LUIGI IPPOLITI
Born 19/04/1967, Italian citizen

PERSONAL INFORMATION

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EDUCATION

1999	Ph.D. in Statistics, University G. d'Annunzio Chieti-Pescara
1990 - 1995	B.Sc. and M.A. in Economics, same institution

CURRENT POSITION

2016 -	Full Professor in Statistics, University "G.d'Annunzio" of Chieti-Pescara

PREVIOUS POSITIONS

2005 - 2015	Associate Professor in Statistics, G. d'Annunzio University, Chieti-Pescara, Italy
2000 - 2005	Assistant Professor in Statistics, same institution

PROFESSIONAL OFFICES HELD

2019 -	Elected President of the research group of the Italian Statistical Society (SIS) for Environmental Statistics "Ricerca nazionale per le Applicazioni della Statistica ai Problemi Ambientali" (GRASPA-SIS)
2015 - 2018	Elected Vice-President of the research group of the Italian Statistical Society (SIS) for Environmental Statistics "Ricerca nazionale per le Applicazioni della Statistica ai Problemi Ambientali" (GRASPA-SIS)

INSTITUTIONAL RESPONSIBILITIES

2021 - Rector's delegate for the activities regarding the Italian Recovery and Resilience Plan, research line 3 on Environmental Risks;

RECENT GRANTS

2020 -	Principal Investigator coordinating the activities of the research project funded by Programma Operativo Nazionale Ricerca e Innovazione Fondo Sociale Europeo (PON-AIM), Attraction And International Mobility, "Big Earth data and Artificial Intelligence in environmental epidemiology for exposure prediction in Abruzzo region" - Grant: 182,000 Euro
2019 - 2020	Principal Investigator of the research project on "Analysis of spatial and spatio-temporal processes"; Department of Economics - Grant: 6,000 Euro
2018 - 2019	Principal Investigator of the research project on "Models for environmental spatio-temporal processes"; Department of Economics - Grant: 5,800 Euro
2018 - 2019	Principal Investigator of research project funded by the National Agency for Research Evaluation (ANVUR) "Un modello di Student Relationship Management per lo studio dell'abbandono della carriera universitaria" - Grant: 16,000 Euro
2017 - 2019	Principal Investigator of the research project on "Object Data Driven Discovery in Spatial Sciences"; Department of Economics - Grant: 5,600 Euro
2016 - 2020	Member of the research group working on the funded research project PRIN 2015 "Environmental processes and human activities: capturing their interactions via statistical methods, Prot. 20154X8K23 - Grant: 470,300 Euro
2012 - 2016	Member of the research group working on the funded research project FIRB 2012 "Statistical modeling of environmental phenomena: pollution, meteorology, health and their interactions", Prot. RBFR12URQJ - Grant: 637,000 Euro

SUBMITTED GRANT APPLICATIONS AS PRINCIPAL INVESTIGATOR

Complex Environmental Data and Modeling (CoEnv): National Interest Research Program PRIN 2022 Prot. 2022E3RY23 –Grant 335.540 Euros. The project is the result of a collaboration with other statistical groups from the Unversity of Torino and Politecnico di Milano.

GRANTS TO HOST RESEARCH COLLABORATORS

2007 - 2021 International agreement between Liverpool and G.d'Annunzio Universities for the research project "*Statistical Methods and Techniques for Temporal, Spatial and Spatio-Temporal analysis of environmental phenomena*" leaded by Luigi Ippoliti and Raj Bhansali - Grant: 3,000 Euro per year to cover food and accommodation expenses (two weeks)

2009 - 2022 International agreement between UFRJ (Federal University of Rio de Janeiro, BZ) and G.d'Annunzio Universities for the research project "*Building bayesian dynamic regression models for the analysis of spatio-temporal environmental processes*" leaded by Luigi Ippoliti and Dani Gamerman - Grant: 3,000 Euro per year to cover food and accommodation expenses (two weeks)

2007 - 2018 International agreement between Leeds and G.d'Annunzio Universities for the research project "*Statistical Methods for Blind Signal and Image Processing*" leaded by Luigi Ippoliti and Prof. J.T. Kent- Grant: 3,000 Euro per year to cover food and accommodation expenses (two weeks)

VISITING (only listing those of 1 month or longer)

February 2019	Dept of Statistics, Imperial College, London (UK)
February 2017	Dept of Statistics, Imperial College, London (UK).
Jul - Aug 2015	Instituto de Matemática - UFRJ, Università Federale di Rio de Janeiro, Brazil.
Jul - Aug 2014	Dept of Actuarial Science and Finance, Mathematics and Statistics, University of Kent (UK).
Jul - Aug 2013	Dept of Actuarial Science and Finance, Mathematics and Statistics, University of Kent (UK).
Jul - Aug 2012	Dept of Actuarial Science and Finance, Mathematics and Statistics, University of Kent (UK).
March 2012	Instituto de Matemática - UFRJ, Federal University of Rio de Janeiro, Brazil.
February 2010	School of Mathematics - Division of Statistics, University of Leeds (UK).
June 2009	Instituto de Matemática - UFRJ, Federal University of Rio de Janeiro, Brazil
February 2008	Dept of Statistics, University of Manchster (UK)
Jul - Aug 2007	School of Mathematics - Division of Statistics, University of Leeds (UK)
Sept 1999 – Mar 2000	School of Mathematics - Division of Statistics, University of Leeds (UK)

INVITED LECTURES AND SEMINARS (last 10 years)

2022 Long memory random fields on regular lattices. Invited talk, in the Session *Computational and methodological challenges in environmental data*. Satellite Workshop of the 24th Int. Conference of Computational Statistics, 23-26 August 2022 Bologna, Italy

2019 Modelling complex spatial and spatio-temporal data. Seminar, Department of Statistics and Applied Probability, National University of Singapore

2018 Simple spatio-temporal models for complex spatial and spatio-temporal data. Invited talk, TIES 2018 – 28th Annual Conference of the International Environmetrics Society, 16-21 July 2018 Guanjuato, Mexico

2018 Simple spatio-temporal models for complex spatial and spatio-temporal data. Invited talk, SIS 2018 – 49th Scientific meeting of the Italian Statistical Society, Palermo, Italy

2018 Simple spatio-temporal models for complex spatial and spatio-temporal data. Keynote speaker (plenary talk) a METMA IX – 9th Workshop on spatio-temporal modeling, 13-15 June, Montpellier, France

2017 Efficient likelihood computations for some multivariate Gaussian Markov random fields. Seminar, Department of Statistics, Imperial College, London (UK)

2016 Generalized Dynamic Structural Equation Models. Keynote speaker (plenary talk), Conference of XXX Japanese Statistical Computational Society, Kyoto

2016 Generalized spatial dynamic structural equation modelling of multivariate spatio-temporal variation of hospitalization data. Seminar, Dipartimento di Economia e Statistica, Università di Torino

2015 Modelling Dynamic Shapes. Seminar, Istit. de Matemática - UFRJ, Federal University de Rio de Janeiro, BZ

2014 The Offset Normal Shape Distribution for Dynamic Shape Analysis. Seminar Department of Statistics and Actuarial Science, University of Hong Kong

2014 The Offset Normal Shape Distribution for Dynamic Shape Analysis. Seminar Department of Statistics, The Open University, Milton Keynes (UK)

2014 Generalised Spatial Dynamic Structural Equation Modelling of Multivariate Spatio-Temporal Data. Seminar Department of Statistics, Imperial College, London (UK)

2014 Regression analysis in data rich environment. XLVII Conference of the Italian Statistical Society, Cagliari. Invited Talk, Specialized session in Advanced Time Series Analysis

2014 Regression analysis in data rich environment. Plenary talk, VII Conference METMA-GRASPA, Torino

2013 Modeling Spatio-Temporal Biomedical Images for Classification of Raynaud's Phenomenon. Seminar Università Cattolica del Sacro Cuore, Dipartimento di Scienze statistiche, Roma

2012 Statistical classification and modeling of biomedical signals. Seminar, University of Information Science and Technology - OHRID, Macedonia

2012 Generalized kriging and spatial sampling designs. TIES 2012, XXII Conference of the Environmetrics Society, Hyderabad (India). Invited talk, specialized session on Spatial Sampling

2012 Conditional ARMA Models for Lattice Spatial Processes. Invited talk XII Latin American Congress of Probability and Mathematical Statistics, Vina del Mar, Chile, specialized session on in Spatial Statistics

2012 Modeling US House Prices by Spatial Dynamic Structural Equation Models. Seminar Instituto de Matemática - UFRJ, Federal University of Rio de Janeiro, Brazil

CONFERENCE AND WORKSHOP ORGANISATION

2021 Member of the advisory committe for the *Intensive Geometric Deep Learning School* in Pescara, Italy, 25-28 July (https://www.sci.unich.it/geodeep2022). Invited lecturers: Michael Bronstein (University of Oxford & Twitter), Cristian Bodnar (University of Cambridge) and Francesco Di Giovanni (Twitter).

2021 Member of the international scientific committe for the 29th Conference of the International Environmetrics Society, TIES-GRASPA 2021, London, UK

2019 Member of the international scientific committe for the conference GRASPA-TIES 15-16 July 2019, Pescara

2017 Member of the advisory committe for the conference of the Italian Statistical Society "STATISTICS AND DATA SCIENCE: NEW CHALLENGES, NEW GENERATIONS", Firenze 28-30 Giugno 2017

2013 Member of the advisory committe for the conference of the Italian Statistical Society “Advances in Latent Variables. Methods, models and applications", Brescia 19-21 Giugno

2012 Member of the international scientific committe for the XXII conference of TIES 2012, Hyderabad (India)

2007 International summer school on Shape Analysis and Directional Data, Pietracamela (Teramo) 10-17 June 2007, Italy. Teachers: Professors C. C. Taylor and J.T. Kent University of Leeds

2006 International summer school on Prediction and Interpolation of Spatial and Temporal Processes, Pietracamela (Teramo) 4-9 September 2007, Italy. Teachers: Professors C. C. Taylor (University of Leeds) and R.J. Bhansali (University of Liverpool)

REVIEWING ACTIVITIES

Referee for the following journals: Statistical Methods and Applications, Statistical Methodology, Journal of Statistical Computation and Simulation, Journal of Statistical Inference and Planning, Metrika, Environmetrics, Journal of Agricultural, Biological and Environmental Statistics, Computational Statistics and Data Analysis, Journal of Computational and Graphical Statistics, Advances in Statistical Analysis (AStA), Environmetrics, Advances in Data Analysis and Classification, Journal of Applied Statistics, Stochastic Environmental Research and Risk Assessment, Stat, Sociological Methods and Research, Environmental and Ecological Statistics, Journal of Multivariate Analysis, Biometrical Journal

MEMBERSHIPS OF SCIENTIFIC SOCIETIES

Member of the Italian Statictical Society; Member of the International Environmetrics Society (TIES); Member of the GRASPA-SIS, research group for statistical applications to environmental problems; Member of the Classification and Data Analysis (CLADAG), research group for advanced methodological research in multivariate statistics

SUPERVISION OF GRADUATE STUDENTS AND POST-DOCTORAL FELLOWS

5 Postdoctoral fellows co-funded by the Italian Ministry of Education and Research and Department of Economics; 8 PhD students and more than 20 Master students

MEMBER OF Ph.D. PROGRAMME

2018 - Member of the Ph.D programme "HUMAN SCIENCES" – Profile Statistics - University "G. d'Annunzio" CHIETI-PESCARA

2013 - 2016 Member of the Ph.D programme " NEUROSCIENZE E IMAGING " – University "G. d'Annunzio" CHIETI-PESCARA

2014 - 2015 Member of the Ph.D programme " NEUROSCIENZE E IMAGING " – University "G. d'Annunzio" CHIETI-PESCARA

2011 - 2013 Member of the Ph.D programme " NEUROIMAGING FUNZIONALE: STRUMENTI, METODI E MODELLI PER LO STUDIO DELLE RELAZIONI MENTE-CERVELLO-COMPORTAMENTO" - University "G. d'Annunzio" CHIETI-PESCARA

2008 - 2011 Member of the Ph.D programme " NEUROIMAGING FUNZIONALE: DALLE CELLULE AI SISTEMI " - University "G. d'Annunzio" CHIETI-PESCARA

2006 - 2008 Member of the Ph.D programme "APPLIED STATISTICS" - University "G. d'Annunzio" CHIETI-PESCARA

2004 - 2005 Member of the Ph.D programme " ECONOMIA DELLA CONOSCENA E SVILUPPO ECONOMICO " - University "G. d'Annunzio" CHIETI-PESCARA

2003 - 2004 Member of the Ph.D programme " STATISTICA PER LE APPLICAZIONI SOCIO-ECONOMICO AMBIENTALI" - University "G. d'Annunzio" CHIETI-PESCARA

TEACHING

This includes a wide range of courses taught at B.Sc. and M.Sc. levels, mainly in Classical Inference, Econometrics, Applied Statistics and Statistical Learning.

B.Sc. and M.Sc. levels

2010 - STATISTICS, Corsi di Laurea in Business and Economics and Informatics for Business and Economics
2018 - STATISTICAL LEARNING, Corso di Laurea ECONOMICS ND BUSINESS ANALYTICS
2017 - 2019 DATA MINING, Corso di Laurea in Informatics for Business and Economics
2017 - 2018 STATISTICAL INFERENCE, Corso di Laurea in Business and Administration
2012-2016 ECONOMETRICS, Corso di Laurea in Informatics for Business and Economics
2010 - 2013 STATISTICS FOR BUSINESS, Corso di Laurea in Economics and Management
2002 - 2009 STATISTICAL INFERENCE, Corso di Laurea in Business and Administration
2003 - 2008 MULTIVARIATE ANALYSIS, Master in Economics and Management
2000 - 2004 COMPUTATIONAL STATISTICS, Master in Economics and Management

Moreover 5 courses for PhD Students, mainly on Geostatistics and Spatial and Spatio-Temporal Processes, including PhD courses taught at the Department of Economics, Univ Roma Tre; Department of Mathematical Sciences Division of Statistics and Probability, University of Liverpool (UK) and Istituto de Matemática of the Federal University of Rio the Janeiro (BZ).

Courses for PhD Students

2012 Introduction to Shape Analysis. 8 hours for Ph.D. students in Statistics, Istituto de Matemática of the Federal University of Rio the Janeiro

2007 Spatial, Temporal and Spatio-Temporal predictions. 16 hours for Ph.D. students in Statistics, University of Roma 3, Rome

2007 Spatial, Temporal and Spatio-Temporal predictions. 16 hours for Ph.D. students in Statistics, University of Turin

2006 Spatial Analysis of environmental data: an introduction to Geostatistics. 8 hours for Ph.D. students in Statistics, University of Roma “La Sapienza”

2007 Models and Applications within the Generalised Fourier Expansion of Temporal, Spatial and Spatio-Temporal Processes. 24 hours for Ph.D. students in Statistics, Department of Mathematical Sciences Division of Statistics and Probability, University of Liverpool (UK)

RESEARCH INTERESTS AND COLLABORATIONS

My main area of research is the development of statistical methodology in highly-structured data analysis, including complex environmental data, images, shapes, and functional data. My research aims to tackle environmental and medical problems by developing cutting edge statistical methods implemented through user friendly software packages. The methodology is mainly based on Bayesian spatial and spatio-temporal hierarchical models and Statistical and Machine Learning models. The research is developed within a broad network of collaborations with

experts in environmental and health disciplines, and long-standing collaborations with important stakeholders, such as national and regional Environmental Protection Agencies, ISPRA and National Health Service. Most of the research colleagues are involved in the GRASPA-SIS group (the permanent research group of the Italian Statistical Society devoted to environmental research) I'm currently coordinating and are also members of TIES, The International Environmetrics Society, which plays the same role within the International Statistical Institute for treating environmental research problems. In particular, my research enjoys strong collaborations with international research groups and leading international experts including: Dani Gamerman (Federal University Rio de Janeiro, BZ) and Alexandra M. Schmidt (McGill University, CA) for the development of Bayesian spatio-temporal models and air pollution health risk assessment; Alfred Kume (University of Kent, UK), Kanti Mardia and J.T. Kent (University of Leeds, UK) for the areas of shape, functional and image analysis; Raj Bhansali (University of Liverpool and Imperial College, Dept of Statistics, UK) for the development of spatial Markov random field models and Sara Fontanella (National Heart and Lung Institute, Imperial College, UK) for the development of Graphical models for environmental and health care applications.

Specific research-topics of interests are:

1) **Optimal spatial designs for environmental analysis and graph label propagation**: monitoring networks are important to provide information on several environmental aspects such as air pollution, acid rain, water quality, earthquakes etc. For most environmental applications, we also require a prior mapping of the target pollutant agents over the study region so that the construction of an optimal monitoring network becomes a common problem with spatial dependence playing a crucial role. When a new network is to be constructed, or an existing one augmented or modified, it is important that the monitoring sites are optimally allocated across space to maximize the information available, which can then be used to make reliable and credible inferences about a variable of interest. When geostatistical data are considered, the monitoring network can be constructed to emphasize the utility of designs for interpolation. Assuming the second-order dependence is known, optimal interpolators (in the sense of minimum mean squared error) are jointly used with design criteria generally expressed as a function of the prediction variance. The specification of the variance matrix, and the use of Gaussian Random Fields (GRFs), define an optimal interpolator known in geostatistics as kriging (Cressie, 1993). An alternative approach is to specify a Gaussian Markov Random Field (GMRF), or Gaussian conditional autoregression (Cressie, 1993), which essentially is based on the specification of the precision matrix (i.e., the inverse covariance matrix). The purpose of this project is twofold. Firstly, it aims at providing a framework for the optimal spatial interpolator in which the two forms of kriging and GMRFs can be used as well as to provide new objective functions to be used for designing optimal sampling schemes for spatial predictions. Secondly, it attempts to extend results achieved in the field of environmental monitoring to the field of semi-supervised learning on graphs where label propagation and graph neural networks rely on Markov random field models. The papers Fontanella L. et al. (2022), Ippoliti et al (2018), Fontanella S. et al. (2015), Ippoliti et al (2013), Ippoliti et al (2011), Bhansali and Ippoliti (2005), Di Zio et al. (2004) and Dryden et al. (2002) serves as a rigorous statistical framework for understanding sampling issues on a network and creates a testbed for evaluating inductive learning performance, and provides a way to sample graph attributes.

2) **Hierarchical Bayesian spatio-temporal models**: the aim is to develop explanatory and predictive hierarchical spatio-temporal models for the study of complex phenomena. Particular attention is devoted to the development of Bayesian Factor models and the related issues pertaining to the study of the relationships existing between groups of variables showing either short or long range correlations both in space and time. Current interest also rests on modeling ideas that engender parsimonious structures and, in particular, on approaches to inducing data-informed sparsity via full shrinkage to zero of (many) latent time-varying loadings. Bayesian sparsity modeling ideas are well-developed in static models, such as sparse latent factor and regression models, but mapping over to time series raises new challenges of defining general approaches to dynamic sparsity. In health care research, important results have been achieved in the recently published paper Gamerman et al. (2022) which studies the effect of multiple air pollutants on multiple diseases in a space-time context. This paper provides new methodological and practical results in a field where, given the complexity of the problem, the literature is very sparse and most of the studies are focused on the effect of one single air pollutant (e.g., PM_{10}) on one single disease (eg, respiratory disease). This paper also extends previous studies published in Di Battista et al. (2003), Fontanella L. et al. (2003), Fontanella L. et al. (2007), Ippoliti et al. (2012), Valentini et al. (2013) and Fontanella L. et al. (2015).

3) **Image processing and functional data analysis**: the aim is to work with data which are in the form of images or multiple time-dynamic processes naturally described as functional. Gauss Markov Random fields are commonly used in the field of image analysis and here we consider issues concerned with parameter estimation, both for univariate

and multivariate processes. As for functional data, we consider curves that show different degrees of complexity as for example, those that: a) have a natural hierarchical structure, b) appear as spatially dependent, c) show complex connections in the form of graphs. Data showing a hierarchical structure are common, for example, in electro-encephalography, magneto-encephalography and thermal infrared imaging studies. Examples of functional graphs can be found in brain network analysis where, for example, EEG activity is measured at number of locations on the scalp and the objective is to estimate the network between the nodes/electrodes to show possible connections between different areas. Functional graphs and spatially dependent functional time series can also be found in many environmental applications. Former papers in this research field are represented by Arestusi et al. (2011), Fontanella L. et al. (2012), Fontanella and Ippoliti (2012) and Fontanella L. et al. (2019). Recent papers for images and functional data showing more complex structures are Pronello et al. (2022), Ferretti et al. (2022) and Schmidt et al. (2022).

4) **Dynamic Shape analysis**: the shape of an object is the geometrical information remaining after the effects of changes in location, scale and orientation have been removed. Statistical analysis of dynamic shapes is a problem with significant challenges due to the difficulty in providing a description of the shape changes over time, across subjects and over groups of subjects. Recent attempts to study the shape change in time are based on the Procrustes tangent coordinates or spherical splines in Kendall shape spaces. In this framework we investigate the use of basis functions, defined by principal warps in space and time, to facilitate the development of a spatio-temporal model which is able to describe the time-varying deformation of the ambient space in which the objects of interest lie. For this project, we also deal with the statistical analysis of a temporal sequence of landmark data using the exact distribution theory for the shape of planar correlated Gaussian configurations. Specifically, we aim at extending the theory of the offset-normal distribution to a dynamic framework and discuss its use for the description of time-varying shapes. Modeling the temporal correlation structure of the dynamic process is a complex task, in general. For two time points, Mardia and Walder (1994) have shown that the density function of the offset-normal distribution has a rather complicated form and discussed the difficulty of extending their results to more than two time points. The paper Fontanella L., Ippoliti L. and Kume (2019) has shown that it is possible to calculate the closed form expression of the offset-normal distribution for a general number of time points (though its calculation can be computationally expensive) and also provides a likelihood approach to perform inference under Gaussian mixture models in dynamic shape analysis. Further relevant papers with application on facial expression recognition are Brombin et al. (2015) and Kent et al. (2021) which has been included as invited paper in a volume dedicated to CR Rao's 100th birthday.

5) **Statistical Learning and deep models in Machine Learning**: more recent works have been started by integrating deep neural network and more classical statistical modelling (see points 2 and 3 above) approaches to model spatial and spatio-temporal data. Multi-levels and nested Gaussian processes and Gaussian Markov random fields will be considered to develop deep kriging and deep GMRF models for general (e.g., nonstationary, non Gaussian) spatial processes. We will explore the performance of deep models as powerful prediction tools for a wide range of applications, with a specific focus to the recently funded project *Big Earth data and Artificial Intelligence in environmental epidemiology for exposure prediction in Abruzzo region*. Further developments are concerning with the application of deep neural networks and deep models to functional data.

PUBLICATIONS (selected)

A) Books

Brombin C., Fontanella L., Fusilli C., Ippoliti L., Salmaso L. (2016) Parametric and Nonparametric Inference for Statistical Dynamic Shape Analysis with Applications. Springer Briefs in Statistics, SPRINGER INTERNATIONAL PUBLISHING, ISBN: 978-3-319-26310-6

B) Articles in preparation or submitted for publication in Journals

a. Schmidt A.M., Ippoliti L., Cordeiro J.S., Migon H.S. Merla A. (2022) Hierarchical Dynamic Models for Structured Biomedical Signals. Technical Report, UFRJ.

b. Fontanella L., Del Gobbo E., Ippoliti L., Di Zio S., Benedetti R. (2022) A Space Filling Sampling Approach for Statistical Relational Learning. In preparation

c. Pronello N., Ignaccolo R., Ippoliti L., Fontanella S. (2022) Penalized Model-based Clustering of Complex Functional Data. Submitted to Statistics and Computing.

d. Ferretti A., Ippoliti L., Valentini P., Bhansali R. (2022) Long Memory Conditional Random Fields on Regular Lattices. Submitted to Environmetrics

C) Refereed Articles in Journals

1) Bucci A., Ippoliti L., Valentini P. (2022) Comparing unconstrained parametrization methods for return covariance matrix prediction. STATISTICS AND COMPUTING, 32:90, https://doi.org/10.1007/s11222-022-10157-4
2) Bucci A., Ippoliti L., Valentini P. (forthcoming). Analysing spatio-temporal patterns of COVID-19 confirmed deaths at the NUTS-2 regional level. REGIONAL STATISTICS
3) Gamerman D., Ippoliti L., Valentini P. (2022) Dynamic generalized structural equation modeling, with application to the effect of pollution on health. Journal of the Royal Statistical Society, Series C, 61, 175-200
4) Bucci A., Ippoliti L., Fontanella S., Valentini P (2022). Clustering spatio-temporal series of confirmed COVID-19 deaths in Europe. SPATIAL STATISTICS, 49:100543, doi: 10.1016/j.spasta.2021.100543, ISSN: 2211-6753
5) Uncini A., Aretusi G., Manganelli F., Sekiguchi Y., Magy L., Tozza S., Tsuneyama A., Lefour S., Kuwabara S., Santoro L., Ippoliti L. (2020) Electrodiagnostic accuracy in polyneuropathies: supervised learning algorithms as a tool for practitioners. Neurological Sciences. https://doi.org/10.1007/s10072-020-04499-y
6) Fontanella, Lara, Ippoliti, Luigi, Kume, Alfred (2019). The Offset Normal Shape Distribution for Dynamic Shape Analysis. JOURNAL OF COMPUTATIONAL AND GRAPHICAL STATISTICS, vol. -28, p. 374-385, ISSN: 1061-8600, doi: 10.1080/10618600.2018.1530118
7) Fontanella, Lara, Ippoliti, Luigi, Valentini, Pasquale (2019). Predictive functional ANOVA models for longitudinal analysis of mandibular shape changes. BIOMETRICAL JOURNAL, vol. 61, p. 918-933, ISSN: 0323-3847, doi: 10.1002/bimj.201800228
8) Fontanella, Lara, Ippoliti, Luigi, Sarra, Annalina, Nissi, Eugenia, Palermi, Sergio (2019). Investigating the association between indoor radon concentrations and some potential influencing factors through a profile regression approach. ENVIRONMENTAL AND ECOLOGICAL STATISTICS, vol. 26, p. 185-216, ISSN: 1352-8505, doi: 10.1007/s10651-019-00424-5
9) Ippoliti L., Martin R.J., Romagnoli L. (2018) Efficient likelihood computations for some multivariate Gaussian Markov random fields. JOURNAL OF MULTIVARIATE ANALYSIS, vol. 168, p. 185-200, doi:https://doi.org/10.1016/j.jmva.2018.07.007
10) Uncini A., Ippoliti L., Shahrizaila N., Sekiguchi Y., Kuwabara S. (2017). Optimizing the electrodiagnostic accuracy in Guillain-Barré syndrome subtypes: criteria sets and sparse linear discriminant analysis. CLINICAL NEUROPHYSIOLOGY, vol. 128, p. 1176-1183, ISSN: 1388-2457, doi: 10.1016/j.clinph.2017.03.048
11) Bruno F., Cameletti M., Franco-Villoria M., Greco F., Ignaccolo R., Ippoliti L., Valentini P., Ventrucci M. (2016) A survey on ecological regression for health hazard associated with air pollution. SPATIAL STATISTICS, vol. 18, p. 276-299, ISSN: 2211-6753, doi: 10.1016/j.spasta.2016.05.003
12) Fontanella S., Fontanella L., Ippoliti L., Valentini P. (2015) Learning Non-linear Structures with Gaussian Markov Random Fields. PROCEDIA ENVIRONMENTAL SCIENCES, vol. 26, p. 38-44, ISSN: 1878-0296, doi: 10.1016/j.proenv.2015.05.020
13) Brombin C., Salmaso L., Fontanella L., Ippoliti L. (2015) Nonparametric combination-based tests in dynamic shape analysis. JOURNAL OF NONPARAMETRIC STATISTICS, vol. 27, p. 460-484, ISSN: 1048-5252, doi: 10.1080/10485252.2015.1071811
14) Fontanella L., Ippoliti L., Sarra A., Valentini P., Palermi S. (2015) Hierarchical Generalised Latent Spatial Quantile Regression Models with Applications to Indoor Radon Concentration. STOCHASTIC ENVIRONMENTAL RESEARCH AND RISK ASSESSMENT, vol. 29, p. 357-367, ISSN: 1436-3240, doi: 10.1007/s00477-014-0917-0
15) Ippoliti L., Di Zio S., Merla A. (2014) Classification of biomedical signals for differential diagnosis of Raynaud's phenomenon. JOURNAL OF APPLIED STATISTICS, vol. , p. 1-18, ISSN: 0266-763, doi: 10.1080/02664763.2014.894002
16) Fontanella L., Ippoliti L., Sarra A., Valentini P. (2013) Spatial Growth regressions for the convergence analysis of renewable energy consumption in Europe . STATISTICA, vol. 73, p. 39-53, ISSN: 1973-2201, doi: 10.6092/issn.1973-2201/3984
17) Ippoliti L., Martin R.J., Bhansali R.J. (2013) Rational spectral density models for lattice data. SPATIAL STATISTICS, vol. 6, p. 91-108, ISSN: 2211-6753, doi: 10.1016/j.spasta.2013.09.001

18) Ippoliti L., Romagnoli L., Arbia G. (2013) A Gaussian Markov random field approach to convergence analysis. SPATIAL STATISTICS, vol. 6, p. 78-90, ISSN: 2211-6753, doi: 10.1016/j.spasta.2013.07.005
19) Valentini P., Ippoliti L., Fontanella L. (2013). Modeling US Housing Prices by Spatial Dynamic Structural Equation Models. THE ANNALS OF APPLIED STATISTICS, vol. 7, p. 763-798, ISSN:1932-6157, doi: 10.1214/12-AOAS613
20) Fontanella L., Ippoliti L., Merla A. (2012) Multiresolution Karhunen-Loève Analysis of Galvanic Skin Response for Psycho-Physiological Studies. METRIKA, vol. 75, p. 287-309, ISSN: 0026-1335, doi: 10.1007/s00184-010-0327-3
21) Ippoliti Luigi, Valentini Pasquale, Gamerman Dani (2012). Spacetime modelling of coupled spatiotemporal environmental variables. JOURNAL OF THE ROYAL STATISTICAL SOCIETY SERIES C-APPLIED STATISTICS, vol. 61, p. 175-200, ISSN: 0035-9254, doi: 10.1111/j.1467-9876.2011.01025.x
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23) Fontanella L., Ippoliti L., Martin R.J., Trivisonno S. (2008) Interpolation of Spatial and Spatio-Temporal Gaussian Fields using Gaussian Markov Random Fields. ADVANCES IN DATA ANALYSIS AND CLASSIFICATION, vol. 2, p. 63-79, ISSN: 1862-5347, doi:10.1007/s11634-008-0019-2
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