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Personal details

Birthplace: Milano, Italy Citizenship: Italian

Present

2020-today Alma Mater Studiorum - Università di Bologna, Dipartimento di Scienze Economiche
Full Professor

Past

2017-2019 London School of Economics and Political Science (LSE), Department of Statistics
Associate Professor

2010-2017 London School of Economics and Political Science (LSE), Department of Statistics
Assistant Professor

2008-2010 Université libre de Bruxelles, European Center for Advanced Research in Economics and Statistics (ECARES)
Post-doctoral Researcher

2008 Max Planck Institut für Ökonomik, Evolutionary Economics Group, Jena
Post-doctoral Researcher

2005-2007 Scuola Superiore Sant'Anna, Laboratory of Economics and Management (LEM), Pisa
Research Fellow ("Assegno di ricerca")

Education

Ph.D. Economics (supervisor: Marco Lippi), Apr 2008
Scuola Superiore Sant'Anna, Istituto di Economia, Pisa

M.Sc. Modelling and Simulation of Complex Realities, Sep 2003
International School for Advanced Studies (ISAS) and International Center for Theoretical Physics (ICTP), Trieste

M.Sc. ("Laurea") in Physics (Mathematical Physics and Astrophysics), May 2002
Università degli studi di Milano

Visiting

Cambridge University, Faculty of Economics, Feb 2020; Università Bocconi, Bocconi Institute for Data Science and Analytics (BIDSA), Milano, Sep-Dec 2017, Apr 2018; Università di Bologna, Dipartimento di Scienze Statistiche "Paolo Fortunati", Oct 2017; Princeton University, Department of Operational Research and Financial Engineering (ORFE), Oct-Nov 2013; Universitat Pompeu Fabra, Departament d'Economia i Empresa, Barcelona, Sep 2013; Universiteit Maastricht, Department of Quantitative Economics, Feb 2010; Columbia University, Business School, New York, Oct 2006-Apr 2007; Universidad Carlos III, Departamento de Estadística, Madrid, Oct-Dec 2005

Short visits

Federal Reserve Board of Governors, Washington, DC, May 2016, May 2017, Apr 2019; Isaac Newton Institute for Mathematical Sciences, Cambridge, Aug 2016; The Chinese University of Hong Kong, Department of Statistics, Jun 2016; Southwestern University of Finance and Economics, Chengdu, May 2015; University of Pennsylvania, Department of Economics, Philadelphia, Oct 2013, Mar 2015; Institut für Höhere Studien (IHS), Vienna, Mar 2013; National University of Singapore, Institute for Mathematical Sciences, Jun 2012

External faculty

Università Bocconi, Department of Economics, 2020; Scuola Superiore Sant'Anna, Istituto di Economia, Pisa, 2016-2018; African Institute for Mathematical Sciences (AIMS), Senegal, 2016; Sciences Po, Paris School of International Affairs, 2014-2015

Other affiliations

International Statistical Institute (ISI), elected member; Euro Area Business Cycle Network (EABCN), fellow; Université libre de Bruxelles, ECARES, associate fellow; The Granger Centre for Time Series Econometrics, University of Nottingham, external fellow

Publications in refereed journals

26. "Time-Varying General Dynamic Factor Models and the Measurement of Financial Connectedness", with M. Hallin, S. Soccorsi, R. von Sachs *Journal of Econometrics*, 2020, forthcoming

25. "Sequential Testing for Structural Stability in Approximate Factor Models", with L. Trapani, *Stochastic Processes and their Applications*, 2020, available online. doi.org/10.1016/j.spa.2020.03.003
24. "Generalized Dynamic Factor Models and Volatilities: Consistency, Rates, and Prediction Intervals", with M. Hallin, *Journal of Econometrics*, 2020, 116(1), 4-34. doi.org/10.1016/j.jeconom.2020.01.003
23. "Cointegration and Error Correction Mechanisms for Singular Stochastic Vectors", with M. Lippi, M. Luciani, *Econometrics*, 2020, 8(3), 1-23. doi.org/10.3390/econometrics8010003
22. "NETS: Network Estimation for Time Series", with C. Brownlees, *Journal of Applied Econometrics*, 2019, 34(3), 347-364. doi.org/10.1002/jae.2676
21. "Identification of Global and Local Shocks in International Financial Markets via General Dynamic Factor Models", with M. Hallin, S. Soccorsi, *Journal of Financial Econometrics*, 2019, 17(3), 462-494. doi.org/10.1093/jfinec/nby006
20. "Intellectual Property Rights, Imitation, and Development. The Effect on Cross-Border Mergers and Acquisitions", with M. Campi, M. Dueñas, G. Fagiolo, *The Journal of International Trade & Economic Development*, 2019, 28(2), 230-256. doi.org/10.1080/09638199.2018.1518477
19. "Power-Law Partial Correlation Network Models", with C. Brownlees, G. Lugosi, *Electronic Journal of Statistics*, 2018, 12(2), 2905-2929. doi.org/10.1214/18-EJS1478
18. "Simultaneous Multiple Change-Point and Factor Analysis for High-Dimensional Time Series", with H. Cho, P. Fryzlewicz, *Journal of Econometrics*, 2018, 206(1), 187-225. doi.org/10.1016/j.jeconom.2018.05.003
17. "On the Stability of Euro Area Money Demand and its Implications for Monetary Policy", with A. Conti, *Oxford Bulletin of Economics and Statistics*, 2018, 80(4), 755-787. doi.org/10.1111/obes.12239
16. "Spatio-Temporal Patterns of the International Merger and Acquisition Network", with M. Dueñas, R. Mastrandrea, G. Fagiolo, *Scientific Reports*, 2017, 7(1), 10789. doi.org/10.1038/s41598-017-10779-z
15. "Generalized Dynamic Factor Models and Volatilities: Estimation and Forecasting", with M. Hallin, *Journal of Econometrics*, 2017, 201(2), 307-321. doi.org/10.1016/j.jeconom.2017.08.010
14. "A Network Analysis of the Volatility of High-Dimensional Financial Series", with M. Hallin, *Journal of the Royal Statistical Society - series C*, 2017, 66(3), 581-605. doi.org/10.1111/rssc.12177
13. "Identifying the Independent Sources of Consumption Variation", with A. Moneta, *Journal of Applied Econometrics*, 2016, 31(2), 420-449. doi.org/10.1002/jae.2441
12. "Generalized Dynamic Factor Models and Volatilities: Recovering the Market Volatility Shocks", with M. Hallin, *The Econometrics Journal*, 2016, 19(1), C33-C60. doi.org/10.1111/ectj.12047
11. "Disentangling Systematic and Idiosyncratic Dynamics in Panels of Volatility Measures", with C. Brownlees, G. Gallo, D. Veredas, *Journal of Econometrics*, 2014, 182(2), 364-384. doi.org/10.1016/j.jeconom.2014.05.017
10. "Do Euro Area Countries Respond Asymmetrically to the Common Monetary Policy?", with A. Conti, M. Luciani, *Oxford Bulletin of Economics and Statistics*, 2014, 76(5), 693-714. doi.org/10.1111/obes.12038
9. "The Common Component of Firm Growth", with L. Alessi, M. Capasso, *Structural Change and Economic Dynamics*, 2013, 26, 73-82. doi.org/10.1016/j.strueco.2012.11.002
8. "The Distribution of Consumption-Expenditure Budget Shares", with L. Alessi, M. Capasso, G. Fagiolo, *Structural Change and Economic Dynamics*, 2012, 23, 69-91. doi.org/10.1016/j.strueco.2011.09.003
7. "Non-Fundamentality in Structural Econometric Models: A Review", with L. Alessi, M. Capasso, *International Statistical Review*, 2011, 79(1), 16-47. doi.org/10.1111/j.1751-5823.2011.00131.x
6. "Identifying the Community Structure of the International Trade Multi Network", with G. Fagiolo, G. Mangioni, *Physica A*, 2011, 390(11), 2051-2066. doi.org/10.1016/j.physa.2011.02.004
5. "Immigrant's Legal Status, Permanence in the Destination Country and the Distribution of Consumption Expenditure", with B. Speciale, *Applied Economics Letters*, 2011, 18(14), 1341-1347. doi.org/10.1080/13504851.2010.537618
4. "Improving Penalization when Determining the Number of Factors in Approximate Static Factor Models", with L. Alessi, M. Capasso, *Statistics and Probability Letters*, 2010, 80(23-24), 1806-1813. doi.org/10.1016/j.spl.2010.08.005
3. "The Multi-Network of International Trade: A Commodity-Specific Analysis", with G. Fagiolo, D. Garlaschelli, *Physical Review E*, 2010, 81(4), 046104. doi.org/10.1103/PhysRevE.81.046104
2. "On the Distributional Properties of Household Consumption Expenditures: The Case of Italy", with L. Alessi, M. Capasso, G. Fagiolo, *Empirical Economics*, 2010, 38(3), 717-741. doi.org/10.1007/s00181-009-0287-5
1. "On Approximating the Distributions of Goodness-of-fit Test Statistics Based on the Empirical Distribution Function: The Case of Unknown Parameters", with L. Alessi, M. Capasso, G. Fagiolo, *Advances in Complex Systems*, 2009, 12(2), 157-167. doi.org/10.1142/S0219525909002131

Publications in conference proceedings

2. "Community Structure in the Multi-Network of International Trade", with Giorgio Fagiolo, Giuseppe Mangioni, in *Complex Networks, Communications in Computer and Information Science*, vol 116, 2010, Springer, Berlin, Heidelberg, Proceedings of Second International Workshop, CompleNet 2010, Rio de Janeiro, Brazil. doi.org/10.1007/978-3-642-25501-4

1. "Dynamic Factor Models for Forecasting and Structural Identification", in Mathematisches Forschungsinstitut Oberwolfach Reports 05, 2010, European Mathematical Society, Zürich. doi.org/10.4171/OWR/2010/05

Working papers

- "Quasi Maximum Likelihood Estimation and Inference of Large Approximate Dynamic Factor Models via the EM algorithm" with M. Luciani, 2019. arXiv.1910.03821
- "Quasi Maximum Likelihood Estimation of Non-Stationary Large Approximate Dynamic Factor Models" with M. Luciani, 2019. arXiv.1910.09841
- "Consistent Estimation of High-Dimensional Factor Models when the Factor Number is Over-Estimated" with H. Cho, 2019. arXiv.1811.00306
- "Measuring the Output Gap Using Large Datasets" with M. Luciani, 2019, ssrn.3217816
- "Large-Dimensional Dynamic Factor Models: Estimation of Impulse-Response Functions with $I(1)$ Cointegrated Factors" with M. Lippi, M. Luciani, 2019. arXiv.1602.02398
- "Testing for Common Trends in Non-Stationary Large Datasets", with L. Trapani, 2019
old version: arXiv.1806.03647

Policy notes

3. "Do National Account Statistics Underestimate US Real Output Growth?", with M. Luciani, FEDS Notes, Board of Governors of the Federal Reserve System, Washington, 2018. doi.org/10.17016/2380-7172.2116
2. "There is a Significant Divide in How Countries of the Eurozone's North and South React to Changes in Monetary Policy", European Politics and Policy, European Institute, LSE, 2013. bit.ly/1bMtF7f
1. "Una politica monetaria comune, ma effetti asimmetrici", with A. Conti, M. Luciani, La Voce, 2013. www.lavoce.info/archives/14294/

Conferences and workshops (*invited)

- 2020 II Italian Workshop of Econometrics and Empirical Economics (IWEEE), University Ca' Foscari, Venezia
- 2019 Galatina Summer Forum, Universitat Pompeu Fabra*; VI Conference of the International Association for Applied Econometrics, University of Cyprus, Nicosia; VI Rimini Centre for Economic Analysis Time Series Econometrics Workshop, Larnaca; Panel Data Forecasting Conference, INET, University of Southern California, Los Angeles*
- 2018 II Conference on Forecasting at Central Banks, Bank of England, London; Joint meeting of the Italian Mathematical Union and the Polish Mathematical Society, Wrocław*; X Workshop on Forecasting Techniques, European Central Bank, Frankfurt am Main; IV Conference of the International Society of Non-Parametric Statistics*, Salerno; Macroeconomic and Financial Time Series Analysis Workshop, Lancaster University Management School*; Big Data in Financial Markets, INET, Cambridge University*
- 2017 New Developments in Econometrics and Time Series, EIEF, Roma*; European Meeting of Statisticians (EMS), University of Helsinki*; III Vienna Workshop for High Dimensional Time Series in Macroeconomics and Finance, IHS, Vienna; Big Data in Predictive Dynamic Econometric Modeling, University of Pennsylvania, Philadelphia*; Inference in Large Econometric Models, CIRÉQ, Montréal*
- 2016 X International Conference on Computational Financial Econometrics (CFE), Sevilla*; V International Conference in Memory of Carlo Giannini, Università di Bergamo; Network Science and its Applications, Isaac Newton Institute for Mathematical Sciences, Cambridge*; NBER Summer Institute; IV Institute of Mathematical Statistics Asia Pacific Rim Meeting (IMS-APRM), The Chinese University of Hong Kong*; New Trends and Developments in Econometrics, Banco de Portugal, Lisbon
- 2015 IX International ERCIM Conference on Computational and Methodological Statistics, London*; Econometrics of Networks, INET, Cambridge University*; Statistical Finance, Southwestern University in Finance and Economics, Chengdu*; Modeling High-Dimensional Dynamic Networks in Economics and Finance, University of Pennsylvania, Philadelphia*; VI Conference on Complex Networks, New York
- 2014 VIII International Conference on Computational Financial Econometrics (CFE), Pisa*; Nonlinear Time Series Analysis Thresholding and Beyond, in celebration of Howell Tong's 70th birthday, LSE*; Dynamic Factor Models and Structural VAR Analysis, in celebration of Marco Lippi's 70th birthday, EIEF, Roma*; X BMRC-DEMS Conference on Macro and Financial Econometrics, Brunel University, London; IV Conference in Memory of Carlo Giannini, Università di Pavia
- 2013 New Developments in Econometrics and Time Series, ECARES, Université libre de Bruxelles*; Advances in Latent Variables, Methods, Models and Applications, Società Italiana di Statistica, Università di Brescia*; V Italian Congress of Econometrics and Empirical Economics (ICEEE), Università di Genova
- 2012 New Developments in Econometrics and Time Series, EIEF, Roma*; Financial Time Series, National University of Singapore*; Statistical Models for Financial Data, Technische Universität Graz*; III Conference in Memory of Carlo Giannini, Banca d'Italia, Roma

- 2011 Workshop on Factor Models, Universitat Autònoma de Barcelona*; V International Conference on Computational Financial Econometrics (CFE), London*; Econometric and Statistical Modelling of Multivariate Time Series, Université catholique de Louvain-la-Neuve*; Royal Economic Society Conference, Royal Holloway University, London; IV Italian Congress of Econometrics and Empirical Economics (ICEEE), Università di Pisa
- 2010 IV International Conference on Computational Financial Econometrics (CFE), London*; XVI International Conference on Computing in Economics and Finance (CEF), City University, London; Sir Clive Granger Memorial Conference, University of Nottingham; Workshop on Semiparametric Modelling of Multivariate Time Series, Mathematisches Forschungsinstitut Oberwolfach*
- 2009 Interuniversity Attraction Pole Meeting, Katholieke Universiteit Leuven*; IV Bruxelles-Waseda Seminar on Time Series and Financial Statistics, ENSAI, Rennes*; Workshop on Trade Networks, Scuola Superiore Sant'Anna, Pisa*
- 2008 International Conference on Factor Structures for Panel and Multivariate Time Series Data, Universiteit Maastricht; XIV International Conference on Computing in Economics and Finance (CEF), Université de la Sorbonne, Paris
- 2007 Multivariate Volatility Models, Universidad do Algarve, Faro
- 2006 XXVI International Symposium on Forecasting, Santander; Italian Congress on Time Series, Roma

Seminar talks

- 2020 King's Business School, King's College London; Faculty of Economics, Cambridge University
- 2019 ECARES, Université libre de Bruxelles; Department of Economics and Finance, Durham University; Now-Casting Economics Ltd., London; Econometric Institute, Erasmus University Rotterdam; Department of Mathematics, University of York; Economics Department, University of Southampton
- 2018 Dipartimento di Politica Economica, Università Cattolica di Milano; Essex Centre for Financial and Macro Econometrics, University of Essex; Joint Research Centre, European Commission, Ispra; Granger Centre for Time Series Econometrics, University of Nottingham; Tinbergen Institute, University of Amsterdam and Vrije Universiteit Amsterdam; Department of Economics, Lancaster University; The Alan Turing Institute, London; Banca d'Italia, Roma; CREST, École Nationale de la Statistique et de l'Administration Économique, Paris
- 2017 Dipartimento di Matematica, Università degli Studi di Milano; Joint Research Centre, European Commission, Ispra; Dipartimento di Economia, Università Ca' Foscari, Venezia; Dipartimento di Scienze Statistiche, Università di Bologna; Dipartimento di Economia, Università Bocconi; Departamento de Estadística, Universidad Carlos III, Madrid; CEIS, Università degli studi di Tor Vergata, Roma; Cass Business School, City University of London; Southampton Statistical Sciences Research Institute, S3RI, University of Southampton; Economic Modelling and Forecasting Group, Warwick Business School, University of Warwick; Now-Casting Economics Ltd., London
- 2016 School of Economics and Finance, Queen Mary University of London; Faculté d'Économie et Management, Université de Genève
- 2015 Faculty of Mathematics and Statistics, Universität St.Gallen; Department of Economics, University of Pennsylvania, Philadelphia; Department of Mathematics, University of Bristol
- 2014 Department of Economics, Mathematics and Statistics, Birkbeck College, London; CASE, Humboldt-Universität zu Berlin; Dipartimento di Economia, Università di Genova; Dipartimento di Economia e Statistica, Università di Salerno; Dipartimento di Economia, Università di Verona
- 2013 ORFE, Princeton University; Departamento de Fundamentos del Análisis Económico, Universidad de Alicante; Dipartimento di Economia, Università di Pisa; IHS, Vienna; Department of Medical Statistics, London School of Hygiene and Tropical Medicine; Institut de Recherche en Statistique, Université libre de Bruxelles
- 2012 Istituto di Economia, Scuola Superiore Sant'Anna, Pisa; Departament d'Economia i Empresa, Universitat Pompeu Fabra, Barcelona; Department of Economics, University of Manchester
- 2011 Departamento de Fundamentos del Análisis Económico, Universidad de Alicante; Dipartimento di Economia, Università dell'Insubria, Varese; Departments of Economics and of Statistics, LSE
- 2010 ECARES, Université libre de Bruxelles; Department of Statistics, LSE; Institut de Recherche en Statistique, Université libre de Bruxelles
- 2009 CORE, Université catholique de Louvain-la-Neuve; Department of Quantitative Economics, Universiteit Maastricht
- 2008 Institut de Recherche en Statistique, Université libre de Bruxelles; Dipartimento di Matematica, Università degli Studi di Milano; Chair of System Design, ETH, Zürich; Evo Group, Max Planck Institut für Ökonomik, Jena
- 2007 ECARES, Université libre de Bruxelles

Teaching

- PhD Time Series (25hrs): Scuola Superiore Sant'Anna, Pisa, 2016-2017; Dynamic Factor Models (10hrs): Scuola Superiore Sant'Anna, Pisa, 2018, London Taught Course Centre, 2014-2015, Universidad de Alicante, 2013, The Chinese University of Hong Kong, 2016, IHS, Vienna, 2013; Trade Networks (3hrs): Universidad de Alicante, 2011; Modelling Volatility in Time Series (10hrs): CIDE, Bertinoro, 2012-2014; Advanced Calculus (20hrs): Scuola Superiore Sant'Anna, Pisa, 2008
- MSc Econometrics (30hrs), Università di Bologna, 2020; Factor Models in Time Series (15hrs), LSE, 2014-2016; Applied Econometrics (24hrs), Paris School of International Affairs, Sciences Po, 2014-2015; Generalised Linear Modelling and Survival Analysis (20hrs), LSE, 2011-2014

BSc Macroeconomics (60hrs), Università di Bologna, 2020; Time Series and Forecasting (20hrs), LSE, 2015-2019; Probability, Distribution Theory, and Inference (20hrs), LSE, 2010-2019

Referee (*multiple times)

The Annals of Statistics*, Journal of the American Statistical Association*, Journal of the Royal Statistical Society (series B* and C*), Journal of Econometrics*, The Review of Economics and Statistics*, Biometrika, Statistica Sinica*, Journal of Banking and Finance, Journal of Business and Economic Statistics*, Journal of Applied Econometrics*, Electronic Journal of Statistics, Econometrics Journal, Journal of Financial Econometrics*, International Journal of Forecasting*, Oxford Bulletin of Economics and Statistics*, Studies in Nonlinear Dynamics and Econometrics*, Scandinavian Journal of Statistics, Computational Statistics and Data Analysis*, Journal of Statistical Planning and Inference*, Statistics and Computing, Journal of Forecasting, Econometric Reviews*, Economics Bulletin*, Industrial and Corporate Change, Physica A, Journal of Korean Statistical Society, Statistical Papers, International Economic Review, Econometrics and Statistics, North American Journal of Economics and Finance, Journal of Economic Interaction and Coordination, Econometrics, Economics

Editor

Associate Editor, International Journal of Forecasting, 2019-today
Associate Editor, Statistical Inference for Stochastic Processes, 2019-today
Associate Editor, Journal of Korean Statistical Society, 2014-2019

Scholarships and awards

Carlo Giannini Prize for the best paper in Macroeconometrics and Financial Econometrics, 2011; Bourse d'Excellence Wallonie Bruxelles International, 2008-2010; Doctoral Scholarship by Italian Ministry of Education, 2003-2006; Scholarship from International School for Advanced Studies (ISAS-SISSA), Trieste, 2002-2003

Conferences scientific committee and/or organizer

Workshop on High Dimensional Time Series in Macroeconomics and Finance, IHS, Vienna, scientific committee, 2019; Invited session "Econometric Analysis of the Business Cycle", CFE, Pisa, 2018; Workshop on High Dimensional Time Series in Macroeconomics and Finance, IHS, Vienna, scientific committee, 2017; International work-conference on Time Series, Universidad de Granada, scientific committee, 2017; Invited session "Macroeconometrics and Time Series", CFE, Sevilla, 2016; Invited session "High-Dimensional Models and Networks in Macroeconomics and Finance", CFE, London, 2015; Workshop on Complex Systems and Times Series, LSE, organiser, 2015; Workshop on High Dimensional Time Series in Macroeconomics and Finance, IHS, Vienna, scientific committee, 2015

Departmental duties

Organizer of the Joint Econometrics and Statistics Workshops, LSE, 2011-2018; Organizer of the Statistics Seminars, LSE, 2011-2012, 2018-2019; Responsible for MSc Admissions, LSE, 2016-2019; Responsible for BSc Admissions, LSE, 2010-2019

Referee for research centers

Ministero dell'Istruzione, dell'Università e della Ricerca (MIUR), Italia; Agence Nationale de la Recherche (ANR), France; Hong Kong Research Grants Council (RGC); Austrian Science Fund (FWF); Natural Sciences and Engineering Research Council of Canada (NSERC); National Center of Science and Technology Evaluation of Kazakhstan

Languages

Italian (native), English, French, Spanish

Programming skills

Matlab, R, Mathematica, EViews, Stata, Gauss, SPSS

PhD students

Supervision Ali Habibnia, LSE, 2012-2017 (then Assistant Professor at Virginia Tech); Ragvir Sabharwal, LSE, 2015-2020 (expected); Filippo Pellegrino, LSE, 2017-2020 (expected); Gianluca Giudice, LSE, 2018-2021 (expected)
Committee Sujin Park, LSE, 2011; Yang Yan, LSE, 2014; Yoel Furman, Oxford, 2015; Lorenzo Ricci, ECARES, 2015; Baojun Dou, LSE, 2015; Anna-Louise Schroeder, LSE, 2016; Qilin Hu, LSE, 2016; Cheng Qian, LSE, 2019