupparelli: "Observation-driven models for storm counts", in: *Book of short Papers SIS 2020*, Pearson, 2020, pp. 863–868. (Link)

5. M. Armillotta, A. Luati and M. Lupparelli: "Stationarity of a general class of observation driven models for discrete valued processes", in: *Book of short Papers SIS 2019*, Pearson, 2019, pp. 31–38. (Link)

Book Chapters

1. M. Armillotta, A. Luati and M. Lupparelli: "An overview of ARMA-like models for count and binary data", *Trends and Challenges in Categorical Data Analysis*, Springer, 2023, pp. 233-274. (Link)

2. M. Armillotta, K. Fokianos and I. Krikidis: "Bootstrapping Network Autoregressive Models for Testing Linearity", *Data Science in Applications*, Springer, 2023, pp. 99–116. (Link)

Working Papers

1. M. Armillotta, P. Gorgi and A. Lucas A: "Copula tensor count autoregressions for modeling multidimensional integer-valued time series", 2025, under review. (`Link`)
2. M. Armillotta: "Two-stage weighted least squares estimator of multivariate discrete-valued observation-driven models", 2023, under review. (`Link`)

Software

- M. Tsagris, M. Armillotta and K. Fokianos: "R Package PNAR: Poisson Network Autoregressive Models". (`Link`)

Conference Presentations

- ICEEE 2025 - 11th Italian Congress of Econometrics and Empirical Economics of the Italian Econometric Association (SIdE/IEA), University of Palermo, Palermo, Italy, May 2025.
- Villa Mondragone Time Series Symposium in honour of Marco Lippi, Tor Vergata University of Rome, Rome, Italy, October 2024 (Invited).
- SIS 2024 - 52nd scientific meeting of the Italian Statistical Society, University of Bari Aldo Moro, Bari, Italy, June 2024.
- CFE-CMStatistics Conference, HTW, Berlin, Germany, December 2023 (Invited).
- NBER-NSF Time Series Conference, UQAM, Montréal, Canada, September 2023 (Main session).
- SIS 2023 - Statistical Learning, Sustainability and Impact Evaluation, Marche Polytechnic University, Ancona, Italy, June 2023.
- Statistical Methods on Networks, University of Leipzig, Germany, September 2022 (Invited).
- SIS 2022 - 51st scientific meeting of the Italian Statistical Society, University of Campania "Luigi Vanvitelli", Caserta, Italy, June 2022 (Invited).
- International Symposium on Nonparametric Statistics (ISNPS), Paphos, Cyprus, June 2022 (Invited).
- Challenges for Categorical Data Analysis (CCDA), University of Perugia, Italy, May 2022 (Invited).
- International Conference on Network Science (NetSci-X), Porto, Portugal, February 2022.
- NBER-NSF Time Series Conference, Rice University, Houston, USA, October 2021 (Main session).
- RCEA Time Series Workshop, University of Milano-Bicocca, Milan, Italy, June 2021.
- Data Research Camp, University of Padova, Venice, Italy, July 2019.
- SIS 2019 - Smart Statistics for Smart Applications, Catholic University, Milan, Italy, June 2019 (Invited).

Invited Seminar Presentations

- Center for Research in Economics and Statistics (CREST), École nationale de la statistique et de l'administration économique (ENSAE), Paris, May 2025.
- Directorate General for Economics, Statistics and Research, Bank of Italy, Rome, February 2024.
- Department of Economics and Finance, University of Rome Tor Vergata, Italy, January 2024.
- Department of Economics, University of Crete, Greece, May 2023.
- Department of Statistics and Data Science, Research Center in Mathematics (CIMAT), Mexico, February 2022.
- Department of Econometrics and Data Science, Vrije Universiteit Amsterdam, The Netherlands, January 2022.

Organizer of Scientific Events

- Chair of session at the Villa Mondragone Time Series Symposium in honour of Marco Lippi, Tor Vergata University of Rome, Rome, Italy, October 2024.
- Organizer and chair of the session "Advances in multivariate and network time series methods" at the CFE-CMStatistics Conference, HTW, Berlin, Germany, Dec 2023.

Advanced Course and Schools attended

- CMStatistics 2023, Advanced Course on "Risk management with vine copula based dependence models." HTW Berlin, Germany (14-15 Dec 2023). Presenters: Claudia Czado, Oezge Sahin, Karoline Bax.
- CMStatistics 2023, Advanced Course on "Network econometrics." HTW Berlin, Germany (15 Dec 2023). Presenters: Monica Billio, Roberto Casarin.

Academic Service

- Member of the Admissions Committee for the XLI cycle of the PhD program in "Economics and Finance" at the University of Rome Tor Vergata.
- Member of the Faculty Board for the PhD program in "Economics and Finance" at the University of Rome Tor Vergata, from the academic year 2025/2026 - Cycle XLI.
- Member of the Evaluation Committee for the "Award for the best Master's thesis in Methodological Statistics in memory of Oliviero Lessi", established by the Italian Statistical Society.

Academic Qualifications

- National Scientific Habilitation (ASN) for Associate Professor in the Academic Recruitment Fields:
  - 13/D1- Statistics (from 04/07/2025 to 04/07/2037) - Ref. D.D. n. 1796/2023 from MUR.
  - 13/A5- Econometrics (from 24/06/2025 to 24/06/2037) - Ref. D.D. n. 1796/2023 from MUR.

Professional Society Membership

- Italian Econometric Association (SIdE)
- Italian Society of Statistics (SIS)
- Italian Biometric Society (SIB)

Skills

- Software: R, C++, Python, Matlab, LaTeX, Microsoft Office
- Languages: English (fluent) and Italian (native)

Teaching Experience

- Time Series, SECS-S/03. Teacher/Course coordinator, 36 hours of lectures (in English) 2024 – 2025

Vrije Universiteit Amsterdam

- Statistics PM. Teacher/Course coordinator, 30 hours of lectures (in English) 2023 – 2024
- Econometrics II. Teacher, 24 hours of lectures (in English) 2022 – 2023

University of Bologna

- Statistics, SECS-S/01. Tutor and Teaching assistant, 30 hours 2018 – 2019
- Survey and Data Analysis, SECS-S/01. Tutor, 20 hours 2018 – 2019
- Market Analysis, SECS-S/03. Tutor, 10 hours 2017 – 2019

Supervising and Mentoring Activities

- Bachelor and Master theses supervision, Vrije Universiteit Amsterdam 9/2022 – present
  - Supervised 11 Master theses as the first supervisor
  - Supervised 4 Bachelor theses as the first supervisor

Referee Activity

Applied Mathematical Modelling, Computational Statistics and Data Analysis, Econometrics and Statistics, Environmetrics, International Statistical Review, Journal of Econometrics, Journal of Statistical Computation and Simulation, Journal of Time Series Analysis, Software X, Statistical Methods and Applications, Statistical Modelling, Statistics and Computing, Statistics and Probability Letters.