

Rodolfo METULINI, PHD

Personal Data

PLACE AND DATE OF BIRTH: Cattolica (RN) - Italy | 15 May 1983
ADDRESS: Via Enrico Noe 2 - 20131 Milano (MI) - Italy
MOBILE: +39 349 1617597
EMAIL: rodol.metulini@gmail.com

Short Bio

I serve the Department of Economics and Statistics at University of Salerno as Assistant Professor (RTDa). I received a PhD in Statistics at the University of Bologna in 2013.

My area of research involves Statistical Modelling for Big and High-Dimensional data, Sports Statistics (players' trajectories in Basketball in relation with team performance) and Spatial Statistics (with particular interest on Eigenvector Spatial Filters). Those statistical methods have been applied to Gravity Model of Trade (Migration, Foreign Direct Investments, Water and Cultural Goods trade), Mobile Phone data, Credit Scoring and Bank Failure Prediction and to players' performance in basketball.

I published in several international journals (Social Indicator Research, Journal of Applied Statistics, Journal of Quantitative Analysis in Sports, PlosOne, Physica A, Econometrics, The World Economy, Advances in Water Resources, Economia Politica, Electronic Journal of Applied Statistical Analysis, Statistics & Applications).

Actual Commitment

JUL 2019 - | Assistant Professor (RTDa) at **Department of Economics and Statistics - University of Salerno**, Fisciano (SA).
CURRENT

Past commitments in Academia

JUL 2016 - | Post-Doc at **Department of Economics & Management - University of Brescia**, Brescia. Tutors: Prof. Maurizio Carpita, Prof. Paola Zuccolotto; Involved project: DMS Stat-Lab ((<https://sites.google.com/a/unibs.it/dms-statlab/>)) BODaI (<http://bodai.unibs.it/>), BDsports (<http://bodai.unibs.it/bdsports/>)
JUN 2019

OCT 2015 - | Post-Doc at **Institute of Economics - Scuola Superiore S.Anna**, Pisa. Tutor:
JUN 2016 | Prof. Giorgio Fagiolo; Involved project: ISIGrowth (Horizon 2020 project No 649186).

JUN 2013 - | Post-Doc at **IMT School for Advanced Studies**, Lucca. Tutor: Prof. Massimo
SEP 2015 | Riccaboni; Involved projects: Crisislab (EU FP7 & Horizon 2020); ViWaN (FIRB - RBFR12BA3Y)

Involved projects

- Big & Open Data Innovation Laboratory (BODaI-Lab), project nr. 03-2016, granted by Fondazione Cariplo and Regione Lombardia <https://bodai.unibs.it>
- ISIGrowth (Horizon 2020 project No 649186) <http://www.isigrowth.eu/>
- Crisislab (EU FP7 & Horizon 2020) <http://www.crisislab.it/>
- ViWaN (FIRB - RBFR12BA3Y) <https://watertofood.org/>

Education

- NOV 2009 - | PhD in STATISTICAL METHODOLOGY FOR THE SCIENTIFIC RESEARCH, **Department of Statistics - University of Bologna**, Bologna.
FEB 2013 | Thesis title: "Spatial Gravity Models for the Analysis of International Trade"
Supervisor: Prof. ssa Rosa BERNARDINI PAPALIA
- JAN 2006 - | Master of Science Degree in STATISTICS AND ECONOMICS, 107/110. **Department of Statistics - University of Bologna**, Bologna
MAR 2008 | Thesis title : "Struttura e delocalizzazione delle imprese del settore meccanico in Emilia-Romagna"
Supervisor: Prof. Carlo FILIPPUCI
- OCT 2002 - | Bachelor Degree in STATISTICA E INFORMATICA PER L'AZIENDA, 101/110. **Department of Statistics - University of Bologna**, Bologna
JAN 2006 | Thesis title: "La Customer Satisfaction sui clienti della Pulirapida S.r.l."
Supervisor: Prof. ssa Cristina BERNINI

Past commitments in private Companies

- APR 2009 - | Biostatistician - Quality System Assurance assistant at MEDIDATA S.R.L., CLINICAL
DEC 2009 | RESEARCH OPERATOR (CRO), Modena
Producing reports for clinical and observational trials. I participated in the project of an information systems
- JUL 2008 - | Junior Economist at PROMETEIA S.P.A., Bologna
JAN 2009 | Forecasting of financial variables to a regional disaggregated level with STATA and DEMETRA.
- MAR 2008 - | Analyst at RES.COOP S.R.L., Bologna
JUN 2008 | Analyzing the structure of the mechanical sector firms in relation to their outsourcing production phase.

Member of:

- Societa' Italiana di Statistica (SIS)
- Spatial Econometric Association (SEA)

Reviewed papers for:

Papers in Regional Science (Wiley, Impact Factor (IF): 1.272); PLOS One (PLOS, IF: 2.806); Advances in Complex Systems (World Scientific, IF: 0.833); Health Economics (Wiley, IF: 2.301); Water Resources Research (Wiley, IF: 4.397); Water (MPDI, IF: 1.832); Sustainability (MPDI, IF: 1.789); Journal of European Real Estate Research (Emerland Insight) (2 times); Applied Network Science (Springer); Empirical Economics (Springer, IF: 0.974); Electronic Journal of Applied Statistical Analysis (EJASA); International Journal of Geographical Information Science (Taylor & Francis, IF: 2.370); J (MDPI); Journal of Quantitative Analysis in Sports (De Gruyter, CiteScore 2017: 0.67); Science of the Total Environment - STOTEN (Elsevier, IF 2018: 5.589); Economics Bulletin (EconPapers); Journal of Sports Analytics (IOS Press); IMA Journal of Management Mathematics (Oxford University Press); Journal of Sports Sciences (Taylor & Francis).

Scientific Committees:

- 2nd International Conference on Applied Economics and Finance. 5-6 December, 2016 - Girne American University, Kyrenia, North Cyprus.

- International Conference on Advanced Water Technologies and Energy Management. 2-3 April 2018 - Cambridge, United Kingdom.

External referee for:

- "Essays on the Growth and Productivity of Italian Firms throughout the Crisis" (PhD Thesis by Dr. Francesco Biancalani, IMT School for Advances Studies Lucca)

Seminars

- | | |
|----------|---|
| MAR 2017 | Sensor Analytics in basketball
University of Brescia - Brescia (Italy). Chair: Prof. ssa Paola Zuccolotto |
| OCT 2016 | Accounting for Space using Spatial Econometrics and Network techniques
University of Brescia - Brescia (Italy). Chair: Prof. ssa Rossella Levaggi |
| JUL 2013 | Spatial Econometrics and Social Networks
IMT Institute for Advanced Studies - Lucca (Italy). Chair: Prof. Massimo Riccaboni |
| JAN 2013 | Spatial Gravity Models for International Trade
Georg August University - Goettingen (Germany) . Chair: Dot. ssa Maria C. Lo Bue |
| JUL 2012 | The Spatial Gravity Model of Trade: an application among the OECD countries
ERSA summer school - Umea (Sweden). Chair: Prof. Johan Lundberg |
| JUL 2009 | La Futility Analysis
Medidata S.r.l. - Modena (Italy). Chair: Dot. ssa Lucia Simoni |

Publications

PAPERS IN INTERNATIONAL JOURNALS

1. Metulini, R., Carpita M., **A Spatio-Temporal Indicator for City Users based on Mobile Phone Signals and Administrative Data**. Social Indicator Research, pp. 1-21, doi: <https://doi.org/10.1007/s11205-020-02355-2>
2. Metulini, R., Le Carre, M., **Measuring Sport Performances Under Pressure by Classification Trees with Application to Basketball Shooting** (2020). Journal of Applied Statistics. 47:12, 2120-2135. doi: <https://doi.org/10.1080/02664763.2019.1704702>
3. Metulini, R., Manisera, M., Zuccolotto, P., **Modelling the dynamic pattern of surface area in basketball and its effects on team performance** (2018). Journal of Quantitative Analysis in Sports. Vol. 14, Issue 3, pp. 117-130; doi: <https://doi.org/10.1515/jqas-2018-0041>
4. Metulini, R., Schiavo, S., Sgrignoli, P., Riccaboni, M., **The Network of Migrants and International Trade** (2018). Economia Politica. Vol. 35, Issue 3, pp. 763-787; doi: <https://doi.org/10.1007/s40888-018-0106-6>
5. Metulini, R., Patuelli, R., Griffith, D.A., **A Spatial Filtering Zero Inflated Approach to the Estimation of the Gravity Model of Trade** (2018). Econometrics 6(1), 9; doi: [10.3390/econometrics6010009](https://doi.org/10.3390/econometrics6010009)
6. Metulini, R., **Filtering procedures for sensor data in basketball**. Statistics & Applications. Vol. 15, Issue 2, pp. 1-18. (2017)
7. Metulini, R., **Spatio-Temporal Movements in Team Sports: A Visualization approach using Motion Charts** (2017). Electronic Journal of Applied Statistical Analysis Vol. 10, Issue 03, pp. 810-832. doi: [10.1285/i20705948v10n3p810](https://doi.org/10.1285/i20705948v10n3p810)

8. De Angelis, E., Metulini, R., Bove, V., Riccaboni, M., **Virtual Water Trade and Bilateral Conflicts** (2017). *Advances in Water Resources*, Vol. 110, pp. 549-561. doi:10.1016/j.advwatres.2017.04.002
9. Metulini, R., Riccaboni, M., Sgrignoli, P., Zhu, Z. (2017). **The Indirect Effects of FDI on Trade: A Network Perspective**. *The World Economy*, Vol. 40, Issue 10, pp. 2193–2225. DOI:10.1111/twec.12504
10. Metulini R, Tamea S, Laio F, Riccaboni M (2016) **The Water Suitcase of Migrants: Assessing Virtual Water Fluxes Associated to Human Migration**. *PLoS ONE* 11(4): e0153982. doi:10.1371/journal.pone.0153982
11. Sgrignoli, P., Metulini, R., Schiavo, S., Riccaboni, M. (2015). **The relation between global migration and trade networks**. *Physica A: Statistical Mechanics and its Applications*, 417, 245-260. doi:10.1016/j.physa.2014.09.037

CONTRIBUTIONS ON EDITED BOOKS

1. Manisera, M., Metulini, R., Zuccolotto, P. (2019), **Basketball analytics using spatial tracking data**. "New Statistical Developments in Data Science" - A. Petrucci, F. Racioppi, R. Verde (Editors), series: PROMS. DOI:10.1007/978-3-030-21158-5
2. Metulini, R., Riccaboni, M., Serti, F. (2020), **Water-in-food, Conflicts and Refugee Movements: A Comprehensive Analysis**, in: T. Distefano (eds.), *Water Resources and Economic Processes*, 224-261, Routledge (forthcoming) ISBN: 2019978-0-367-11140-3
3. Patuelli, R., Linders, G.J., Metulini, R., Griffith, D.A. (2016), **The Space of Gravity: Spatial Filtering Estimation of a Gravity Model for Bilateral Trade**. *Spatial Econometric Interaction Modelling*, pp. 145-169. Springer.

CONFERENCE PROCEEDINGS

1. Metulini R., Carpita M. (2019) **The HOG-FDA Approach with Mobile Phone Data to Modeling the Dynamic of Peoples Presences in the City**. In Bini M., Amenta P., D'Ambra A., Camminatiello I. (Eds.), *IES 2019 Innovation & Society - Statistical Evaluation Systems at 360: Techniques, Technologies and new Frontiers Book of Abstracts*, Cuzzolin Editing.
2. Facchinetti, T., Metulini, R., Zuccolotto, P. (2019) **Detecting and classifying moments in basketball matches using sensor tracked data**. *SIS 2019 - Smart Statistics for Smart Applications - Book of short papers*, editors: Giuseppe Arbia, Stefano Peluso, Alessia Pini, Giulia Rivellini. ISBN 9788891915108
3. Metulini, R., Carpita, M. (2019) **A strategy for the matching of mobile phone signals with census data**. *SIS 2019 - Smart Statistics for Smart Applications - Book of short papers*, editors: Giuseppe Arbia, Stefano Peluso, Alessia Pini, Giulia Rivellini. ISBN 9788891915108
4. Manisera M., Metulini R., Sandri M., Zuccolotto P. (2019), **Basketball Spatial Performance Indicators**. *Data Science & Social Research 2019, Book of Abstracts*, ISBN: 9788894312096
5. Metulini R., Carpita, M. (2019), **Human Activity Spatio-Temporal Indicators using Mobile Phone Data**. *Data Science & Social Research 2019, Book of Abstracts*, ISBN: 9788894312096
6. Metulini R. (2018), **Modelling the dynamic pattern of surface area in basketball and its effects on team performance**. *Book of abstract, COMPSTAT 2018*. ISBN: 978-9963-2227-3-5
7. Metulini R., (2018), **Players Movements and Team Shooting Performance: a Data Mining approach for Basketball**. *Book of short papers SIS2018*, ISBN-9788891910233. Publisher: Pearson, Editors: Antonino Abbruzzo, Eugenio Brentari, Marcello Chiodi e Davide Piacentino.

8. Metulini R., Manisera M., Zuccolotto P. (2017), **Space-Time Analysis of Movements in Basketball using Sensor Data**. In A. Petrucci and R. Verde (Eds.) "Statistics and Data Science: new challenges, new generations". Proceedings of the SIS 2017 Conference of the Italian Statistical Society (University of Florence, 28-30 June 2017), Firenze University Press, pp. 701-706. ISBN (on line) 978-88-6453-521-0.
9. Metulini, R., Manisera, M., Zuccolotto, P. (2017), **Sensor Analytics in Basketball**. Proceedings of the 6th International Conference on Mathematics in Sport. In C. De Francesco, L. De Giovanni, M. Ferrante, G. Fonseca, F. Lisi, S. Pontarollo, Proceedings of MathSport International 2017 Conference (University of Padua, 26-28 June 2017), Padova University Press, pp. 265-274. ISBN: 978-88-6938-058-7.
10. Sgrignoli, P., Metulini, R., Schiavo, S., Riccaboni, M. (2013, December). **The Relation between Global Migration and Trade Networks**. In Signal-Image Technology & Internet-Based Systems (SITIS), 2013 International Conference on (pp. 553-560). IEEE.
11. Metulini, R. (2013, November). **Spatial gravity models for international trade: a panel analysis among OECD countries**. In ERSA conference papers (No. ersa13p522). European Regional Science Association.
12. Metulini, R. (2013, November). **A structural analysis on Gravity of Trade regarding the possibility to remove distance from the model**. In ERSA conference papers (No. ersa13p520). European Regional Science Association.

POSTERS

1. Metulini, R., Carpita, M. (2018), **On Clustering Daily Mobile Phone Density Profiles**. Workshop "High Dimensional Small Data" (Ca Foscari - Venice)

WORK IN PROGRESS

1. Patuelli, R., Metulini, R., Lionetti, S., **Trading Cultural Goods in the Era of Digital Piracy**, MIMEO;
2. Facchinetti, T., Metulini, R., Zuccolotto, P., **Detecting the Active Moments of a Basketball Game by using Sensor Data**; (Submitted to "Data & Knowledge Engineering" - Elsevier)
3. Balistrocchi, M., Metulini, R., Carpita, M., and Ranzi, R., **Dynamic maps of people exposure to floods based on mobile phone data**, Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2020-201>, in review, 2020;
4. Metulini, R., **Variable selection in high-dimensional autologistic models for failure prediction**, MIMEO.

Advanced courses & Summer schools

JAN 2019	Model Based Clustering Univesity Carlo Cattaneo LIUC, Castellanza, Varese (Italy) Instructor: Prof. Cristina Tortora
NOV 2017	Introduction to Functional Data Analysis Univesity of Bergamo - Bergamo (Italy) Instructor: Prof. Laura Sangalli
SEP 2012	Topics in Microeconometrics with applications to Energy Environmental economics Centro Interuniversitario di Econometria (CidE) - Palermo (Italy) Director: Prof. Matteo Manera
JUL 2012	Fiscal federalism, mobility and policy evaluation European Regional Science Associatio (ERSA) Summer school - Umea (Sweden) Director: Prof. Johan Lundberg
MAY-JUN 2011	Advanced course in Spatial Econometrics Spatial Econometrics Advanced Institute (SEAI) - Roma (Italy) Director: Prof. Giuseppe Arbia

Teaching

2020	Dipartimento di Scienze Aziendali (DISA-MIS) - Università di Salerno - Strumenti Quantitativi per l'Azienda , hours: 30 (6 CFU)
2019	Dipartimento di Scienze Economiche e Statistiche - Università di Salerno - Analisi Quantitativa del Rischio Finanziario , hours: 30 (6 CFU)
2013, 2014, 2015, 2017, 2018	Spatial Econometrics Advanced Institute (SEAI, Director: Prof. Giuseppe Arbia). III week - Practicals on Econometric Methods for Spatial and Social Networks , with R , hours: 10 (Prof. Ingmar Prucha)
2013, 2014, 2016	Spatial Econometrics Advanced Institute (SEAI, Director: Prof. Giuseppe Arbia). II week - Practicals on Spatial Econometrics , with R , hours: 10 (Prof. Anil Bera)
2016, 2017, 2018	Teacher Assistant in Statistica per le decisioni aziendali , hours: 40 University of Brescia - Department of Economics and Management. Chair Professor: Prof. Eugenio Brentari.
APR 2016	Lecturer for the class: Empirics of Trade to the bachelor students. Jointly with Giorgio Fagiolo (S.Anna) and Gianluca Santoni (CEPII). , hours: 4, Institute of Economics - Scuola Superiore S.Anna (Prof. Giorgio Fagiolo)
APR 2015	Lecturer for the course on: International Economics and Business . hours: 2, XXX IMT doctoral cycle - (tracks: Computer Science, Economics and Management. IMT Institute for Advanced Studies Lucca. (Prof. Massimo Riccaboni)
2014, 2015	Teaching on Statistics Lab for the XXX, IMT doctoral cycle. (hours:10, tracks: Computer Science, Economics and Management). IMT Institute for Advanced Studies Lucca.
2010, 2011, 2013	Teacher Assistant in Economic Statistics , hours: 30 University of Bologna - Department of Statistics. Chair Professor: (Prof. Carlo Filippucci.)
2010, 2011	Teacher Assistant in Quantitative methods for economic development , hours: 30 University of Bologna - Department of Statistics. Chair Professor: (Prof. Carlo Filippucci.)

Conferences

- SEP 2020 | **Mathematical and Statistical Methods for Actuarial Sciences and Finance (eMAF) 2020 remote conference**, 18-22-25 September 2020. Presented Papers: "Variable selection in high-dimensional autologistic models for failure prediction"
- JUL 2019 | **IES 2019 - STATISTICAL EVALUATION SYSTEMS AT 360°: TECHNIQUES, TECHNOLOGIES AND NEW FRONTIERS**, European University of Rome, Roma, Italy 4-5 July 2019. Presented Papers: "The HOG-FDA Approach with Mobile Phone Data to Modeling the Dynamic of People's Presences in the City" (with M. Carpita) (**Invited**)
- JUN 2019 | **SIS 2019 - Smart Statistics for Smart Applications**, Catholic University of the Sacred Heart, Milano, Italy 18-21 June 2019. Presented Papers: "Detecting and classifying moments in basketball matches using sensor tracked data" (with T. Facchinetti, P. Zuccolotto) (**Invited**)
"A strategy for the matching of mobile phone signals with census data" (with M. Carpita) (**Invited**)
- FEB 2019 | **Second international conference on data science and social research**, 4 February 2019 - University of Milano-Bicocca; 5 February 2019 - IULM University. Presented Papers: "Basketball Spatial Performance Indicators" (with M. Manisera, P. Zuccolotto, M. Sandri)
"Human Activity Spatio-Temporal Indicators using Mobile Phone Data" (With M. Carpita)
- OCT 2018 | **Workshop High Dimensional Small Data**, European Center for Living Technologies (ECLT), Venice, Italy, 19-20 October 2018. Presented Poster with speed presentation (5 minutes): "On Clustering Daily Mobile Phone Density Profiles"
- AUG 2018 | **23rd International Conference on Computational Statistics (COMPSTAT, 2018)**, Iasi, Romania, 28-31 August 2018. Presented paper: "Modelling the dynamic pattern of surface area in basketball and its effects on team performance" (**Invited**)
- JUN 2018 | **SIS 2018 Conference of the Italian Statistical Society** (University of Palermo, 20-22 June 2018). Presented paper: "Players Movements and Team Shooting Performance: a Data Mining approach for Basketball" (**Invited**)
- FEB 2018 | **Workshop: Stochastic Optimization and Data Analytics for Computational Management**. Bergamo (Italy). Attended only.
- NOV 2017 | **Workshop: Big Data Analytics in Sports**. Brescia (Italy). Attended only.
- JUN 2017 | **SIS2017**. Florence (Italy). Presented paper: "Space-Time Analysis of Movements in Basketbal using Sensor Data" (with M.Manisera, P. Zuccolotto)
- JUN 2017 | **MathSport International**. Padua (Italy). Presented paper: "Sensor Analytics in Basketball" (with M.Manisera, P. Zuccolotto)
- JUN 2016 | **Spatial Econometric Assoiation (SEA) 2016**. Roma (Italy). Presented paper: "A Spatial Filtering Zero - Inflated approach to the Estimation of the Gravity Model of Trade" (with R.Patuelli, D.A. Griffith)
- MAY 2016 | **Primo Simposio "Acqua Risorsa Globale**. Torino (Italy). Attended only.
- SEP 2015 | **European trade study group (ETSG) 2015**. Paris (France). Presented paper: "A Spatial Filtering Zero Inflated approach to the Estimation of the Gravity Model of Trade" (with R.Patuelli, D.A. Griffith)
- SEP. 2014 | **European Conference on Complex Systems (ECCS) 2014**. Lucca (Italy). Presented papers: (1) "FDI and Trade: A Comparative network analysis approach" (with P.Sgrignoli, Z.Zhu and M. Riccaboni) (2) "The Virtual Water Suitcase of Migrants (3 minutes IGNITE talk, with S.Tamea, F.Laio, M.Riccaboni)"

- SEP 2014 | **European trade study group (ETSG) 2014.** Munich (Germany). Presented paper: "The Migration Network effect on International Trade" (with P.Sgrignoli, S.Schiavo, M.Riccaboni)
- JUL 2014 | **Italian trade study group (ITSG) 2014.** Cagliari (Italy). Presented paper: "The Migration Network effect on International Trade" (with P.Sgrignoli, S.Schiavo, M.Riccaboni)
- AUG 2013 | **Regional Integration: Europe, the Mediterranean and the World Economy, ERSA.** Palermo (Italy). Presented papers: (1) "Measuring spatial externalities in gravity models for international trade: a panel analysis among OECD countries" (2) "A structural analysis on Gravity of Trade regarding the possibility to remove distance from the model"

I consent to the publication of my CV in compliance with legal requirements for transparency (articoli 46 e 47 del D.P.R. 445/2000)

Rodolfo Metulini,
22/09/2020