

20th International Conference on Computational Statistics

(COMPSTAT 2012)

**Limassol, Cyprus
27-31 August 2012**

Editors:

**A. Colubi
E. J. Kontoghorghe**

**K. Fokianos
G. Gonzalez-Rodriguez**

ISBN: 978-1-62748-321-6

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2012) by the International Statistical Institute
All rights reserved.

Printed by Curran Associates, Inc. (2013)

For permission requests, please contact the International Statistical Institute
at the address below.

International Statistical Institute
P.O. Box 24070
2490 AB The Hague
The Netherlands

Phone: 31-70-3375737
Fax: 31-70-3860025

isi@cbs.nl

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

Contents

Peter Martey Addo, Monica Billio and Dominique Guégan Understanding exchange rates dynamics	1
Virtudes Alba-Fernández, M. Dolores Estudillo-Martínez and M. Dolores Jiménez-Gamero A goodness-of-fit test for a class of bivariate Laplace distributions	15
Alessandra Amendola and Giuseppe Storti Model uncertainty and forecast combination in high dimensional multivariate volatility prediction	27
Maria J. Amorim and Margarida G. M. S. Cardoso Clustering cross-validation and mutual information indices	39
Dimitar Atanasov and Vessela Stoimenova Simulation, estimation and robustification against outliers in branching processes - a computational approach	53
Luigi Augugliaro, Angelo M. Mineo and Ernst C. Wit Differential geometric LARS via cyclic coordinate descent method	67
Tomáš Bacigál and Radko Mesiar 3-dimensional Archimax copulas and their fitting to real data	81
Milan Bašta Multiscale correlations of volatility patterns across the stock market	89
Anne Bernard, Christiane Guinot and Gilbert Saporta Sparse principal component analysis for multiblock data and its extension to sparse multiple correspondence analysis	99
Mathieu Bonneau, Nathalie Peyrard and Régis Sabbadin Reinforcement-learning for sampling design in Markov random fields	107
Xavier Bry, Catherine Trottier, Thomas Verron and Frederic Mortier Supervised component generalized linear regression using a PLS-extension of the Fisher scoring algorithm	121
Conrad J. Burden, Junmei Jing, Sylvain Forêt and Susan R. Wilson Application of k-word match statistics to the clustering of proteins with repeated domains	131

Francisco A.T. de Carvalho, Antonio Irpino and Rosanna Verde Batch self organizing maps for interval and histogram data	143
Francisco A.T. de Carvalho, Filipe M. de Melo and Patrice Bertrand Batch self-organizing maps based on city-block distances for interval variables	155
Christine Choirat and Raffaello Seri Computational aspects of discrepancies for equidistribution on the hypercube	167
Benoit Da Mota, Vincent Frouin, Edouard Duchesnay, Soizic Laguitton <i>et al.</i> A fast computational framework for genome-wide association studies with neuroimaging data	179
Christian Derquenne Meta-segmentation of time series for searching a better segmentation	191
Stéphane Derrode and Wojciech Pieczynski Copulas selection in pairwise Markov chain	205
Silvia Figini and Paolo Giudici Improving model averaging in credit risk analysis	217
Paul Fischer and Astrid Hilbert Visual time series analysis	225
Konstantinos Fokianos and Vasiliki Christou Quasi-likelihood inference for mixed Poisson time series	235
Roland Fried, Nils Raabe and Anita Thieler On the robust analysis of periodic nonstationary time series	245
Ivette Gomes, Frederico Caeiro and Lígia Henriques-Rodrigues PORT-PPWM extreme value index estimation	259
Charles Gomes, Hicham Nocairi, Marie Thomas, Fabien Ibanez <i>et al.</i> Stacking prediction for a binary outcome	271
Marian Grendár, Jana Škutová and Vladimir Špitalský Email categorization and spam filtering by random forest with new classes of quantitative profiles	283
Ramón Gutiérrez-Jáimez, Ramón Gutiérrez-Sánchez, Ahmed Nafidi <i>et al.</i> Stochastic gamma diffusion process with exogenous factors. Application to real case	295
Kuniyoshi Hayashi, Fumio Ishioka, Hiroshi Suito and Koji Kurihara Diagnostics and improvements on statistical sensitivity analysis in a subspace method	303
Dyah E. Herwindiati, Maman A. Djauhari and Luan Jaupi Robust statistics for classification of remote sensing data	317
Mia Hubert, Gerda Claeskens, Bart De Ketelaere and Kaveh Vakili A new depth-based approach for detecting outlying curves	329

Fumio Ishioka and Koji Kurihara Detection of spatial clusters using echelon scanning method	341
Julien Jacques and Cristian Preda Clustering multivariate functional data	353
Yunqi Ji, Antonio Ciampi and Vicky Tagalakis Modified EM algorithms for model-based clustering of longitudinal data	367
Christine Keribin, Vincent Brault, Gilles Celeux and Gérard Govaert Model selection for the binary latent block model	379
Michiharu Kitano and Hiroshi Yadohisa An overlapping clustering method for signed graphs	391
Christos P. Kitsos and Thomas L. Toulias An entropy type measure of complexity	403
Jindřich Klufa and Nikola Kaspříková Economic characteristics of LTPD sampling plans for inspection by variables	417
Grzegorz Konczak On testing multi-directional hypotheses in categorical data analysis	427
Daniel Kosiorowski Student depth in robust economic data stream analysis	437
Takafumi Kubota, Makoto Tomita, Fumio Ishioka and Toshiharu Fujita Cluster analysis of age-grouped suicide data in Japan with spatio-temporal structure	449
Masahiro Kuroda, Michio Sakakihara, Yuichi Mori and Masaya Iizuka Two-stage acceleration for non-linear PCA	461
Lazhar Labiod and Mohamed Nadif Co-clustering by bi-stochastic matrix approximation	473
Gabriella Legrenzi and Costas Milas Fiscal policy sustainability, economic cycle and financial crises: the case of the GIPS	485
Jana Lenčuchová Testing of linearity against MSW type of nonlinearity using autocopulas	499
Caterina Liberati, Furio Camillo and Gilbert Saporta Kernel discrimination and explicative features: an operative approach	507
Aurore Lomet, Gérard Govaert and Yves Grandvalet Model selection in block clustering by the integrated classification likelihood	519
Claude Mante and Georges Stora Functional PCA of measures for investigating the influence of bioturbation on sediment structure	531

Lubos Marek and Michal Vrabec Confidence intervals for relative and absolute frequency	543
Aaron F. McDaid, Thomas Brendan Murphy, Nial Friel and Neil Hurley Model-based clustering in networks with stochastic community finding	549
Radko Mesiar, Magda Komorníková and Jozef Komorník Some new classes of copulas and their application in finance	561
Farouk Mhamdi, Jean-Michel Poggi and Mériem Jaïdane-Saïdane Forecasting time series through reconstructed multiple seasonal patterns using empirical mode decomposition	573
Masaki Mitsuhiro, Yasushi Ota and Hiroshi Yadohisa New mathematical approach for an inverse problem in financial markets	585
Theodoros Moysiadis Modeling categorical time series with strong autocorrelation	595
Piyushkumar A. Mundra, Roy E. Welsch and Jagath C. Rajapakse Bootstrapping of short time-series multivariate gene-expression data	605
Hidetoshi Murakami The max-type multivariate two-sample rank statistic based on the Baumgartner statistic	617
Takashi Nagakubo and Masashi Goto Performance of interval estimation methods for relative effects	629
Lizbeth Naranjo, Carlos J. Pérez and Jacinto Martín Bayesian analysis of a skewed exponential power distribution	641
Shu Kay Ng and Alfred Lam Multitask learning in mixture modelling framework via generalized linear mixed-effects models	653
Margret-Ruth Oelker, Jan Gertheiss and Gerhard Tutz Categorial effect modifiers in generalized linear models	665
Kosuke Okusa and Toshinari Kamakura Statistical registration and modeling of frontal view gait data with application to the human recognition	677
Emanuel Florentin Olariu Importance sampling using Rényi divergence	689
Teresa Oliveira and Amílcar Oliveira Ineffectiveness of the FIM in selecting optimal BIB designs for testing block effects	701
Heewon Park, Fumitake Sakaori and Sadanori Konishi Selection of tuning parameters in robust sparse regression modeling	713
Xanthi Pedeli, Anthony C. Davison and Konstantinos Fokianos Saddlepoint approximation for INAR(p) processes	725

Anna Petričková Copula approach to testing of the linearity and remaining nonlinearity in the SETAR models	735
Mika Sato-Ilic Fuzzy clustering model based on operators on a product space of linear spaces	745
Martijn Schouteden, Katrijn Van Deun and Iven Van Mechelen ECO-POWER: a novel method to reveal common mechanisms underlying linked data	757
Marta Sestelo, Nora M. Villanueva and Javier Roca-Pardiñas Selection algorithm in regression models. FWSelect package	769
Reijo Sund, Kimmo Vehkalahti and Seppo Mustonen Muste – editorial computing environment within R	777
Kensuke Tanioka and Hiroshi Yadohisa Three-way asymmetric hierarchical clustering based on regularized similarity models	789
Tomoki Tokuda, Iven Van Mechelen, Gerda Claeskens and Francis Tuerlinckx BIC selection of the number of classes in latent class models with background variables	801
Makoto Tomita Comparison among spatial clustering methods on hierarchical structures for DNA markers	813
Kaveh Vakili, Mia Hubert and Peter Rousseeuw The MCS estimator of location and scatter	825
Gaël Varoquaux, Rodolphe Jenatton, Alexandre Gramfort <i>et al.</i> Modeling resting-state brain activity with sparse decompositions	835
Nora M. Villanueva, Miguel M. Fonseca, Marta Sestelo and Javier Roca-Pardiñas Strand asymmetries in mitogenomes: toward detection of change points	849
Jan Ámos Víšek Robust estimation of model with the fixed and random effects	855
Koiti Yano Time-varying analysis of dynamic stochastic general equilibrium models based on sequential Monte Carlo methods	867
Liang Zhang, Masaya Iizuka and Tomoyuki Tarumi Electronic statistics textbook by EPUB 3.0	879