

COMPSTAT

Proceedings in
Computational Statistics

11th Symposium held
in Vienna,
Austria, 1994

Edited by
R. Dutter and W. Grossmann

With 78 Figures

Physica-Verlag

A Springer-Verlag Company

Contents

I	Treatment of “Huge” Data Sets	1
	Huge Data Sets	
	Peter J. Huber	3
	Assessing Convergence of Markov Chain Monte Carlo Methods	
	Arnoldo Frigessi	14
II	Numerical Analysis Useful in Statistics	29
	What can Numerical Analysis do for Statistics?	
	Håkan Ekblom	31
	Computation of Statistics Integrals using Subregion Adaptive Numerical Integration	
	Alan Genz	46
	Universal Generators for Correlation Induction	
	Wolfgang Hörmann, Gerhard Derflinger	52
	Local Polynomial Approximation of Rapidly Time-Varying Parameters of Nonlinear Dynamics	
	Vladimir Y. Katkovnik	58
	Backfitting and Related Procedures for Non-parametric Smoothing Regression: A Comparative View	
	Michael G. Schimek, Gerhard P. Neubauer, Haro Stettner	64
III	Parallel Statistical Computing	71
	Parallelism in Computational Statistics	
	Herman J. Adèr	73

IV	Selection Procedures	79
	Construction of Decision Procedures for Selecting Populations Guido Giani	81
V	Computational Aspects in Optimization	95
	A New Robust Design Strategy for Sigmoidal Models Based on Model Nesting Timothy E. O'Brien	97
VI	Computational Aspects in Spatial Statistics and GIS	103
	Some Dynamic Graphics for Spatial Data (with Multiple At- tributes) in a GIS Dianne Cook, Noel Cressie, James Majure, Jürgen Symanzik	105
	Stochastic Modelling of Spatial and Dynamic Patterns. Applica- tions in Ecology Hans-Peter Bäumler, Heidrun Ortleb, Dietmar Pfeifer, Ul- rike Schleier-Langer	120
VII	Computational Aspects in Discrimination and Classification	127
	Classification and Discrimination: the RECPAM Approach Antonio Ciampi	129
	Classification of Tumour ¹ H NMR Spectra using Nonlinear Ap- proaches Axel Benner	148
	Fuzzy Clustering and Mixture Models Gilles Celeux, Gérard Govaert	154
	Clustering in an Interactive Way Hans-Joachim Mucha	160
	Stability of Regression Trees Karl-Peter Pfeiffer, Bernhard Pesec, Robert Mischak . . .	166
	Modelling for Recursive Partitioning and Variable Selection Roberta Siciliano, Francesco Mola	172

VIII Computational Aspects in Bayesian Statistics 179

- Approximate Bayesian Inferences for the Reliability in the Weibull Case: Some Aspects of Reparametrization
Jorge Alberto Achcar 181
- Simulation of a Bayesian Interval Estimate for a Heterogeneity Measure
Derrick N. Joanes, Christine A. Gill, Andrew J. Baczowski 187

IX Computational Aspects in Sequential Analysis 193 Including Quality Control

- Multivariate Process Control Through the Means of Influence Functions
Luan Jaupi, Gilbert Saporta 195
- TRIQ – A PC-Program for Design and Analysis of Triangular Sequential Trials
J. Schmidtke, B. Schneider 201

X Computational Aspects in Reliability and Survival 207

- Estimation of Parameters of the Inf. of Weibull Distributed Failure Time Distributions
Mostafa Bacha 209
- Survival Graphics Software: Current Status, Future Needs and Criteria of Assessment
Constanza Quintero, Axel Benner, Lutz Edler, Mihaela Blaga 215

XI Computational Aspects in Statistics in Neural Networks 221

- Neural Networks: More Than 'Statistics for Amateurs'?
Kurt Hornik 223

XII Computational Aspects in Robust Statistics 237

- On Robust Nonlinear Regression Methods Estimating Dose Response Relationships
Hans-Peter Altenburg 239

High Breakdown Regression by Minimization of a Scale Estimator	
Christophe Croux, <i>Peter J. Rousseeuw</i>	245
Using GLIM4 to Estimate the Tuning Constant for Huber's M-estimate of Location	
Robert Gilchrist, George Portides	251
On the Calculation of MSE Minimizing Robust Estimators	
Christine H. Müller	257
Robust Fitting of an Additive Model for Variance Heterogeneity	
Robert A. Rigby, Mikis D. Stasinopoulos	263

XIII Computational Aspects in Multivariate Analysis 269

Models for Multivariate Data Analysis	
Philippe C. Besse	271
Comparing Independent Samples of High-dimensional Observation Vectors	
Siegfried Kropf, Jürgen Läuter	286
Unmasking Influential Observations in Multivariate Methods	
Yutaka Tanaka, Shingo Watadani	292

XIV Computational Aspects in Time Series Analysis 299

Application of a Multiagent Distributed Architecture for Time Series Forecasting	
Albert Prat, Jesús Lordés, Kanapathipillai Sanjeevan, Ignasi Solé, Josep M. Calot	301
Principal Component Analysis on Simulated AR(1) Processes	
Lamia Choukair, Bernard Burtshy	317
A Note on Generation, Estimation and Prediction of Stationary Processes	
Michael A. Hauser, Wolfgang Hörmann, Robert M. Kunst, Jörg Lenneis	323
Data Based Selection of "Window Width" for Spectrum Density Estimator Based on Time-averaged Periodograms	
Viacheslav Mazur, Alexei Iourovski	329

XVII	Resampling Methods	335
	Bootstrap Confidence Regions for Homogeneity Analysis; the Influence of Rotation on Coverage Percentages	
	Monica Th. Markus	337
	Bootstrap Confidence Regions for Canonical Variate Analysis	
	Trevor J. Ringrose	343
XVIII	Metadata and Statistical Information Systems	349
	STORM+: Statistical Data Storage and Manipulation System	
	Antonia Bezenchek, Fernanda Massari, Maurizio Rafanelli	351
	A Rigorous Treatment of Microdata, Macrodata, and Metadata	
	Hans-Joachim Lenz	357
XX	Statistical Software, Evaluation and Comparison	363
	Software for the Design of Experiments - a Comparative Overview	
	Paul L. Darius	365
	A Distributed LISP-STAT Environment	
	David C. De Roure, Danus Michaelides	371
	S-PLUS and MATLAB: A Comparison of Two Programming Environments	
	Andreas Futschik, Marcus Hudec	377
	A Specification Language for Gibbs Sampling	
	Peter Hartmann, Song Jin, Andreas Krause	383
	Applying the Object Oriented Paradigm to Statistical Computing	
	Martin Hitz, Marcus Hudec	389
	Nonlinear Regression on Personal Computers	
	Jiří Militký	395
XXI	Using the Computer in Teaching Statistics	401
	Simulation, Modelling & Teaching	
	Brian P. Murphy	403
	Teaching and Learning Through Technology - the Development of Software for Teaching Statistics to Non-Specialist Students	
	Edwin J. Redfern, Sarah E. Bedford	409

XXII	Experimental Designs	415
	An Algorithm for Blocking Response Surface Designs in the Presence of Time Trends Anthony C. Atkinson, Alexander N. Donev	417
	Computational Issues for Cross-over Designs Subject to Dropout Janice Lorraine Low, S.M. Lewis, B.D. McKay, Philip Prescott	423
	Data Structures and Algorithms for an Open System to Design and Analyse Generally Balanced Designs Roger W. Payne, Michael F. Franklin	429
	Sequentially Counterbalanced Designs Formed from Two or More Latin Squares Philip Prescott	435
XXIII	Model Fitting	441
	Miscellaneous Procedures Connected with the Change Point Problem Marie Hušková	443
	Randomization Methods for Detecting Changepoints Andrew J. Baczowski	458
	PLS Regression via Additive Splines Jean-François Durand, Robert Sabatier	464
	Fitting Power Models to Two-Way Contingency Tables Antoine de Falguerolles, Brian Francis	470
	Optimized Local Regression: Computational Methods for the Moving Average Case Valery Fedorov, Peter Hackl, Werner G. Müller	476
	Equivalence in Non-Recursive Structural Equation Models Thomas Richardson	482
	Automatic Stable Parameters for Nonlinear Regression Gavin J.S. Ross	488
	Computationally Intensive Variable Selection Criteria Johannes H. Venter, J. Louise J. Snyman	494
XXIV	Statistical Inference	501

	A Nonparametric Testing Procedure for Missing Data Anna Giraldo, Andrea Pallini, Fortunato Pesarin	503
--	--	-----

Simulate and Reject Monte Carlo Exact Conditional Tests for Quasi-independence Peter W.F. Smith, John W. McDonald	509
Empirical Powers of MRPP Rank Tests for Symmetric Kappa Distributions Derrick S. Tracy, Khushnood A. Khan	515

XXV Applications 521

Dynamic Updating of Inter-Urban Traffic Network Models Using Conditional Independence Relationships Joe Whittaker, Simon Garside, Karel Lindveld	523
---	-----

XXVI Late Paper 529

Smoothing and Robust Wavelet Analysis Andrew G. Bruce, David L. Donoho, H.Y. Gao, R. Douglas Martin	531
---	-----

Author Index 548

Address List of Authors 550