SIS 2023 - Statistical Learning, Sustainability and Impact Evaluation

(Italy)

June 21, 2023 - June 23, 2023

Conference programme

20-06-2023

18:30

Welcome Address

Room: A
Floor: ground

19:00

Round table "STATISTICA E COMUNICAZIONE"

Speakers: **Gian Carlo Blangiardo**, già Presidente ISTAT **- Gian Luca Gregori**, Rettore Università Politecnica delle Marche **- Lella Mazzoli**, Direttore scuola comunicazione Urbino
Chair: **Guido Maurino**, TGR Marche
Room: A
Floor: ground

20:30

Welcome Cocktail

21-06-2023

08:30 - 09:00

Registration

09:00 - 10:00

Plenary session

Speaker: **Maria-Pia Victoria-Feser**, Research Center for Statistics Geneva School of Economics and Management - University of Geneva
Chair: Angela Montanari (Dipartimento di Scienze Statistiche Università di Bologna)
Discussant: Silvia Cagnone (Dipartimento di Scienze Statistiche Università di Bologna)
Room: A
Floor: ground

Papers

Inequality Indices: Accurate Simulation-Based Inference

Author(s) Maria-Pia Victoria-Feser

10:05 - 11:15

"SIS-DIAS" group meeting

Organizer: Filomena Maggino

Room: A1

Floor: ground

Contributed Session

Bayesian nonparametric methods

Chair: Federico Castelletti (Università Cattolica del Sacro Cuore)

Discussant: Raffaele Argiento (Università degli studi di Bergamo)

Room: T32

Floor: ground

Papers

Bayesian density estimation for modeling age-at-death distribution

Author(s) Davide Agnoletto   Tommaso Rigon   Bruno Scarpa

Bayesian mixing distribution estimation in the Gaussian-smoothed 1-Wasserstein distance

Author(s) Catia Scricciolo

Bayesian nonparametric estimation of heterogeneous intrinsic dimension via product partition models

Author(s) Francesco Denti   Antonietta Mira   Antonio Di Noia

Bayesian nonparametric multiple change point detection for time series of compositional data

Author(s) Riccardo Corradin   Edoardo Marchionni

Galton-Watson process: a non parametric prior for the offspring distribution

Author(s) Massimo Cannas   Michele Guindani   Nicola Piras

Hierarchical processes in survival analysis

Author(s) Federico Camerlenghi   Riccardo Cogo   Tommaso Rigon

Contributed Session

Economics and Statistics

Chair: Francesca Bassi (Università di Padova)

Discussant: Matilde Bini (Università Europea di Roma)

Room: T30

Floor: ground

Papers

A regression analysis for count data to investigate the effectiveness of incentives on the adoption of 4.0 technologies

Author(s) Stefano Bonnini   Michela Borghesi

Clustering analysis on SDGs indicators related to environmental sustainability

Author(s) Anisa Bakiu   Najada Firza   Dante Mazzitelli

Empowering futures adopting a spatial convergence of opinions: a Real-Time Spatial Delphi approach

Author(s) Yuri Calleo   Francesco Pilla   Simone Di Zio

Multivariate Score-Driven models for count time series to assess financial contagion

Author(s) Arianna Agosto

Stocks price forecasts using Stochastic Differential Equations: an empirical assessment

Author(s) Dario Frisardi   Matteo Spuri

The Added-Worker Effect within Italian Households

Author(s) Donata Favaro   Anna Giraldo

Contributed Session

Health statistics 1

Chair: Veronica Vinciotti (Università di Trento)
Discussant: Laura Anderlucci (Università di Bologna)
Room: T36
Floor: ground

Papers

A model for the natural history of breast cancer: application to a Norwegian screening dataset

Author(s) Laura Bondi   Marco Bonetti   Solveig Hofvind

Generalized Bayesian Ensemble Survival Trees: an extension to categorical variables to apply it to real data

Author(s) Elena Ballante

Joint modelling of hospitalizations and survival in Heart Failure patients: a discrete non parametric frailty approach

Author(s) Francesca Ieva   Chiara Masci   Marta Spreafico

Mobility trends in Italy during the first wave of Covid-19 pandemic: analysis on Google data

Author(s) Ilaria Bombelli   Daniele De Rocchi

The role of life expectancy and income inequality in Self-reported Health in Italy

Author(s) Filippa Bono

Tracking attitudes towards COVID vaccines: A text mining analysis

Author(s) Marco Novelli   Leonardo Scarso   Francesco Saverio Violante

Treatment effect assessment in observational studies with multi-level treatment and outcome

Author(s) Pier Luigi Conti   Federica Cugnata   Clelia Di Serio   Fulvia Mecatti   Paola M.V. Rancoita   Paola Vicard

Contributed Session

Indicators: composition, uses and limitations

Chair: Riccardo Giubilei (LUISS)
Discussant: Emilia Rocco (Università di Firenze)
Room: T7
Floor: ground

Papers

Are European consumers willing to pay the true price for sustainable food?

Author(s) Luca Secondi   Mengting Yu

Can the reliability of composite indexes be impacted by uncertainty of individual indicators?

Author(s) Caterina Giusti   Stefano Marchetti   Vincenzo Mauro

Initial Coin Offerings and ESG: allies or enemies?
Author(s) Alessandro Bitetto Paola Cerchiello

On the impact of intraclass correlation in the ANVUR evaluation of academic departments
Author(s) Marco Doretti Giorgio Montanari

Small area estimation of monetary poverty indicators with poverty lines adjusted using local price indexes
Author(s) Gaia Bertarelli Caterina Giusti Biggeri Luigi Stefano Marchetti Monica Pratesi Francesco Schirripa Spagnolo

Smart Composite Indicators Measuring Corporate Sustainability: A Sensitivity Analysis
Author(s) Annamaria Bianchi Silvia Biffignandi Camilla Salvatore

Contributed Session

Multivariate data analysis 1

Chair: Valentin Todorov (UNIDO)
Discussant: Carla Rampichini (Università degli studi di Firenze)
Room: T4
Floor: ground

Papers

A note on most powerful tests for right censored survival data
Author(s) Marco Bonetti Maria Veronica Vinattieri

Enhancing Principal Components by a Linear Predictor: an Application to Well-Being Italian Data
Author(s) Laura Marcis Maria Chiara Pagliarella Renato Salvatore

Proper Bayesian Bootstrap for Bagging tree model in survival analysis with correlated data
Author(s) Elena Ballante Farah Naz

ROBOUT:amulti-step methodology for conditional outlier detection
Author(s) Matteo Farnè Angelos Vouldis

Robustness of the Efficient Covariate-Adaptive Design for balancing covariates in comparative experiments
Author(s) Alessandro Baldi Antognini Rosamarie Frieri Marco Novelli Maroussa Zagoraiou

Separation scores: a new statistical tool for scoring and ranking partially ordered data
Author(s) Marco Fattore

Contributed Session

Statistics in Society 1

Chair: Tonio Di Battista (Università degli Studi "G. d'Annunzio" Chieti)
Discussant: Simone Di Zio (Università di Chieti)
Room: T31
Floor: ground

Papers

Community detection analysis with robin on hashtag network
Author(s) Valeria Policastro Giancarlo Ragozini Francesco Santelli

Film Tourism Motivation through the lens of Trip Advisor data
Author(s) Elena Barzizza Nicolò Biasetton Marta Disegna Girish Prayag

Life satisfaction and social activities in later life in Italy: a focus on the Internet use
Author(s) Claudia Furlan Silvia Meggiolaro

Social capital endowment 's role in the intergenerational transmission of education

Author(s) Maria Gabriella Campolo   Antonino Di Pino Incognito   Alessandra Trimarchi

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Streaming Data from Social Networks to Track Political Trends

Author(s) Barbara Cafarelli   Emiliano Del Gobbo

The scientific production on gender dysphoria: a bibliometric analysis

Author(s) Massimo Aria   Luca D'Aniello   Maria Gabriella Grassia   Marina Marino   Rocco Mazza   Agostino Stavolo

11:15 – 11:45

Coffee Break

11:45 – 13:15

Invited Session

Machine learning in the design, analysis and integration of sample surveys

Organizer: Daniela Marella (Sapienza Università di Roma)
Chair: Chiara Bocci (Università degli Studi Firenze)
Discussant: Fulvia Mecatti (Università degli Studi Milano Bicocca)
Room: T31
Floor: ground
Short summary: Machine learning methods are beginning to be used in various aspects of sample surveys such as weighting, nonresponse and data integration. In this session three main aspects are examined. First of all, the use of Bayesian Networks to deal with the statistical matching problem in a multivariate context is discussed. Next, machine learning techniques incorporating the sampling weights in the imputation process are considered. Finally, a modified version of the PC algorithm for structural learning is proposed to take into account complex sample designs.

Papers

Causal Discovery for complex survey data

Author(s) Paola Vicard

Data Integration without conditional independence: a Bayesian Networks approach

Author(s) Pier Luigi Conti   Paola Vicard   Vincenzina Vitale

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Mass imputation through Machine Learning techniques in presence of multi-source data

Author(s) Fabrizio De Fausti   Marco Di Zio   Romina Filippini   Simona Toti

Invited Session

Machine learning: different uses and perspectives

Organizer: Matteo Mazziotta (ISTAT)
Chairs: Salvatore Strozza (Università di Napoli Federico II)
Discussant: Annamaria Bianchi (Università di Bergamo)
Room: T32
Floor: ground
Short summary: The use of machine learning techniques is increasing and it can play a crucial role in Official Statistics improving the quality of the outputs or increasing the efficiency of the production processes. In the last few years, several projects were launched for testing its use and applicability in different contexts. The aim of the session is to show the various applications in order to understand their usefulness in a critical perspective in which pros and cons are at the center of scientific debate

Papers

Evaluation of pollution containment policies in the US and the role of machine learning algorithms

Author(s) Marco Di Cataldo Margherita Gerolimetto Stefano Magrini Alessandro Spiganti

Machine Learning for Official Statistics: An Application on External Trade

Author(s) Mauro Bruno Maria Serena Causo Alessio Guandalini Francesco Ortame Silvia Russo

Machine learning, data quality and official statistics: challanges and opportunities

Author(s) Stefano Menghinello

Invited Session

Statistical Machine Learning for environmental applications

Organizer/Chair: Michela Cameletti (Università di Bergamo)

Discussant: Francesco Finazzi (Università di Bergamo)

Room: T30

Floor: ground

Short summary: This session is about the use of machine learning and deep learning methods as an alternative to (or integrated with) standard approaches for environmental data, such as for example kriging and spatial point pattern models. These new approaches are appreciated thanks to their flexibility and can be useful for modeling complex spatial or spatio-temporal data. However, some concerns remain with respect to interpretability and uncertainty quantification.

Papers

Gaussian Processes and Deep Neural Networks for Spatial Prediction

Author(s) Alex Cucco Luigi Ippoliti Nicola Pronello Pasquale Valentini Carlo Zaccardi

How can we explain Random Forests in a spatial framework?

Author(s) Xavier Barber Natalia Golini Luca Patelli

Recent approaches in coupling deep learning methods with the statistical analysis of spatial point patterns

Author(s) Abdollah Jalilian Jorge Mateu

Invited Session

Statistical Process Monitoring for Complex Data in Industry 4.0

Organizer/Chair: Christian Capezza (Università di Napoli Federico II)

Discussant: Alessandro Fassò, (Università degli studi di Bergamo)

Room: T36

Floor: ground

Short summary: The session addresses the challenges of monitoring and improving industrial processes in the context of Industry 4.0, where data are increasingly complex and high-dimensional. Talks cover advanced statistical techniques for anomaly detection, which are crucial for maintaining quality control and optimizing production processes. Attendees will gain insights into practical applications of statistical process monitoring and learn how to deal with complex data in Industry 4.0.

Papers

A Kernel-based Nonparametric Multivariate CUSUM for Location Shifts

Author(s) Konstantinos Bourazas Konstantinos Fokianos Christos Panayiotou Marios Polycarpou

An Approach for Profile Monitoring via Mixture Regression Models

Author(s) Davide Forcina Antonio Lepore Biagio Palumbo

Anomaly Detection in Circular Data

Author(s) Houyem Demni Giovanni Porzio

13:15 - 14:30

Lunch

14:30 - 16:00

Invited Session

Advances in Data Science and Statistical Learning [IMS Invited Session]

Organizers: Regina Liu (Rutgers University)

Chairs: Serena Arima (Università del Salento)

Discussant: TBA

Room: T7

Floor: ground

Papers

Empirical Bayes approximation of Bayesian learning: understanding a common practice

Author(s) Sonia Petrone

Generalized Fiducial Inference on Differentiable Manifolds - a geometric perspective

Author(s) Jan Hannig

Model-free bootstrap and conformal prediction in regression

Author(s) Dimitris Politis

Invited Session

ENBIS Session: System Maintenance, Boosting algorithms for regression, and Research Excellence

Organizer/Chair: Rossella Berni (Università degli Studi di Firenze)

Discussant: Nedka Dechkova Nikiforova (Università degli Studi di Firenze)

Room: T30

Floor: ground

Papers

Boosting Diversity in Regression Ensembles

Author(s) Mathias Bourel   Jairo Cugliari   Yannig Goude   Jean-Michel Poggi

How ENBIS has contributed to the UK Universities Research Excellence Framework

Author(s) Shirley Coleman

Maintenance of degrading systems by dynamic programming or reinforcement learning

Author(s) Antonio Pievatolo

Invited Session

Population Dynamics, Climate Change and Sustainability

Organizer/Chair: Raya Muttarak (Università di Bologna)

Discussant: Raya Muttarak (Università di Bologna)

Room: T31

Floor: ground

Short summary: Understanding the relevance of population dynamics on sustainability is fundamental because human activities are, by now, undoubtedly responsible for anthropogenic climate change. The already visible impact of climate change, meanwhile, can influence demographic behaviour and population dynamics. This session explores the reciprocal relationship between climate change, population dynamics and sustainability by presenting novel empirical findings based on various untapped data sources. The first and second papers focus on the impact of climate change on demographic outcomes, that is fertility and mortality. Based on harmonisation of Demographic and Health Surveys for >60 low- and middle-income countries, the first paper investigates whether and to what extent exposure to extreme climate events affect monthly and quarterly fertility rates measured at a refined spatial scale. Considering exposure to both climatic events and air pollution, the second paper explores to what extent these environmental hazards interact and increase mortality risks of children age under five in India. The third paper considers the outcome related to well-being. Using Twitter data, this paper investigates how experiencing extreme climate events influence underlying positive or negative sentiments with a focus on demographic heterogeneity. Social media data allow real-time measurement of climate-related sentiments which are not possible in a survey setting. All three studies will contribute new insights into the fields of population influence on sustainability and climate impact on population dynamics.

Papers

Climate change impacts on fertility in low- and middle-income countries
Author(s) Côme Cheritel

Environmental and socio-demographic determinants of under-5 mortality in India: A survival analysis based on Indian DHS data
Author(s) Vinod Joseph Kannankeril Joseph

The impact of temperature on expressed sentiment by migration status: Evidence from geo-located Twitter data
Author(s) Risto Conte Keivabu

Invited Session

Statistical Learning for health research and omics data

Organizer/Chair: Laura Anderlucci (Università di Bologna)

Discussant: Cinzia Viroli (Università di Bologna)

Room: T32

Floor: ground

Short summary: The session offers a broad overview of the different modelling issues arising in health and biological research. From the prediction of the ordinal response to treatment in a cohort study of thyroid cancer to the modelling of microbiome data via a structured finite mixture model that clusters patients sharing similar taxa compositions, to the application of symmetrical graphical lasso on functional MRI data for the identification of brain networks.

Papers

An alternative to the Dirichlet-multinomial regression model for microbiome data analysis
Author(s) Roberto Ascari   Sonia Migliorati   Andrea Ongaro

Modelling ordinal response to treatment in a real-world cohort study
Author(s) Marco Alfo'   Silvia D'Elia   Maria Francesca Marino

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On the application of the symmetric graphical lasso for paired data
Author(s) Saverio Ranciati   Alberto Roverato

Invited Session

The Economic behaviour of Sustainability

Organizer: Ilaria Benedetti (University of Tuscia)

Chair: Rosalia Castellano (Università Parthenope Napoli)

Discussant: Tiziana Laureti (Università La Tuscia)

Room: T36

Floor: ground

Short summary: This Special Issue aims to collect original research articles advancing statistical methods and applications in the fields of sustainable development through different perspectives for assessing the environmental, social, and economic consequences of consumer behaviour as well as for supporting decision-making processes towards the reduction of poverty, inequality and social exclusion.

Papers

Airports performances and sustainable practices. An empirical study on Italian data

Author(s) Maria Michela Dickson   Giuseppe Espa   Diego Giuliani   Riccardo Gianluigi Serio

Sustainability: still an undefined concept for Italians

Author(s) Raffaele Angelone   Andrea Marletta

Quasi-experimental evidence on COVID-19 lockdown effects on Italian household food shopping basket composition and its sustainability

Author(s) Beatrice Biondi   Mario Mazzocchi

16:05 - 17:15

"Young SIS" group meeting

Organizer: Young SIS board

Room: A1

Floor: ground

Contributed Session

Assessment and Education

Chair: Mariagiulia Matteucci (Università di Bologna)

Discussant: Francesco Palumbo (Università degli studi di Napoli)

Room: T32

Floor: ground

Papers

A hierarchical modelling approach to explain differ-ential functioning of mathematics items by student's gender

Author(s) Clelia Cascella

A latent variable approach to Millennials' knowledge of green finance

Author(s) Maria Iannario   Alessandra Tanda   Claudia Tarantola

Archetypal analysis and latent Markov models: A step-wise approach

Author(s) Rosa Fabbricatore   Lucio Palazzo   Francesco Palumbo

From high school to university: academic intentions and enrolment of foreign students in Italy

Author(s) Cristina Giudici   Francesca Di Patrizio   Eleonora Trappolini

Growth models for the progress test in Italian dentistry degree program

Author(s) Laura Antonucci   Giulio Biscardi   Corrado Crocetta   Leonardo Grilli   Carla Rampichini

The COVID-19 pandemic and academic E-learning: Italian students and instructors' perceptions

Author(s) Davide Bizjak   Lorenzo Fattori   Teresa Gentile   Francesco Santelli

Working Students and job market outcomes: Insights from the University of Florence

Author(s) Gabriele Lombardi   Alessandra Petrucci   Valentina Tocchioni

Contributed Session

Bayesian methods and applications 1

Chair: Francesco Denti (Università Cattolica del Sacro Cuore)

Discussant: Serena Arima (Università del Salento)

Room: T36

Floor: ground

Papers

Analyzing RNA data with scVelo: identifiability issues and a Bayesian implementation

Author(s) Enrico Bibbona   Gianluca Mastrantonio   Elena Sabbioni   Guido Sanguinetti

Approximate Bayesian Computation for Probabilistic Damage Identification

Author(s) Gianni Bartoli   Michele Betti   Michele Boreale   Luisa Collodi   Fabio Corradi   Silvia Monchetti   Cecilia Viscardi

Estimation of scientific productivity with a hierarchical Bayesian model

Author(s) Maura Mezzetti   Ilia Negri

Heat waves and free-knots splines

Author(s) Gioia Di Credico

Relaxed Bayesian Envelope Models

Author(s) Andrea Mascaretti

The Hierarchical Beta-Bernoulli Process as Out-of-Scope Query Detector

Author(s) Silvia Montagna   Marco Dalla Pria

Contributed Session

Health and mortality

Chair: Theresa R. Smith (University of Bath)

Discussant: Elena Ambrosetti (Università di Roma La Sapienza)

Room: T4

Floor: ground

Papers

A novel definition of comorbidity based on the Global Burden of Diseases project weights

Author(s) Angela Andreella   Stefano Campostrini   Lorenzo Monasta

An Age-Period-Cohort model of gender gap in youth mortality

Author(s) Giacomo Lanfiuti Baldi   Andrea Nigri

Kinlessness in adult and old age across Europe

Author(s) Bruno Arpino   Elena Pirani   Marta Pittavino

Parameter orthogonalization for Siler mortality model

Author(s) Claudia Di Caterina   Lucia Zanotto

Pseudo-observations in survival analysis

Author(s) Marco Alfo'   Valentina Arena   Marta Cipriani   Alfonso Piciocchi

Sex Gap in Cancer-Free Life Expectancy: The Association with Smoking, Obesity and Physical Inactivity

Author(s) Nicolas Brouard   Alessandro Feraldi   Cristina Giudici

Contributed Session

Mixture Models

Chair: Federica Nicolussi (Università degli Studi di Milano Statale)

Discussant: Francesca Greselin (Università degli Studi di Milano Bicocca)

Room: T30

Floor: ground

Papers

An extension of finite mixtures of latent trait analyzers for biclustering bipartite networks

Author(s) Dalila Failli   Maria Francesca Marino   Francesca Martella

Constrained Mixtures of Generalized Normal Distributions

Author(s) Pierdomenico Duttilo   Stefano Antonio Gattone   Alfred Kume

Mixture-based clustering with covariates for ordinal responses

Author(s) Roy Costilla   Daniel Fernandez   Ivy Liu   Louise McMillan   Kemmawadee Preedalikit   Marta Nai Ruscone

Partial membership models for soft clustering of multivariate count data

Author(s) Thomas Murphy   Roberto Rocci   Emiliano Seri

Regression for mixture models for extremes

Author(s) Isadora Antoniano-Villalobos   Viviana Carcaiso   Ilaria Prosdocim

Robust matrix-variate mixtures of regressions

Author(s) Michael Gallaugher   Salvatore Tomarchio

Contributed Session

Sampling methods and analysis of survey data

Chair: Giorgio E. Montanari (Università di Perugia)

Discussant: Pier Luigi Conti (Università di Roma La Sapienza)

Room: T31

Floor: ground

Papers

On the use of auxiliary information to define the sampling design for large-scale geospatial data

Author(s) Chiara Bocci   Emilia Rocco

Optimal joint inclusion probabilities for spatial sampling

Author(s) Giuseppe Arbia   Piero Demetrio Falorsi   Vincenzo Nardelli

Robustness and Balance of Sampling or Experimental Designs and Mixture of Designs

Author(s) Ejub Talovic   Yves Tille´

Robustness Bounds for Sampling and Experimental Designs

Author(s) Ejub Talovic   Yves Tille´

Statistical Matching: Hotdeck or Propensity Score?

Author(s) Elena Dalla Chiara   Marcello D'Orazio   Federico Perali

The Italian experience on register-based statistics considering measurement, coverage and sampling errors

Author(s) Marco Dizio   Romina Filippini   Simona Toti

Contributed Session

Space-time statistics

Chair: Christian Capezza (Università di Napoli Federico II)
Discussant: Antonio Balzanella (Università della Campania)
Room: T7
Floor: ground

Papers

A Hierarchical Spatio-Temporal Model for Time-Frequency Data: An application in bioacoustic analysis
Author(s) Enrico Bibbona   Marco Gamba   Gianluca Mastrantonio   Daria Valente   Hiu Ching Yip

An approach to cluster time series extremes with spatial constraints
Author(s) Alessia Benevento   Fabrizio Durante   Roberta Pappada'

An integrated space-time model to evaluate the innovation drivers in Italy
Author(s) Emma Bruno   Rosalia Castellano   Gennaro Punzo

Revealing the dynamic relations between traffic and crowding using big data from mobile phone network
Author(s) Maurizio Carpita   Rodolfo Metulini   Selene Perazzini

SMaC: Spatial Matrix Completion method
Author(s) Giulio Grossi   Alessandra Mattei   Georgia Papadogeorgou

The impact of traffic flow and road signs on road accidents: an approach based on spatiotemporal point pattern analysis on linear networks
Author(s) Riccardo Borgoni   Andrea Gilardi

17:15 - 17:45

Coffee Break

17:45 - 18:45

Round table "STATISTICA E VALUTAZIONE DI SISTEMI EDUCATIVI"

Speakers: **Pierpaolo Limone**, Rettore dell'Università telematica "Pegaso" - **Roberto Ricci**, Presidente INVALSI - **Paolo Sestito**, Banca Italia - **Antonio Uricchio**, Presidente ANVUR
Chair: **Corrado Crocetta**, Presidente SIS
Room: A
Floor: ground

20:00

Social dinner

22-06-2023

09:00 - 10:00

Plenary session

Speaker: **Christopher Wikle** - Distinguished Professor of Statistics - Department Chair - University of Missouri
Chair: Francesco Lagona (Università Roma Tre)
Discussant: Luigi Ippoliti (Università degli Studi "G. d'Annunzio" Chieti)

Room: A
Floor: ground

Papers

Examples from the Interface of Neural Models and Spatio-Temporal Statistics in Environmental Applications
Author(s) Xiaoyu Ma   Christopher K. Wikle   Myungsoo Yoo   Likun Zhang

10:05 – 11:15

"SIS & Y-SIS awards"

Organizer: Corrado Crocetta (Università degli Studi di Bari) - Pierfrancesco Alaimo (Università LUMSA)
Room: A1
Floor: ground

Contributed Session

Clustering and classification 1

Chair: Paola Vicard (Università Roma Tre)
Discussant: Marta Nai Ruscone (Università di Genova)
Room: T30
Floor: ground

Papers

A clustering model for flow data: an application to international student mobility
Author(s) Cinzia Di Nuzzo   Donatella Vicari

Contingency tables with structural zeros and discrete copulas
Author(s) Roberto Fontana   Elisa Perrone   Fabio Rapallo

Levels Merging in the Latent Class Model
Author(s) Christophe Biernacki

Model-based clustering of count processes with multiple change points
Author(s) Shuchismita Sarkar   Xuwen Zhu

Similarity Measures and Internal Evaluation Criteria in Hierarchical Clustering of Categorical Data
Author(s) Jana Cibulkova   Jaroslav Hornícek   Hana Rezankova   Zdenek Sulc

Spectral clustering of mixed data via association-based distance
Author(s) Alfonso Iodice D'Enza   Francesco Palumbo   Cristina Tortora

Contributed Session

Dynamic models and time series

Chair: Anna Gottard (Università di Firenze)
Discussant: Sabrina Giordano (Università della Calabria)
Room: T7
Floor: ground

Papers

A graph based convolution Neural Network approach for forecast reconciliation
Author(s) Pierpaolo Brutti   Andrea Marcocchia

A multivariate hidden semi-Markov model for the analysis of multiple air pollutants

Author(s) Francesco Lagona   Pierfrancesco Alaimo Di Loro   Antonello Maruotti   Marco Mingione

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A smooth transition autoregressive model for matrix-variate time series

Author(s) Andrea Bucci

Dynamic network models with time-varying nodes

Author(s) Mauro Bernardi   Luca Gherardini   Monia Lupparelli

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Time lapse analysis of nuclear calcium spiking in plant cells during symbiotic signaling

Author(s) Andrea Crosino   Andrea Genre   Ivan Sciascia

Two-stage weighted least squares estimator of multivariate conditional mean observation-driven time series models

Author(s) Mirko Armillotta

Contributed Session

Environmental learning and indicators

Chair: Natalia Golini (Università degli studi di Torino)
Discussant: Michela Cameletti (Università degli studi di Bergamo)
Room: T36
Floor: ground

Papers

Assessing the performance of nuclear norm-based matrix completion methods on CO2 emissions data

Author(s) Francesco Biancalani   Giorgio Gnecco   Rodolfo Metulini   Massimo Riccaboni

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Deep Learning for smart and sustainable agriculture

Author(s) Gennaro Pio Auricchio   Armando Ciardiello   Annalisa Izzo   Luigi Uccello   Amalia Vanacore   Carolina Vecchio   Pierdomenico Zaffino

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Do green transition, environmental taxes and renew-able energy promote ecological sustainability in G7 countries? Evidence from panel quantile regression

Author(s) Aamir Javed   Agnese Rapposelli

Doubly Robust DID for National Parks evaluation: "just" environmental benefits, or socioeconomics impacts as well?

Author(s) Riccardo D'Alberto   Francesco Pagliacci   Matteo Zavalloni

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On the gap between emitted and absorbed carbon dioxide. Are trees enough to save us?

Author(s) Maria Ferrante   Lorenzo Mori

Small scale analysis of energy vulnerability in the municipality of Palermo

Author(s) Giuliana La Mantia

Contributed Session

Health statistics 2

Chair: Clelia Di Serio (Università Vita-Salute San Raffaele)
Discussant: Mauro Gasparini (Politecnico di Torino)
Room: T32
Floor: ground

Papers

A test for non-differential misclassification error in database epidemiological studies

Author(s) Emanuela Dreassi   Rosa Gini   Leonardo Grilli   Giorgio Limoncella   Robert Platt   Carla Rampichini

Is the COVID-19 'color code' of Italian regions subjected to political manipulation?

Author(s) Giovanni Busetta   Fabio Fiorillo

Modelling multilevel ordinal response under endogeneity: application to DTC patients' outcome.

Author(s) Silvia D'Elia

Monitoring drugs-based diagnostic therapeutic paths in heart failure patients using state-sequence analysis techniques

Author(s) Nicole Fontana   Francesca Ieva   Laura Savaré

Optimal two-stage design based on error rates under a Bayesian perspective

Author(s) Susanna Gentile   Valeria Sambucini

Women's Exposure to HIV in Africa: the Role of Intimate Partner Violence

Author(s) Micaela Arcaio   Anna Maria Parroco

Contributed Session

Migrants in Italy and return migration

Chair: Cristina Giudici (Università di Roma La Sapienza)

Discussant: Annalisa Busetta (Università degli Studi di Palermo)

Room: T4

Floor: ground

Papers

 Intentions to stay after return: The experiences of return migrants in Albania

Author(s) Maria Carella   Thais Garcia-Pereiro   Roberta Pace   Anna Paterno

Comparing migrant and "native" Italian adolescents in risky behaviours

Author(s) Daniela Foresta

EU-Border crisis: narratives, sentiments and misinformation about migration-related events on Twitter

Author(s) Elena Ambrosetti   Cecilia Fortunato   Sara Miccoli

Graduates' interregional migration in times of crisis: the Italian case

Author(s) Ivano Dileo   Thais Garcia-Pereiro   Anna Paterno

Return migration to home country: a systematic literature review with text mining and topic modelling

Author(s) Elena Ambrosetti   Cecilia Fortunato   Andrea Iacobucci

The allocation of time within native and foreign couples living in Italy

Author(s) Giovanni Busetta   Maria Gabriella Campolo   Antonino Di Pino Incognito

The foreigners' contribution to fertility by Italian provinces

Author(s) Marina Attili   Cinzia Castagnaro   Cristina Giudici   Antonella Guarneri   Eleonora Miaci   Eleonora Trappolini

Contributed Session

Sustainability assessment

Chair: Pasquale Sarnacchiaro (Università di Napoli)

Discussant: Monica Palma (Università del Salento)

Room: T31

Floor: ground

Papers

ESG, sustainability and stock market risk

Author(s) Michele Costa

Exploring the effect of consumer motivation and perception of sustainability on food choices with a Discrete Choice Experiment

Author(s) Ilaria Amerise   Jesus Barreiro-Hurle   Gloria Solano-Hermosilla

Measuring economic and ecological efficiency of urban waste systems in Italy: a comparison of SFA and DEA techniques

Author(s) Massimo Gastaldi   Ginevra Virginia Lombardi   Agnese Rapposelli   Giulia Romano

Profile based latent distance association analysis for sparse tables. Application to the attitude of EU citi-zens towards sustainable tourism

Author(s) Francesca Bassi   Juan Antonio Marmolejo Martìn   Josè Fernando Vera Vera

Sustainability explained by ChatGPT artificial intelligence in a HITL perspective: innovative approaches

Author(s) Vincenzo Basile   Saverio Crisafulli   Massimiliano Giacalone   Angelo Lamacchia   Emilio Massa   Vito Santarcangelo

Sustainable tourism: a survey on the propensity towards eco-friendly accommodations

Author(s) Giovanni Finocchiaro   Claudia Furlan

11:15 – 11:45

Coffee Break

11:45 – 13:15

Invited Session

Advances in statistical methods for complex problems

Organizers: Luigi Augugliaro (Università degli Studi di Palermo), Guido Consonni (Università Cattolica del Sacro Cuore)

Chair: Guido Consonni (Università Cattolica del Sacro Cuore)

Discussant: Luca La Rocca (Università degli studi di Modena e Reggio Emilia)

Room: T36

Floor: ground

Short summary: Inferring treatment effects on responses in complex systems is a major challenge. This can be tackled by structuring variables into a network and using techniques of causal inference and path analysis; also the role of confounders can be assessed using feature selection in large regression models. The session addresses computational issues and includes applications to salary gap discrimination and cyber-security risk.

Papers

Inferring multiple treatment effects from observational studies using confounder importance learning

Author(s) Omiros Papaspiliopoulos

Path analysis in Ising models: an application to cyber-security risk assessment

Author(s) Monia Lupparelli   Giovanni Marchetti

Causal Regularization

Author(s) Lucas Kania   Ernst Wit

Invited Session

Explainable machine learning models

Organizer: Mariateresa Ciommi (Università Politecnica delle Marche) - Mariani Francesca (Università Politecnica delle Marche)

Chair: Maria Cristina Recchioni (Università Politecnica delle Marche)

Discussant: Paolo Giudici (Università Pavia)

Room: T31

Papers

Enhancing Markowitz model: inspection of correlations and tail covariances
Author(s) Gloria Polinesi

Objective and subjective dimension of economic well-being: an approach based on statistical matching
Author(s) Pierpaolo D'Urso Daniela Marella Vincenzina Vitale

Sustainable, Accurate, Fair and Explainable Machine Learning Models
Author(s) Paolo Giudici Emanuela Raffinetti

Invited Session

Flexible Learning for Environmental Sustainability

Organizer/Chair: Ilaria Prosdocimi (Università Ca Foscari Venezia)
Discussant: Massimo Ventrucci (Università di Bologna)
Room: T32
Floor: ground
Short summary: The increasing anthropocentric pressure can have detrimental consequences on environmental systems undermining their long term sustainability. In this session, advanced flexible statistical approaches to appropriately quantify these impacts are presented, with applications in the fields of forest management, wildlife monitoring and the assessment of road traffic on air quality.

Papers

Comparison of traffic flow data sources for air pollution modelling
Author(s) Nick McCullen Theresa Smith

Data analysis of photogrammetry-based mapping: the seacucumbers in the Giglio Island as a case-study
Author(s) Edoardo Casoli Giovanna Jona Lasinio Gianluca Mastrantonio Alessio Pollice Arnold Rakaj Daniele Ventura

Understanding forest damage in Germany: Finding key drivers to help with future forest conversion of climate sensitive stands
Author(s) Nicole Augustin Heike Puhlmann Simon Trust

Invited Session

Inequalities in higher education outcomes: learning from data

Organizers: Isabella Sulis (Università di Cagliari), Maria Gabriella Campolo (Università di Messina)
Chair: Isabella Sulis (Università di Cagliari)
Discussant: Maria Gabriella Campolo (Università di Messina)
Room: T30
Floor: ground
Short summary: The contributions explore, using innovative or advanced methodological approaches (propensity score analysis based on generalized boosted models, weighted networks, and static models of strategic interactions), the effect of territorial, socioeconomic conditions and peers in determining inequalities in higher education outcomes, focusing on gender differences and preferences for stem and non-stem disciplines. Different aspects related to educational outcome indicators are investigated: the transition from high school to university, students mobility choices in university selection, participation in international mobility programs.

Papers

Exploring peers' effect on individual choices in higher education
Author(s) Valentina Tocchioni Cristian Usala Maria Prosperina Vitale

Inequalities in international students mobility

Author(s) Kristijan Breznik Giancarlo Ragozini Marialuisa Restaino

Uncovering the interplay of territorial, socioeconomic, and demographic factors in high school to university transition

Author(s) Vincenzo Giuseppe Genova Andrea Priulla Martina Vittorietti

Invited Session

Statistical Learning of demographic and health dynamics

Organizer/Chair: Stefano Mazzuco (Università di Padova)

Discussant: Emanuele Aliverti (Università di Padova)

Room: T7

Floor: ground

Short summary: Demographic and health sciences are undergoing a transformation as regards data and methods that can be used. This session provides three excellent examples of how both new and old demographic research questions can be tackled with more advanced statistical methods that can adequately treat new type of data (e.g. social media data), provide more timely estimates, and take into account data deficiencies.

Papers

Estimating the impact of a vaccine mandate: the case of measles in Italy

Author(s) Chiara Chiavenna

Leveraging deep neural networks to estimate age-specific mortality from life expectancy at birth

Author(s) Andrea Nigri

Nowcasting Daily Population Displacement in Ukraine through Social Media Advertising Data

Author(s) Claire Dooley Ridhi Kashyap Douglas Leasure Francesco Rampazzo

13:15 – 14:30

Lunch

14:30 – 16:00

Invited Session

Challenges towards Fairness and Transparency for Data Processes, Algorithms and Decision-Support Models

Organizer/Chair: Claudia Tarantola (Università di Pavia)

Discussant: Gloria Polinesi (Università Politecnica delle Marche)

Room: T30

Floor: ground

Short summary: In this session, we will explore various aspects of the ethics of data science. Nowadays, many decisions are made by taking predictive models based on observed data as suggestions. Despite being created through a fair and well-intentioned learning process, these models can still unintentionally discriminate against certain groups of people, leading to unfair outcomes. Algorithmic bias is a pressing problem in this regard, as machine learning models can perpetuate existing discrimination by taking into account factors such as race, gender, or age. In addition, the use of sensitive data to train and validate these models raises issues of privacy and data security.

Papers

A new measure of discrimination in machine learning algorithms

Author(s) Roberta Pappada' Francesco Pauli

Challenges on Ethics, and Privacy in AI Applications to Fintech

Author(s) Joana Matos Dias Bernardete Ribeiro Catarina Silva

Uncertainty and fairness metrics

Author(s) Anna Gottard

Invited Session

Educational Data mining: methods for complex data in students' assessment

Organizer/Chair: Silvia Cagnone (Università di Bologna)

Discussant: Leonardo Grilli (Università degli studi di Firenze)

Room: T31

Floor: ground

Papers

Analysis of University Grades: An IRT Model for Responses and Response Times with Censoring

Author(s) Michela Battauz

Predicting high schools' students performances with registry's data: a machine learning approach

Author(s) Tommaso Agasisti Marta Cannistrà Lidia Rossi

Using response times to identify cheaters in CAT: A simulation study

Author(s) Luca Bungaro Mariagiulia Matteucci Bernard P. Veldkamp

Invited Session

Spatial and Spatio-Temporal Modeling: Theory and Applications

Organizer/Chair: Pierfrancesco Alaimo Di Loro (Università LUMSA)

Discussant: Marco Mingione - Università Roma Tre

Room: T36

Floor: ground

Papers

A geostatistical investigation of the ammonia-livestock relationship in the Po Valley, Italy

Author(s) Felicetta Carillo Paolo Maranzano Kelly McConville Philipp Otto

Bayesian multi-species N-mixture models for large scale spatial data in community ecology

Author(s) Michele Peruzzi

Minimum contrast for point processes' first-order intensity estimation

Author(s) Giada Adelfio Nicoletta D'Angelo

Invited Session

Statistical Framework for Measuring the Sustainability of Tourism

Organizers/Chairs: Pasquale Sarnacchiaro (Università di Napoli), Carlo Cavicchia (Erasmus Universiteit Rotterdam)

Discussant: TBA

Room: T32

Papers

Data validity and statistical conformity with Benford's Law: the case of tourism in Sicily

Author(s) Roy Cerqueti   Davide Provenzano

Exploring the level of digitalization of the Italian museums through a multilevel ordered logit model

Author(s) Claudia Cappello   Sandra De Iaco   Sabrina Maggio

Functional Partial Least-Squares via Regression Splines. An application on Italian Sustainable Development Goals data

Author(s) Leonardo S. Alaimo   Ida Camminatiello   Jean-Francois Durand   Rosaria Lombardo

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Invited Session

Statistical learning for well-being analysis

Organizer: Giuseppe Ricciardo Lamonica (Università Politecnica delle Marche)

Chair: Margherita Carlucci (Università di Roma La Sapienza)

Discussant: Andrea Ciccarelli (Università di Teramo)

Room: T7

Floor: ground

Papers

Assessing multidimensional poverty of the Italian provinces during Covid-19: a small area estimation approach

Author(s) Mariateresa Ciommi   Chiara Gigliarano   Francesca Mariani   Gloria Polinesi

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The fuzzy set approach as statistical learning for the analysis of multidimensional well-being

Author(s) Gianni Betti   Federico Crescenzi   Antonella D'Agostino   Laura Neri

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What Makes a Satisfying Life? Prediction and Interpretation with Machine-Learning Algorithms

Author(s) Conchita D'Ambrosio

16:05 - 17:15

"SIS FutureSis" group meeting

Organizer: Simone Di Zio

Room: A1

Floor: ground

"The Italian journals of Statistics presentation"

Organizer: Francesco Palumbo (Università di Napoli)

Room: A

Floor: ground

Contributed Session

Bayesian methods and applications 2

Chair: Cecilia Balocchi (University of Edinburg)

Discussant: Federico Castelletti (Università Cattolica del Sacro Cuore)

Room: T36

Floor: ground

Papers

A comparison of computational approaches for posterior inference in Bayesian Poisson regression
Author(s) Laura D'Angelo

Bias-reduction methods for Poisson regression models
Author(s) Emanuele Aliverti   Luca Presicce   Tommaso Rigon

Finite Mixture Model for Multiple Sample Data
Author(s) Raffaele Argiento   Federico Camerlenghi   Alessandro Colombi   Lucia Paci

On Bayesian power analysis in reliability
Author(s) Stefania Gubbiotti   Francesco Mariani   Fulvio De Santis

Power priors elicitation through Bayes factors
Author(s) Roberto Macrì Demartino   Leonardo Egidi   Nicola Torelli

Predictive Bayes factors
Author(s) Leonardo Egidi   Ioannis Ntzoufras

Contributed Session

Clustering and classification 2

Chair: Marcella Niglio (Università di Salerno)
Discussant: Rosaria Simone (Università di Napoli)
Room: T30
Floor: ground

Papers

A Clusterwise Regression Method for Distributional-Valued Data
Author(s) Antonio Balzanella   Francisco De Assis Tenorio De Carvalho   Rosanna Verde

A novel statistical-significance based semi-parametric GLMM for clustering countries standing on their innumeracy levels
Author(s) Francesca Ieva   Chiara Masci   Anna Paganoni   Alessandra Ragni

Clustering alternatives in the preference-approval context
Author(s) Alessandro Albano   José Luis García Lapresta   Antonella Plaia   Mariangela Sciandra

Computational assessment of k-means clustering on a Structural Equation Model based index
Author(s) Elena Grimaccia   Mariaelena Bottazzi Schenone   Maurizio Vichi

Handling missing data in complex phenomena: an ultrametric model-based approach for clustering
Author(s) Francesca Greselin   Giorgia Zaccaria

Introducing a novel directional distribution depth function for supervised classification
Author(s) Edoardo Redivo   Cinzia Viroli

Contributed Session

Economics and labour markets

Chair: Tiziana Laureti (Università degli Studi della Tuscia)
Discussant: Paolo Mariani (Università degli Studi di Milano-Bicocca)
Room: T31
Floor: ground

Papers

A multivariate ranking analysis on the employability of young adults

Author(s) Rosa Arboretti   Elena Barzizza   Nicolò Biasetton   Riccardo Ceccato   Monica Fedeli   Concetta Tino

Analysis of the Gender Pay Gap in the Italian Labour Market

Author(s) Giulia Cappelletti   Daniele Toninelli

Evaluating the effect of home-based working employing causal Bayesian networks and potential outcomes

Author(s) Lorenzo Giammei

Patterns of flexible employment careers. Does measurement error matter?

Author(s) Mauricio Garnier-Villarreal   Dimitris Pavlopoulos   Roberta Varriale

Staying or leaving? A nonlinear framework to explore the role of employee well-being on retention

Author(s) Maddalena Cavicchioli   Fabio Demaria   Ulpiana Kocollari

The CAP instruments impact on GVA and employment: a multivalued treatment approach

Author(s) Montezuma Dumangane   Marzia Freo

The determinants of leaving the parental home in Italy: 2012-18

Author(s) Ilaria Rocco   Gianpiero Dalla Zuanna

Contributed Session

Environmental modeling

Chair: Giada Adelfio (Università degli Studi di Palermo)
Discussant: Francesco Lagona (Università Roma Tre)
Room: T4
Floor: ground

Papers

A Bayesian weather-driven spatio-temporal model for PM10 in Lombardy

Author(s) Michela Frigeri   Alessandra Guglielmi   Giovanni Lonati

A preliminary study on shape descriptors for the characterization of microplastics ingested by fish

Author(s) Giovanna Jona Lasinio   Marco Matiddi   Greta Panunzi   Tommaso Valente

Artificial neural network in predicting odour concentrations: a case study

Author(s) Veronica Distefano   Gideon Mazuruse

Bayesian analysis of PM10 concentration by spatio-temporal ARIMA and STS models

Author(s) Ilenia Epifani   Michela Frigeri

Functional ANOVA to monitor yearly Adriatic sea temperature variations

Author(s) Tonio Di Battista   Nicola Di Deo   Adelia Evangelista   Annalina Sarra

New perspectives in the measurement of biodiversity

Author(s) Linda Altieri   Daniela Cocchi   Massimo Ventrucci

Contributed Session

Multivariate data analysis 2

Chair: Salvatore D. Tomarchio (Università di Catania)
Discussant: Matteo Farnè (Università di Bologna)
Room: T7
Floor: ground

Papers

Feature Selection via anomaly detection autoencoders in radiogenomics studies

Author(s) Jenny Chang-Claude   Nicola Rares Franco   Francesca Ieva   Alessia Mapelli   Michela Carlotta Massi   Petra Seibold   Catharine West

Further considerations on the Spectral Information Criterion

Author(s) Luca Martino

How to increase the power of the test in sparse contingency tables: a simulation study

Author(s) Manuela Cazzaro   Federica Nicolussi

Latent event history models for quasi-reaction systems

Author(s) Matteo Framba   Veronica Vinciotti

Quantile-based graphical models for continuous and discrete variables

Author(s) Marco Geraci   Luca Merlo   Lea Petrella

The logratio Student t distribution

Author(s) Gloria Mateu-Figueras   Gianna Monti

Contributed Session

Statistics in Society 2

Chair: Maurizio Carpita (Università di Brescia)

Discussant: Stefania Mignani (Università di Bologna)

Room: T32

Floor: ground

Papers

A decomposition of the changes in tourism demand in Tuscany over the 2019-2021 period

Author(s) Mauro Mussini

Bayesian networks as a territorial gender impact assessment tool

Author(s) Lorenzo Giammei   Fulvia Mecatti   Flaminia Musella   Paola Vicard

Can statistics be helpful in detecting electoral fraud?

Author(s) Massimo Attanasio   Vincenzo Giuseppe Genova   Michele Tumminello

Companies' sustainability disclosure and contrast to hunger: the role of social inclusion

Author(s) Rodolfo Damiano   Chiara Di Maria

Passing network-based performance indicator in football: evidence from UEFA Champions League 2016-2017

Author(s) Riccardo Ievoli   Lucio Palazzo   Giancarlo Ragozini

Topic Modeling for the travel and tourism industry: classical and innovative methods compared

Author(s) Fabrizio Di Mari

17:15 - 17:45

Coffee Break

17:45 - 18:45

Assemblea SIS (Plenary)

Organizer: Corrado Crocetta (Università degli Studi di Bari)

Room: A

Floor: ground

19:15

Jazz

23-06-2023

09:00 - 10:00

Plenary session

Speaker: **Emilio Zagheni** - Executive Director - Max Planck Institute for Demographic Research

Chair: Cecilia Tomassini (Università del Molise)

Discussant: Stefano Mazzuco (Università di Padova)

Room: A

Floor: ground

Short summary:

"Demographic change and sustainability: novel approaches from digital and computational demography"

Sustainability is a multidimensional concept that encompasses the natural, economic and social environments. This talk highlights recent advances in digital and computational demography with respect to (i) leveraging digital trace data to measure the impact of natural disasters on demographic outcomes; (ii) repurposing large-scale bibliometric data to assess the sustainability of the global system of mobility of scientists; (iii) exploiting simulation approaches to assess the impact of demographic change on the sustainability of care needs and family structures.

10:05 - 11:20

Contributed Session

Bayesian methods and applications 3

Chair: Raffaele Argiento (Università degli studi di Bergamo)

Discussant: Lucia Paci (Università Cattolica del Sacro Cuore)

Room: T36

Floor: ground

Papers

An Importance Sampling Algorithm For Bayesian Logistic Regression with Independent Gaussian Scale Mixture Prior

Author(s) Brunero Liseo   Paolo Onorati

Bayesian analysis of Amazon's best-selling books via finite nested mixture models

Author(s) Laura D'Angelo   Francesco Denti

Binomial Extended Stochastic Block Model for Brain Networks

Author(s) Raffaele Argiento   Valentina Ghidini   Sirio Legramanti

Detecting latent spatial patterns in mass spectrometry brain imaging data via Bayesian mixtures

Author(s) Giulia Capitoli   Francesco De Caro   Simone Colombara   Alessia Cotroneo   Francesco Denti   Riccardo Morandi   Chiara Schembri   Alfredo Gimenez Zapiola

Efficient expectation propagation for high-dimensional probit models

Author(s) Niccolò Anceschi   Augusto Fasano   Beatrice Franzolini   Giovanni Rebaudo

Model-based clustering of non-stationary time series with common historical change times

Author(s) Wasiur Khuda Bukhsh Riccardo Corradin Luca Danese Andrea Ongaro

Contributed Session

Functional Data Analysis

Chair: Francesca Fortuna (Università Roma Tre)

Discussant: Rosalba Ignaccolo (Università di Torino) - Fabio Centofanti (Università degli Studi di Napoli Federico II)

Room: T7

Floor: ground

Papers

A functional Ground Motion Model for Italy built with a weighted analysis of reconstructed seismic curves

Author(s) Teresa Bortolotti Giovanni Lanzano Alessandra Menafoglio Riccardo Peli Sara Sgobba

Conditional Gaussian Graphical Models for Functional Variables whit Partial Separabile Operators

Author(s) Luigi Augugliaro Rita Fici Gianluca Sottile

Does the Inflation Factor need tuning? Simulation-based adjustment for Outlier Detection via the Functional Boxplot

Author(s) Andrea Cappozzo Francesca Ieva Annachiara Rossi

Functional Graphical Models to map Brexit debate on Twitter

Author(s) Lara Fontanella Emiliano Del Gobbo Nicola Pronello

Measuring Dependence in Multivariate Functional Datasets

Author(s) Francesca Ieva Anna Maria Paganoni Michael Ronzulli

Robust Statistical Process Monitoring of Multivariate Functional Data

Author(s) Christian Capezza Fabio Centofanti Antonio Lepore Biagio Palumbo

The effects of mobility restrictions on public health: a functional data analysis for Italy over the years 2020 and 2021

Author(s) Giovanni Bonaccorsi Francesca Ieva Veronica Mazzola Piercesare Secchi

Contributed Session

Machine Learning and text mining

Chair: Alessandro Bitetto (Università di Pavia)

Discussant: Domenica Fiordistella Iezzi (Università di Roma "Tor Vergata")

Room: T4

Floor: ground

Papers

A vocabulary-based approach for risk detection in textual annotations of contracts of public procurement

Author(s) Giulio Cantone Michela Gnaldi Simone Del Sarto

Explainable Machine Learning based on Group Equivariant Non-Expansive Operators (GENEOs). Protein pocket detection: a case study

Author(s) Andrea Beccari Giovanni Bocchi Patrizio Frosini Filippo Lunghini Alessandra Micheletti Alessandro Pedretti Carmine Talarico

Hedging global currency risk with factorial machine learning models

Author(s) Paolo Pagnottoni Alessandro Spelta

InstanceSHAP: An instance-based estimation approach for Shapley values

Author(s) Golnoosh Babaei Paolo Giudici

Networks & Nature Based Solutions: an application for Milan hydric resources

Author(s) Alessia Forciniti Emma Zavarrone

The Roe v. Wade sentence: an analysis of tweets trough Symmetric Non-Negative Matrix Factorization

Author(s) Maria Gabriella Grassia Marina Marino Rocco Mazza Agostino Stavolo

Contributed Session

Multivariate data analysis 3

Chair: Brunero Liseo (Università di Roma)

Discussant: Michela Battauz /Università degli Studi di Udine)

Room: T30

Floor: ground

Papers

A comparison of different techniques for handling missing covariate values in propensity score methods

Author(s) Alessandra Brazzale Omar Paccagnella Anna Zanovello

A New Penalized Estimator for Sparse Inference in Gaussian Graphical Models: An Adaptive Non-Convex Approach

Author(s) Luigi Augugliaro Daniele Cuntrera Vito Muggeo

A tool for assessing weak identifiability of statistical models

Author(s) Francesco Denti Antonietta Mira Antonio Di Noia

Computing Highest Density Regions with Copulae

Author(s) Nina Deliu Brunero Liseo

Parameter estimation via Indirect Inference for multivariate Wrapped Normal distributions

Author(s) Anna Gottard Francesca Labanca

Sequential marginal likelihood selection for the estimation of sparse correlation matrices

Author(s) Claudia Di Caterina Davide Ferrari

Contributed Session

Nonparametric statistical methods

Chair: Flaminia Musella (Università Roma Tre)

Discussant: Luigi Salmaso (Università di Padova)

Room: T32

Floor: ground

Papers

A Comparison of Distribution-Free Control Charts

Author(s) Michele Scagliarini

Characterizing Heterogeneity of Causal Effects in Air Pollution in Florida

Author(s) Dafne Zorzetto

Comparing three robust procedures for CANDECOMP/PARAFAC estimation

Author(s) Michele Gallo Violetta Simonacci Valentin Todorov Nikolay Trendafilov

Empirical likelihood confidence regions for true class fractions in a three-class setting

Author(s) Gianfranco Adimari Monica Chiogna Duc Khanh To

How active is a genetic pathway? Comparative analysis of post-hoc permutation-based methods

Author(s) Angela Andreella Anna Vesely

Non Parametric Combination methodology: a literature review on recent developments

Author(s) Elena Barzizza   Nicolò Biasetton   Riccardo Ceccato

Contributed Session

Regression modeling

Chair: Giorgia Zaccaria (Università degli Studi di Milano-Bicocca)

Discussant: Ilia Negri (Università della Calabria)

Room: T31

Floor: ground

Papers

A Quantile Regression Model to Evaluate the Performance of the Italian Courts of Law

Author(s) Carlo Cusatelli   Massimiliano Giacalone   Eugenia Nissi

A variable selection procedure based on predictive ability: a preliminary study on logistic regression

Author(s) Mariarosaria Coppola   Rosaria Simone

Comparison of binary regressions with asymmetric link function for imbalanced data

Author(s) Marcella Niglio   Marialuisa Restaino   Michele La Rocca

New advances in Regression Forests

Author(s) Mila Andreani   Lea Petrella   Nicola Salvati

On the Optimal Non-Convexity of Penalty in Sparse Regression Models

Author(s) Luigi Augugliaro   Daniele Cuntrera   Vito Muggeo

Using expectile regression with latent variables for digital assets

Author(s) Beatrice Foroni   Luca Merlo   Lea Petrella

11:15 – 11:45
Coffee Break

11:45 – 13:15

Invited Session

Bayesian contributions to Statistical Learning

Organizer/Chair: Federico Camerlenghi (Università di Milano-Bicocca)

Discussant: Alessandra Guglielmi (Politecnico di Milano)

Room: T32

Floor: ground

Short summary: Bayesian statistical methods include a large variety of effective tools to face prediction, statistical learning and estimation via a principled approach. The session is focused on some recent hierarchical Bayesian models, which are designed for different applied problems arising, e.g., in precision medicine and cancer detection. Both Bayesian parametric and nonparametric methods will be discussed.

Papers

A Bayesian framework for early cancer screening

Author(s) Jeff Miller   Sally Paganin

Imputing Synthetic Pseudo Data from Aggregate Data: Development and Validation for Precision Medicine
Author(s) Cecilia Balocchi

Linear models with assumptions-free residuals: a Bayesian Nonparametric approach.
Author(s) Filippo Ascolani   Valentina Ghidini

Invited Session

Data Visualization for Smart Insights and Advanced Predictive Analytics

Organizer/Chair: Roberta Varriale (Sapienza Università di Roma)
Discussant: Ilaria Prosdocimi (Università Ca' Foscari Venezia)
Room: T30
Floor: ground
Short summary: Data visualization can be defined as the representation of data through the use of common graphs, such as charts, graphs, infographics, etc. These information visualizations communicate complex data relationships and data-driven insights in a way that is easy to understand. The science of data visualiza-tion comes from understanding how humans collect and process information: we process visual infor-mation much faster than text. In addition, the human brain decodes information through patterns and models. Effective data visualization is the final step in data analysis: without it, important information and messages can be lost and incorrect data visualization leads the audience to misunderstand the actual data and make wrong decisions. The session will examine three examples of data visualization from different fields of research: of-ficial statistics, private companies, and universities. The session will be an opportunity to exchange ideas and perspectives on a topic that is becoming fundamental to the communication of statistical infor-mation in a world of big and fast data.

Papers

Applications of data visualization for industry
Author(s) Federica Bruschini   Marilena Di Bari   Martina Dossi   Stefano Sangaletti

Some Notes on the Use of the Circular Boxplot
Author(s) Davide Buttarazzi   Giovanni Porzio

TERRA: a smart visualization tool for international trade in goods statistics
Author(s) Francesco Amato   Mauro Bruno   Maria Serena Causo

Invited Session

Methods for the analysis of distributional data

Organizer/Chair: Rosanna Verde (Università della Campania Luigi Vanvitelli)
Discussant: TBA
Room: T31
Floor: ground

Papers

Clustering of Distributional Data based on LDQ transformation
Author(s) Gianmarco Borrata   Rosanna Verde

Dynamic learning from data streams through the combined use of probability density functions and simplicial functional principal component analysis
Author(s) Tonio Di Battista   Francesca Fortuna   Fabrizio Maturo

Multivariate Parametric Analysis of Distributional Data
Author(s) Paula Brito

Migrants and Refugees in Europe: social, economic and health-related issues

Organizers: Manuela Stranges (Università della Calabria) - Livia Elisa Ortensi (Università di Bologna)

Chair: Anna Paterno (Università di Bari)

Discussant: Livia Elisa Ortensi (Università di Bologna)

Room: T7

Floor: ground

Short summary: This session is devoted to exploring social, economic, and health-related issues of migrants and refugees in different European contexts. The paper from Haodong et al. looks at the combination of human capital accumulation and investment at destination on future economic performance of refugees in Sweden. The authors find that, overall, refugees income increases with total hours devoted to human capital investments (except for men who attained secondary education) suggesting a positive labor market return. However, the magnitude of the return varies depending on refugee s initial level of education, it is the greatest for those who attained university education. This educational difference suggests that human capital investments help refugees restore the value of their original educational credentials. The income effects of human capital investment vary depending on the type of training. Refugee women tend to benefit more from learning language, compared to training in introduction programme (EPA). In contrast, refugee men tend to benefit from EPA (except those who attained secondary education), but not from Swedish language training (SFI). The paper from Piccitto concentrates on the role of legal environment on the asylum applications, focusing on Italy. In 2020, the Italian government approved the so-called Immigration and security decree. Among its intentions, regarding a wide range of matters (contrast to mafia and terrorism, urban security), the decree remarkably changed the regulation of asylum, immigration and citizenship. The decree has abolished the Humanitarian protection, which has traditionally been used as the main source of legal protection for migrants (the other two being the refugee status and the subsidiary protection in Italy). The paper focuses on the impact of the introduction of this restrictive law on immigration on the number of asylum application in the country, by leveraging Eurostat data and performing a range of statistical analyses. The paper from Amati et al. focuses on loneliness among older migrants in Italy, analyzing the impact of different types of support networks, namely the instrumental/support and emotional networks, while controlling for standard socio-economic variables. The authors identified seven different network typologies have been identified, ranging from the complete ego network, where all the alters are present, to the almost empty network comprising only children and friends. The results of their study indicate that there is a significant association between loneliness and network typologies. However, loneliness might also affect the embeddedness in a network since it might lead to isolation from others.

Papers

Labor Market Return to Refugees' Human Capital Investment: A Natural Experiment in Sweden

Author(s) Eleonora Mussino

Social networks and loneliness among older migrants in Italy

Author(s) Viviana Amati Elisa Barbiano Di Belgiojoso Eralba Cela

The Italian Decree on Security: An Analysis of the Impact on Asylum Applications

Author(s) Giorgio Piccitto

Modelling and Forecasting High-dimensional time series

Organizer/Chair: Edoardo Otranto (Università di Messina)

Discussant: Giovanni De Luca (Università Parthenope di Napoli)

Room: T36

Floor: ground

Short summary: High dimensional time series, both univariate and multivariate, are pandemic in several scientific fields; the interest in their modelling is often associated to the possibility of obtaining reliable forecasts and monitoring many social phenomena. The three contributions of this invited session are examples of managing these data in the fields of economics, finance and climatology.

Papers

Adaptive combinations of tail-risk forecasts

Author(s) Alessandra Amendola   Vincenzo Candila   Antonio Naimoli   Giuseppe Storti

Are Monetary Policy Announcements related to Volatility Jumps?

Author(s) Giampiero Gallo   Demetrio Lacava   Edoardo Otranto

Regularized Estimation and Prediction of the El Nino/Southern Oscillation Cycle

Author(s) Alessandro Giovannelli   Tommaso Proietti

Round table "QUALE FUTURO PER LE SOCIETA SCIENTIFICHE?"

Speakers: **Corrado Crocetta**, Presidente SIS - **Marco Cucculelli**, Segretario generale SIE - **Andrea Giovagnoni**, Presidente SIRM - **Stefano Marasca**, Presidente SIDREA - **Mario Pianta**, Presidente SIE - **Michele Pizzo**, Presidente AIDEA - **Salvatore Strozza**, Presidente SIEDS
Chair: **Francesco M. Chelli**, Presidente Istat f.f.
Room: A1
Floor: ground

13:15 – 13:30
Closing