

Contents

Part I - Invited Papers

CIPRIAN M. CRAINICEANU, VADIM ZIPUNNIKOV, JIAWEI BAI: Science to data to statistical models	3
TORSTEN HOTHORN, THOMAS KNEIB, PETER BÜHLMANN: Conditional Transformation Models by Example	15
STEFANO M. IACUS, GARY KING: How Coarsening Simplifies Matching-Based Causal Inference Theory	27
GEOFFREY J. McLACHLAN, SHARON X. LEEMAQZ: On Finite Mixtures of Skew Distributions	33
HEIN PUTTER, MIA KLINTEN GRAND: Regression Models for Expected Length of Stay	45

Part II - Contributed Papers (volume 1)

ANTONINO ABBRUZZO, IVAN VUJACIC, ERNST C. WIT, ANGELO M. MINEO: Model selection for penalized Gaussian Graphical Models	59
GIADA ADELFFIO, MARCELLO CHIODI: Mixed estimation technique in semi-parametric space-time point processes for earthquake description	65
ROBERT J. ADLER, KEVIN BARTZ, SAMUEL C. KOU, ANTHEA MONOD: A Topological Approach to the Statistical Estimation of Random Field Thresholds	71
SMITHA ANKINAKATTE, DAVID EDWARDS: The analysis of discrete longitudinal data using acyclic probabilistic finite automata	77
CARMEN ARMERO, PETER J. DIGGLE, ANABEL FORTE, HÈCTOR PERPIÑÁN: Markov mixture models for analyzing the evolution of chronic kidney disease in children	83
VINCENT BREMHORST, PHILIPPE LAMBERT: Estimation of the Latent Distribution in Cure Survival Models using a Flexible Cox Model	87

KEVIN BURKE, GILBERT MACKENZIE: Multi-Parameter Regression Survival Models	93
CARLO G. CAMARDA, PAUL H.C. EILERS, JUTTA GAMPE: Exploratory Exponential Tilting.....	97
CARLO G. CAMARDA, NIEL HENS, PAUL H.C. EILERS: Modelling Social Contact Data: a smoothing constrained approach	103
ROBERTO COLOMBI, SABRINA GIORDANO: Marginal Parameterizations for Hidden Markov Models.....	109
ENRICO A. COLOSIMO, ANDRÉ G.F.C. COSTA, LEILA AMORIM: Marginal Models for the Association Structure of Hierarchical Binary Responses.....	115
FRANCISCO CUEVA, EMILIO PORCU, RONNY VALLEJOS: A nonparametric study of the spatial association between forest variables..	121
MICHAELA DVORZAK, HELGA WAGNER: Sparse Bayesian modeling of underreported count data.....	127
PAUL H.C. EILERS: Harmonic Histograms: Smoothing of Grouped Circular Data Distributions.....	133
MARCO ENEA, ANTONELLA PLAIA, VINCENZA CAPURSI: Modeling confidential data via modified hurdle mixed models	139
FRANCESCO FINAZZI, CLAIRE MILLER, MARIAN SCOTT: A model-based clustering approach for the analysis of environmental time series.....	145
GIANLUCA FRASSO, PAUL H.C. EILERS: L-surface and V-valley for multi-dimensional smoothing parameter selection	151
JONATHAN GELLAR, CIPRIAN M. CRAINICEANU: Cox Regression Models with Functional Covariates.....	157
EDWARD I. GEORGE, VERONIKA ROČKOVÁ, EMMANUEL LESAFRE: Faster Spike-and-Slab Variable Selection with Dual Coordinate Ascent EM.....	165
ANNA GOTTARD: A joint Bradley-Terry model for tennis tournaments via Data Cloning	171
IRENE L. HUDSON, SHALEM Y. LEEMAQZ, DAVID DARWENT, GREG ROACH, DREW DAWSON: SOM clustering and modelling of Australian railway drivers' sleep, wake, duty profiles.....	177

MARIA IANNARIO, DOMENICO PICCOLO: A proposal for modelling overdispersion in ordinal data..... 183

STIJN JASPERS, MARC AERTS, GEERT VERBEKE: Estimation of an MIC distribution using a two-stage semi-parametric mixture model..... 191

VANDNA JOWAHEER, BRAJENDRA SUTRADHAR, RAJENDRA NEUPANE: Likelihood Analysis For An Incomplete Longitudinal Hemoglobin Data..... 197

ANDRÉ KLIMA, HELMUT KÜCHENHOFF, PAUL W. THURNER: Analysis of voter transition using ecological data: Comparison of different approaches for Munich election data..... 203

THOMAS KNEIB, ELISABETH WALDMANN, FABIAN SOBOTKA: Bayesian Expectile Regression..... 209

IOANNIS KOSMIDIS, DAVID FIRTH: Reduced-bias inference for multi-dimensional Rasch models with applications..... 215

PHILIPPE LAMBERT: A new flexible family of conditional Archimedean copulas..... 221

GWENAËL G.R. LEDAY, AAD W. VAN DER VAART, MARK A. VAN DE WIEL: An empirical Bayesian ridge approach to modeling the transcriptional effects of DNA copy number aberrations..... 227

DAE-JIN LEE, MARÍA DURBÁN: Spatio-temporal seasonal data modelling and forecasting with penalized smooth-ANOVA models... 233

NICHOLAS T. LONGFORD: Decision theory for some elementary statistical problems..... 239

NELMARIE LOUW: Kernel based dimension reduction and classification of spectroscopy data for authentication of South African wines..... 245

ROBSON J.M. MACHADO, CIBELE M. RUSSO: Semiparametric partially nonlinear mixed-effects models with P-splines..... 251

GILBERT MACKENZIE, IL DO HA: The role of Frailty in survival studies..... 257

JULIANE MANITZ, THOMAS KNEIB: Model-based source estimation during foodborne disease outbreaks..... 263

ANDREAS MAYR, FLORIAN FASCHINGBAUER, MATTHIAS SCHMID: Boosting sonographic birth weight estimation..... 269

JAMES P. MCKEONE, ANTHONY N. PETTITT: Bayesian P-splines with a multiplicative term in EMG trace data	275
NICHOLAS MESUE, TAPIO NUMMI: Testing of Growth Curves using Cubic Smoothing Splines: A Multivariate Approach	281
DANIEL A. MOLINARI, LUDGER EVERS, ADRIAN W. BOWMAN: Posterior approximations for Gaussian models with “non-detect” data	289
KATHAKALI GHOSH MUKHERJEE, CLAIRE MILLER, ADRIAN W. BOWMAN, GREGOR THUT: Characterisation and Mixed Effects Models for EEG Signals	295
MAGDALENA MURAWSKA, DIMITRIS RIZOPOULOS, EMMANUEL LESAFFRE: A comparison between landmarking and joint modeling for producing predictions using longitudinal outcomes	301
RUTH NYSEN, MARC AERTS, CHRISTEL FAES: Model averaging quantiles for censored data	307
MARÍA OLIVEIRA, ROSA MARÍA CRUJEIRAS, ALBERTO RODRÍGUEZ-CASAL: CircSiZer for exploring circular data	313
WOLFGANG PÖSSNECKER, GERHARD TUTZ: Variable Selection and Shrinkage of Varying to Fixed Effects in Finite Mixtures of Generalized Linear Models	319
XANTHI PEDELI, KONSTANTINOS FOKIANOS, MOHSEN POURAHMADI: Cholesky decomposition for multivariate volatilities	325
JEAN PEYHARDI, CATHERINE TROTTIER, YANN GUÉDON A unifying framework for specifying generalized linear models for categorical data	331
VERONIKA ROČKOVÁ, EMMANUEL LESAFFRE: Bayesian Sparse Factor Regression Approach to Genomic Data Integration	337
MARÍA XOSÉ RODRÍGUEZ - ÁLVAREZ, DAE-JIN LEE, THOMAS KNEIB, MARÍA DURBÁN, PAUL H.C. EILERS: Fast algorithm for smoothing parameter selection in multidimensional P-splines	343
ERLIS RULI, LAURA VENTURA, WALTER RACUGNO: Approximate Bayesian inference based on modified log-likelihood ratios	351
MBÉRY SÉNE, CARINE A. BELLERA, CÉCILE PROUST-LIMA: Joint modeling of longitudinal and time-to-event data with application to the prediction of prostate cancer recurrence	357

BENJAMIN SAEFKEN, SONJA GREVEN, THOMAS KNEIB: Estimating prediction error in mixed models..... 363

BRUNO SANTOS, HELENO BOLFARINE: A two-part model using quantile regression under a Bayesian perspective..... 369

GUNTHER SCHAUBERGER, GERHARD TUTZ: DIF-LASSO: Differential Item Functioning in Rasch Models..... 375

SABINE K. SCHNABEL, PAUL H.C. EILERS, FRED A. VAN EEUWIJK : Modelling plant height data with scaled and shifted prototype curves..... 381

MARIANGELA SCIANDRA, GIANFRANCO LOVISON: Model interpretation from the additive elements of the PWRSS in GLMMs.... 387

FABIAN SOBOTKA, ANDREAS MAYR, THOMAS KNEIB: Fractile Boosting: a novel approach to mode regression..... 393

ELIZABETH M. SWEENEY, RUSSEL T. SHINOHARA, JOSHUA T. VOGELSTEIN, DANIEL S. REICH, CIPRIAN M. CRAINICEANU: Do not use a cannon to kill a mosquito: a comparison of supervised classification algorithms in the context of MS lesion segmentation in structural MRI..... 399

KUKATHARMINI THARMARATNAM, LINN CECILIE BERGERSEN, INGRID K. GLAD: Nonlinear Monotone Regression for High-dimensional Data..... 405

ANESTIS TOULOUMIS: A GEE Approach for Correlated Ordinal and Nominal Multinomial Responses..... 411

MATILDE TREVISANI, ARJUNA TUZZI: Through the JASA’s Looking-Glass, and What We Found There..... 417

JAN VAN DE KASSTEELE, AGNETHA HOFHUIS, PETER TEUNIS, WILFRID VAN PELT: Modeling the risk of *Borrelia* infection after a tick bite - a Bayesian approach..... 423

ARDO VAN DEN HOUT, GRACIELA MUNIZ: Joint models for discrete longitudinal outcome and survival..... 429

MASSIMO VENTRUCCI, DANIELA COCCHI, MARIAN SCOTT: Bayesian P-spline models for land use raster datasets..... 435

HELGA WAGNER, REGINA TÜCHLER: Bayesian Factorization Model for Analysing Mixed Data..... 441

ELISABETH WALDMANN, ANKE STEIN, THOMAS KNEIB: Bivariate Bayesian Quantile Regression..... 447

MADAWA P. WEERASINGHE JAYAWARDANA RATHAMBALAGE, GEORGY SOFRONOV: GAMLSS and Extended Cross-Entropy Method to Detect Multiple Change-Points in DNA Read Count Data	453
STEN WILLEMSSEN, PAUL H.C. EILERS, REGINE STEEGERS, EM- MANUEL LESAFFRE: A multivariate Bayesian model for human growth	459
ERNST C. WIT, IVAN VUJACIC, JAVIER GONZALEZ: Inference of non-linear ODE dynamics	465
 Part III - Contributed Papers (volume 2) <hr/>	
STEVEN ABRAMS, NIEL HENS: Extending frailty models applied to infectious disease epidemiology	475
GIADA ADELFO, GIOVANNI BOSCAINO: The student <i>talent</i> in a ran- dom effects Quantile Regression Model for university performance	479
SERENA ARIMA: Item selection via Bayesian graded response model	485
JIawei BAI, BING HE, THOMAS A. GLASS, CIPRIAN M. CRAINI- CEANU: Two valid and interpretable metrics to summarize raw accelerometry data	489
AHMED S. BANI-MUSTAFA, KENAN M. MATAWIE: Recursive Resid- uals Application in Linear Mixed Models	493
PAUL D. BAXTER, MARC A. BAILEY, D. JULIAN A. SCOTT: Mod- elling the growth of Abdominal Aortic Aneurysms using mixed effects regression with autocorrelated residuals	497
MARCO BAZZI, PAOLA TELLAROLI: Finding profiles in time-course gene expressions	501
RUGGERO BELLIO, PAOLO VIDONI: A note on improved random effects prediction in GLMMs	507
BETSABÉ G. BLAS ACHIC, MARCOS ANTONIO A. PEREIRA: Cali- bration model with scale mixtures of skew-normal distributions .	511
RAQUEL CABALLERO-ÁGUILA, IRENE GARCÍA-GARRIDO, JOSEFA LINARES-PÉREZ: Distributed fusion filtering using correlated missing observations from multiple sensors	515

RAQUEL CABALLERO-ÁGUILA, IRENE GARCÍA-GARRIDO, JOSEFA LINARES-PÉREZ: Optimal least-squares linear centralized filter for systems with autocorrelated and cross-correlated noises 521

MARCOS H. CASCONI, LARISSA A. MATOS, JOSÉ A. G. CAMPOS : Nonparametric method for treatment comparison in the wine-making process 525

MANUELA CATTELAN, CRISTIANO VARIN: Marginal modeling of dependent paired comparison data 529

JONA CEDERBAUM, SONJA GREVEN: Functional Linear Mixed Models for Sparsely and Irregularly Sampled Data..... 533

VASILIKI CHRISTOU, KONSTANTINOS FOKIANOS: Testing Linearity for Nonlinear Count Time Series Models 539

JULIANA COBRE, MÁRIO DE CASTRO: Bayesian inference for a family based on the Weibull and the power series distributions..... 543

AUDREY H.M.A. CYSNEIROS, MARIANA C. ARAÚJO: Corrected Profile Likelihood in Heteroscedastic Symmetric Nonlinear Model 547

IVAN LUCIANO DANESI, STEVEN HABERMAN, PIETRO MILLOSSOVICH: Mortality forecasting for related populations using Lee-Carter type models 551

MARIA DEL PILAR DÍAZ, JOSÉ M. VARGAS, MARGARITA DÍAZ: Multilevel factor models: Identification of Three-level Model Parameters for the Study of Regional Development in Argentina... 555

VINNY DAVIES, DIRK HUSMEIER: Assessing the impact of non-additive noise on modelling transcriptional regulation with Gaussian processes..... 559

MARGARET R. DONALD, ASHWIN UNNIKRISHNAN, JOHN E. PIMANDA, SUSAN R. WILSON: Model Comparisons for RNA-Seq data 563

LIZANDRA C. FABIO, FRANCISCO JOSÉ A. CYSNEIROS, GILBERTO A. PAULA: Marginal models from exponential family mixed models with nonnormal random effect distribution..... 567

ZHOU FANG: Sparse Penalised Methods in Phenology 573

SUSANA FARIA, ARMINDA MANUELA GONÇALVES, RUI GOMES: Modelling Occupational Stress and Burnout in Portuguese University Teachers by using Structural Equation Models..... 577

SUSANA FARIA, GILDA SOROMENHO: Measuring the component overlapping in mixtures of linear regressions	581
ALESSANDRO FASSÒ: Traffic policies and air quality in Italian cities	585
GIANCARLO FERRARA, FRANCESCO VIDOLI: Beyond the threshold: the efficiency of Italian manufacturing firms.....	591
ÁLVARO J. FLÓREZ, ANA NORA A. DONALDSON, MERCEDES ANDRADE, JAVIER TORRES, NAIRN WILSON: Handling missing data in longitudinal studies: an application to healthcare data.....	595
AGNES FUSSL, SYLVIA FRÜHWIRTH-SCHNATTER, CHRISTINE ZULEHNER: Bayesian estimation of a discrete choice model for household labor supply in Austria	599
KELLY GALLACHER, CLAIRE MILLER, MARIAN SCOTT: Comparison of GAM, FDA and DFA for water quality data	603
JAN GERTHEISS, HENK A.L.KIERS: Penalized Non-Linear Principal Components Analysis for Ordinal Variables	607
VIVIANA GIAMPAOLI, OLGA USUGA, PATRICIA BERLOLOTTO: Selection of mixed beta regression model for longitudinal data.....	611
GUSTAVO L. GILARDONI, MARIA LUIZA G. DE TOLEDO, MARTA A. FREITAS, ENRICO A. COLOSIMO : Dynamics of the Optimal Maintenance Policy under Imperfect Repair Models.....	615
DULCE GOMES, PATRÍCIA A. FILIPE, CARLA NUNES, BRUNO DE SOUSA: Penalized spline smoothing for delay in Pulmonary Tuberculosis diagnosis.....	621
ARMINDA MANUELA GONÇALVES, MARCO COSTA, LARA TEIXEIRA: Change-point analysis for in environmental time series.....	625
RADEK HENDRYCH: Another View on Conditional Correlations	631
LASSE HOLMSTRÖM, ILKKA LAUNONEN: Posterior Singular Spectrum Analysis (PSSA).....	635
SAMUEL IDDI, GEERT MOLENBERGHS: A Zero-Inflated and Overdispersed Marginalized Model for Correlated Counts.....	641
NADJA KLEIN, THOMAS KNEIB, STEFAN LANG: Bayesian generalized additive models for location, scale and shape for insurance data.....	645

BERNHARD KLINGENBERG: On a null variance estimator for the Mantel-Haenszel risk difference and corresponding confidence interval.....	651
ARNOŠT KOMÁREK, TOMÁŠ KINCL, LENKA KOMÁRKOVÁ: Model based segmentation of TV advertising scheduling patterns	655
ANTONIO J. LÓPEZ-MONTOYA, CONCEPCIÓN AZORIT, IRENE GARCÍA-GARRIDO, RAMÓN GUTIÉRREZ, JAVIER MORO: Statistical Models to Density-dependence Detection in Mediterranean Deer Populations.....	659
MÓNICA LÓPEZ-RATÓN, CARMEN CADARSO-SUÁREZ, ELISA M. MOLANES-LÓPEZ, EMILIO LETÓN: GsymPoint: An R Package for estimating the Generalized Symmetry Point as the optimal cutpoint in continuous diagnostic tests.....	663
FRANCISCO LOUZADA, VICENTE G. CANCHO, GLAGYS D.C. BARRIGA, DIPAK K. DEY: The Birnbaum–Saunders survival model with cure fraction under different of activation mechanisms	669
BENN MACDONALD, FRANK DONDELINGER, DIRK HUSMEIER: Inference in complex biological systems with Gaussian processes and parallel tempering.	673
IVANA MALÁ: Modelling of the distribution of incomes with the use of finite mixtures of distributions.....	677
VALENTINA MAMELI, MONICA MUSIO, LUCA DEIANA: Study of the longevity in Sardinia: an application of the Beta skew-normal regression	681
ELIZABETH MARTÍNEZ-GÓMEZ, VICTOR GUERRERO, FRANCISCO ESTRADA: An Application of The Vector AutoRegression (VAR) Model to The Analysis of The Sun–Earth’s Climate Connection.	685
LARISSA A. MATOS, VICTOR H. LACHOS: Influence diagnostics in mixed-effects models with censored data using the multivariate-t distribution.....	689
SILVIA METELLI, LEONARDO GRILLI, CARLA RAMPICHINI: Bayesian estimation with INLA for logistic multilevel models.....	693
RADOSLAVA MIRKOV, THOMAS MAUL, RONALD HOCHREITER: Modeling Credit Spreads Using Nonlinear Regression	697
ANA MOREIRA, LUÍS MACHADO: Estimation of the conditional survival function for successive survival times.....	701

DARCY STEEG MORRIS: A Semiparametric Approach for Multivariate Longitudinal Count Data	707
JESÚS NAVARRO-MORENO, ROSA M. FERNÁNDEZ-ALCALÁ, JUAN CARLOS RUIZ-MOLINA, ANTONIA OYA: A Quaternion Widely Linear Series Expansion	713
FEDERICA NICOLUSSI: Smooth Graphical models of type II: link with marginal models	717
LUIGI PACE, ALESSANDRA SALVAN, NICOLA SARTORI: Adjusted pseudo composite likelihood ratios	723
JUAN CARLOS PARDO-FERNÁNDEZ, M. DOLORES JIMÉNEZ-GAMERO, ANOUAR EL GHOUGH: On the use of the characteristic function of the residuals to test for the equality of regression curves	727
DANIELA PAUGER, CHRISTINE DULLER, HELGA WAGNER: Analysing Formalisation of Management Accounting by Bayesian Variable Selection in a Cumulative Logit Model	731
GLEICI CASTRO PERDONA, FRANCISCO LOUZADA, CLEYTON ZARNARDO, HAYALA CAVENAGUE: A New Weibull Family of Hazard Models for Breast Cancer Survivals	735
ANTHONY N. PETTITT, XING JU LEE: Approximate Bayesian Computation for Model Choice	739
CHRISTIAN PFEIFER, ACHIM ZEILEIS, PETER HÖLLER: Trend and regional analysis of fatal off-piste and backcountry avalanche accidents in Austria within the years 1968 and 2011	743
ALUÍSIO PINHEIRO, PRANAB KUMAR SEN: Functional Data Analysis via Quasi U-Statistics Based Tests	749
HOLGER REULEN, THOMAS KNEIB: Boosting Multi State Models ..	753
SILVIA RIZZI, JUTTA GAMPE, PAUL H.C. EILERS: Efficient ungrouping of coarse histograms with the penalized composite link model	757
ANTONIO JOSÉ SÁEZ-CASTILLO, ANTONIO CONDE-SÁNCHEZ, ANA MARÍA MARTÍNEZ-RODRÍGUEZ, MARÍA JOSÉ OLMO-JIMÉNEZ, JOSÉ RODRÍGUEZ-AVI: A hyper-Poisson regression model for zero-truncated count data	761
STUART J. SHARPLES, DEBORAH A. COSTAIN, CHRIS SHERLOCK: Predicting future offending in adolescents from a longitudinal survey with missing responses	765

DANILO A. SILVA, CIBELE M. RUSSO: Comparison of estimation methods for variance components in elliptical mixed effects models 769

KOEN SIMONS, KAATJE BOLLAERTS, MICHEL SONCK, SÉBASTIEN FIERENS, ANDRÉ POFFIJN, LODEWIJK VAN BLADEL, DAVID GERAERTS, POL GOSSELIN, HERMAN VAN OYEN, JULIE FRAN-CART, AN VAN NIEUWENHUYSE: Childhood Leukaemia incidence around the Belgian nuclear sites: Surrogate exposure modelling . 773

SLAWOMIR SMIECH, MONIKA PAPIEZ: Exploratory data analysis of energy security in the EU member countries in the period 2000-2010 779

KATIA STEFANOVA: Statistical model for multi-environment trials: Accounting for variety by environment interaction 783

ISABELLA SULIS, VINCENZA CAPURSI: Analyzing SET over time using multilevel multidimensional explanatory IRT models 789

ISABELLA SULIS, MARIANO PORCU: Handling missing data in Item Response Theory. Assessing the accuracy in estimation of two multiple imputation procedures 795

KARIN A. TAMURA, VIVIANA GIAMPAOLI, ALEXANDRE NOMA: Nearest Neighbors Prediction Method for mixed logistic regression 799

CÉLIA TOURAINE, PIERRE JOLY: Illness-death model for interval-censored and left-truncated data with random effects: Application to dementia 803

GERHARD TUTZ, MARGRET-RUTH OELKER: Modeling heterogeneity by fixed effects models 807

YANNICK VANDENDIJCK, CHRISTEL FAES, HENS NIEL: Weight smoothing models to estimate survey estimates from binary data 811

LUIS HERNANDO VANEGAS, GILBERTO A. PAULA: Symmetric and log-symmetric regression models: a semiparametric approach.... 815

ALICJA WOLNY-DOMINIAK: A Score Test for Zero-adjusted Effect in Claim Severity Modeling..... 819

BRUCE J. WORTON, CHRIS R. MCLELLAN: Hidden Markov modelling of diffusion with an application in entomology 823

EMILY YEEND, DEBORAH A. COSTAIN, KAREN BROADHURST: Modelling Children's Journeys in Care: A Multistate Modelling Approach.....	827
Author Index	831