

Contents

Part I Clustering Large Data-Sets

Clustering Large Data Set: An Applied Comparative Study	3
Laura Bocci and Isabella Mingo	
Clustering in Feature Space for Interesting Pattern Identification of Categorical Data	13
Marina Marino, Francesco Palumbo and Cristina Tortora	
Clustering Geostatistical Functional Data	23
Elvira Romano and Rosanna Verde	
Joint Clustering and Alignment of Functional Data: An Application to Vascular Geometries	33
Laura M. Sangalli, Piercesare Secchi, Simone Vantini, and Valeria Vitelli	

Part II Statistics in Medicine

Bayesian Methods for Time Course Microarray Analysis: From Genes' Detection to Clustering	47
Claudia Angelini, Daniela De Canditiis, and Marianna Pensky	
Longitudinal Analysis of Gene Expression Profiles Using Functional Mixed-Effects Models	57
Maurice Berk, Cheryl Hemingway, Michael Levin, and Giovanni Montana	
A Permutation Solution to Compare Two Hepatocellular Carcinoma Markers	69
Agata Zirilli and Angela Alibrandi	

Part III Integrating Administrative Data

Statistical Perspective on Blocking Methods When Linking Large Data-sets	81
Nicoletta Cibella and Tiziana Tuoto	
Integrating Households Income Microdata in the Estimate of the Italian GDP	91
Alessandra Coli and Francesca Tartamella	
The Employment Consequences of Globalization: Linking Data on Employers and Employees in the Netherlands	101
Fabienne Fortanier, Marjolein Korvorst, and Martin Luppès	
Applications of Bayesian Networks in Official Statistics	113
Paola Vicard and Mauro Scanu	

Part IV Outliers and Missing Data

A Correlated Random Effects Model for Longitudinal Data with Non-ignorable Drop-Out: An Application to University Student Performance	127
Filippo Belloc, Antonello Maruotti, and Lea Petrella	
Risk Analysis Approaches to Rank Outliers in Trade Data	137
Vytis Kopustinskias and Spyros Arsenis	
Problems and Challenges in the Analysis of Complex Data: Static and Dynamic Approaches	145
Marco Riani, Anthony Atkinson and Andrea Cerioli	
Ensemble Support Vector Regression: A New Non-parametric Approach for Multiple Imputation	159
Daria Scacciatelli	

Part V Time Series Analysis

On the Use of PLS Regression for Forecasting Large Sets of Cointegrated Time Series	171
Gianluca Cubadda and Barbara Guardabascio	
Large-Scale Portfolio Optimisation with Heuristics	181
Manfred Gilli and Enrico Schumann	
Detecting Short-Term Cycles in Complex Time Series Databases	193
F. Giordano, M.L. Parrella and M. Restaino	

Assessing the Beneficial Effects of Economic Growth: The Harmonic Growth Index	205
Daria Mendola and Raffaele Scuderi	
Time Series Convergence within I(2) Models: the Case of Weekly Long Term Bond Yields in the Four Largest Euro Area Countries	217
Giuliana Passamani	

Part VI Environmental Statistics

Anthropogenic CO₂ Emissions and Global Warming: Evidence from Granger Causality Analysis	229
Massimo Bilancia and Domenico Vitale	
Temporal and Spatial Statistical Methods to Remove External Effects on Groundwater Levels	241
Daniele Imparato, Andrea Carena, and Mauro Gasparini	
Reduced Rank Covariances for the Analysis of Environmental Data	253
Orietta Nicolis and Doug Nychka	
Radon Level in Dwellings and Uranium Content in Soil in the Abruzzo Region: A Preliminary Investigation by Geographically Weighted Regression	265
Eugenia Nissi, Annalina Sarra, and Sergio Palmeri	

Part VII Probability and Density Estimation

Applications of Large Deviations to Hidden Markov Chains Estimation	279
Fabiola Del Greco M.	
Multivariate Tail Dependence Coefficients for Archimedean Copulae	287
Giovanni De Luca and Giorgia Riveccio	
A Note on Density Estimation for Circular Data	297
Marco Di Marzio, Agnese Panzera, and Charles C. Taylor	
Markov Bases for Sudoku Grids	305
Roberto Fontana, Fabio Rapallo, and Maria Piera Rogantin	

Part VIII Application in Economics

Estimating the Probability of Moonlighting in Italian Building Industry	319
Maria Felice Arezzo and Giorgio Alleva	

Use of Interactive Plots and Tables for Robust Analysis of International Trade Data	329
Domenico Perrotta and Francesca Torti	
Generational Determinants on the Employment Choice in Italy	339
Claudio Quintano, Rosalia Castellano, and Gennaro Punzo	
Route-Based Performance Evaluation Using Data Envelopment Analysis Combined with Principal Component Analysis	351
Agnese Rapposelli	
 Part IX WEB and Text Mining	
Web Surveys: Methodological Problems and Research Perspectives	363
Silvia Biffignandi and Jelke Bethlehem	
Semantic Based DCM Models for Text Classification	375
Paola Cerchiello	
Probabilistic Relational Models for Operational Risk: A New Application Area and an Implementation Using Domain Ontologies	385
Marcus Spies	
 Part X Advances on Surveys	
Efficient Statistical Sample Designs in a GIS for Monitoring the Landscape Changes	399
Elisabetta Carfagna, Patrizia Tassinari, Maroussa Zagoraiou, Stefano Benni, and Daniele Torreggiani	
Studying Foreigners' Migration Flows Through a Network Analysis Approach	409
Cinzia Conti, Domenico Gabrielli, Antonella Guarneri, and Enrico Tucci	
Estimation of Income Quantiles at the Small Area Level in Tuscany	419
Caterina Giusti, Stefano Marchetti and Monica Pratesi	
The Effects of Socioeconomic Background and Test-taking Motivation on Italian Students' Achievement	429
Claudio Quintano, Rosalia Castellano, and Sergio Longobardi	
 Part XI Multivariate Analysis	
Firm Size Dynamics in an Industrial District: The Mover-Stayer Model in Action	443
F. Cipollini, C. Ferretti, and P. Ganugi	

Multiple Correspondence Analysis for the Quantification and Visualization of Large Categorical Data Sets 453
Alfonso Iodice D’Enza and Michael Greenacre

Multivariate Ranks-Based Concordance Indexes 465
Emanuela Raffinetti and Paolo Giudici

Methods for Reconciling the Micro and the Macro in Family Demography Research: A Systematisation..... 475
Anna Matysiak and Daniele Vignoli