Mirko Armillotta

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Last update: January 23, 2024

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, 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): 130-157, 2024. `(Link)`
3. M. Armillotta and K. Fokianos: "Nonlinear Network Autoregression", *The Annals of Statistics*, 51(6): 2526-2552, 2023. `(Link)` `(Working paper)`
4. M. Armillotta and K. Fokianos: "Count Network Autoregression", *Journal of Time Series Analysis*, jtsa.12728, 2023. `(Link)`
5. 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)`
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

Applied Mathematical Modelling, Computational Statistics and Data Analysis, Econometrics and Statistics, Journal of Time Series Analysis, Software X, Statistics and Computing.

January 23, 2024