Mirko Armillotta

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Research Interests

Count time series	Discrete-valued processes
Econometrics	Forecasting economic variables
Network time series	Observation-driven models
Statistical inference for dynamic models	Time Series Analysis

Education

- **Ph.D. in Statistical Sciences**, University of Bologna, Italy, 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, 9/2017
  - 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, 7/2015
  - Dissertation Title: *La previsione della volatilità con dati a diverse frequenze: I modelli MIDAS*
  - Thesis Advisor: *Luca De Angelis*

Professional Experience

- Vrije Universiteit Amsterdam, The Netherlands
  - **Research Associate**, Department of Econometrics & Data Science 9/2022–present
- Tinbergen Institute, The Netherlands
  - **Candidate Fellow** 5/2023–present

- 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
  - **Teaching tutor**, Department of Statistics and Department of Economics 2017–2019

Awards & Fellowships

- **Marie Skłodowska-Curie Individual Fellowship (187K euro)** financed by the European Commission (4/2023– present).
- **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.

Published Articles

1. M. Armillotta, M. Tsagris, and K. Fokianos: "Inference for Network Count Time Series with the R Package PNAR", *The R Journal*, forthcoming, 2024. `(Link)`
2. M. Armillotta and K. Fokianos: "Nonlinear Network Autoregression", *The Annals of Statistics*, 51(6): 2526-2552, 2023. `(Link)` `(Working paper)`
3. M. Armillotta and K. Fokianos: "Count Network Autoregression", *Journal of Time Series Analysis*, jtsa.12728, 2023. `(Link)`
4. 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)`
5. 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*, qnad085, 2023. `(Link)`
6. 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)`
7. M. Armillotta, K. Fokianos and I. Krikidis: "Generalized Linear Models Network Autoregression", *Network Science*, Springer, 2022, pp. 112–125. `(Link)`
8. 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)`
9. 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. 31–39. `(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: "Two-stage weighted least squares estimator of multivariate discrete-valued observation-driven models", 2023, under review. (`Link`)
2. M. Armillotta and P. Gorgi: "Pseudo-variance quasi-maximum likelihood estimation of semi-parametric time series models", 2023, under review. (`Link`)

Software

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

Conference Presentations

- CFE-CMStatistics Conference, HTW, Berlin, Germany, December 2023.
- 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

- 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, January 2022.

Organizer of Scientific Events

- Organizer and chair of the session "Advances in multivariate and network time series methods" at the CFE-CMStatistics Conference, HTW, Berlin, Germany, Dec 2023.

Professional Society Membership

- Italian Society of Statistics (SIS)
- Italian Biometric Society (SIB)

Skills

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

Teaching Experience

Vrije Universiteit Amsterdam

- Statistics PM. Teacher and Course coordinator, 30 hours of lectures — 2023 – present
- Econometrics II. Teacher, 24 hours of lectures — 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 10 Master theses as the first supervisor
  - Supervised 4 Bachelor theses as the first supervisor

Referee Activity

- Computational Statistics and Data Analysis
- Econometrics and Statistics
- Journal of Time Series Analysis
- Software X
- Statistics and Computing

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