Preface

This volume contains revised selected papers from plenary and invited as well as contributed sessions at the 11th Biennial Conference of the International Federation of Classification Societies (IFCS) in combination with the 33rd Annual Conference of the German Classification Society – Gesellschaft für Klassifikation (GfKl), organized by the Faculty of Business Management and Economics at the Technische Universität Dresden in March 2009. The theme of the conference was “Classification as a Tool for Research.” The conference encompassed 290 presentations in 100 sessions, including 11 plenary talks and 2 workshops. Moreover, five tutorials took place before the conference. With 357 attendees from 58 countries, the conference provided a very attractive interdisciplinary international forum for discussion and mutual exchange of knowledge.

The chapters in this volume were selected in a second reviewing process after the conference. From the remaining 120 submitted papers, 90 papers were accepted for this volume. In addition to the fundamental methodological areas of Classification and Data Analysis, the volume contains many chapters from a wide range of topics representing typical applications of classification and data analysis methods in Archaeology and Spatial Science, Bio-Sciences, Electronic Data and Web, Finance and Banking, Linguistics, Marketing, Music Science, and Quality Assurance and Engineering.

The editors would like to thank the session organizers for supporting the spread of information about the conference, and for inviting speakers, all reviewers for their timely reports, and Irene Barrios-Kezic and Martina Bihn of Springer-Verlag, Heidelberg, for their support and dedication to the production of this volume. Moreover, IFCS and GfKl want to thank the Local Organizing Committee, Werner Esswein, Andreas Hilbert, and Hermann Locarek-Junge for this very well-organized conference. We also thank all our supporters – special thanks to Thorsten Klug, Sven Loßagk, Karoline Schönbrunn, Jens Weller, and the student staff at the conference!

Dresden and Dortmund

November 2009

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Reviewers (in alphabetical order)

1 Program Sessions and Chairs

1.1 Plenary Sessions

Taylan Cemgil: Hierarchical Bayesian Models for Audio and Music Processing (Chair: Prof. Claus Weihs)
Sanjoy Dasgupta: Performance Guarantees for Hierarchical Clustering (Chair: Prof. Joachim M Buhmann)
Josef Kittler: Data Quality Dependent Decision Making in Pattern Classification (Chair: Prof. Fionn Murtagh)
Lars Schmidt-Thieme: Object Identification (Chair: Prof. Andreas Geyer-Schulz)
Alfred Ultsch: Benchmarking Methods for the Identification of Differentially Expressed Genes (Chair: Dr. Berthold Lausen)
Vincenzo Vinzi: PLS Path Modelling and PLS Regression (Chair: Prof. Yoshio Takane)

1.2 President’s Invited Session (Chair: Prof. F.R. McMorris)

Alain Guenoche: String Distances for Complete Genome Phylogeny
Boris Mirkin: Clustering Proteins and Tree-Mapping Evolutionary Events
William Shannon, Elena Deych, Robert Culverhouse: Microarray Dimension Reduction Based on Maximizing Mantel Correlation Coefficients Using a Genetic Algorithm Search Strategy

1.3 Workshops

Sensor Networks (Chairs: Dr. Dimitris Tasoulis, Dr. Niall Adams) (Organizers: Dr. Dimitris K. Tasoulis, Dr. Niall M. Adams, Dr. Alex Rogers)
Bibliothekarischer Workshop (Chairs: Dr. Hans-Joachim Hermes, Dr. Bernd Lorenz) (Organizers: Dr. Hans-Joachim Hermes, Dr. Bernd Lorenz)

1.4 Invited Sessions

Business Informatics (Chairs: Prof. Werner Esswein, Prof. Susanne Strahringer) Classification Approaches for Symbolic Data (Chair: Prof. Rosanna Verde)
Clustering and Classification (Chair: Prof. Bernard J.E. Fichet)
Clustering in Networks (Chair: Prof. Vladimir Batagelj)
Clustering in Reduced Space  
   (Chairs: Prof. Eva Ceulemans, Dr. Marieke E. Timmerman)

Correspondence Analysis and Related Methods  
   (Chair: Prof. Patrick J.F. Groenen)

Data Stream Mining (Chair: Prof. Georges Hebrail)  
Graph-Theoretical Methods for Clustering (Chair: Prof. Hans-Hermann Bock)  
Information Extraction and Retrieval (Chair: Prof. Lars Schmidt-Thieme)

Modelling Genome Wide Data in Clinical Research I  
   (Chair: Dr. Berthold Lausen)

Modelling Genome Wide Data in Clinical Research II  
   (Chair: Prof. Katja Ickstadt)

Model-Based Clustering Methods I (Chair: Dr. Christian Hennig)  
Multicriteria Optimization I (Chair: Dr. Heike Trautmann)  
Non-Standard Data (Chair: Lynne Billard)  
Spatial Classification I (Chair: Prof. Alexander Brenning)  
Two-Way Clustering and Applications (Chair: Prof. Hans-Hermann Bock)

1.5 Contributed Sessions

Clustering and Classification

Applied Clustering Methods (Chair: Dr. Andrzej Dudek)  
Clustering for Similarity Data (Chair: Prof. Erhard Godehardt)  
Clustering: Bias and Stability (Chair: Dr. Christian Hennig)  
Comparison/Dynamics in Clustering (Chair: Simona Balbi)  
Hierarchical Clustering (Chair: Prof. Maria Paula Brito)  
Multiway/Reduced Space Clustering (Chair: Dr. Patrice Bertrand)  
Discrimination I (Chair: Prof. Guy Cucumel)  
Discrimination II (Chair: Prof. Ulrich Müller-Funk)  
Model-Based Clustering Methods II (Chair: Prof. Andrzej Sokolowski)  
New Clustering Strategies I (Chair: Dr. Jan W. Owsinski)  
New Clustering Strategies II (Chair: Prof. Immanuel M. Bomze)  
Selection and Clustering of Variables (Chair: Prof. Jozef Dziechciarz)

Data Analysis Methods

Correspondence Analysis and Related Methods I (Chair: Prof. Jörg Blasius)  
Correspondence Analysis and Related Methods II  
   (Chair: Prof. Michael J. Greenacre)

Correspondence Analysis and Related Methods III  
   (Chair: Prof. John Gower)

Data Analysis Software (Chair: Prof. Uwe Ligges)
Data Cleaning and Pre-Processing/Ensemble Methods  
(Chair: Prof. Eugeniusz Gatnar)

Exploratory Data Analysis I (Chair: Prof. Andrea Cerioli)
Exploratory Data Analysis II (Visualization)  
(Chair: Prof. Anthony C. Atkinson)
Exploratory Data Analysis III (Multivariate)  
(Chair: Prof. Vincenzo Esposito Vinzi)

Exploratory Data Analysis IV (Chair: Prof. Alfred Ultsch)
Large and Complex Data I (Chair: Prof. Maurizio Vichi)
Large and Complex Data II (Chair: Prof. Tadashi Imaizumi)

Mixture Analysis – Mixture Models in Genetics  
(Chair: Prof. Wilfried Seidel)
Mixture Analysis – Mixture Estimation and Model Selection  
(Chair: Prof. Angela Montanari)

Non-Gaussian Mixtures (Chair: Prof. Wilfried Seidel)
Non-Standard Data I (Chair: Lynne Billard)
Non-Standard Data II (Chair: Lynne Billard)
Non-Standard Data III (Chair: Lynne Billard)

Pattern Recognition and Machine Learning/Data Analysis  
(Chair: Prof. Joachim M. Buhmann)
Regression Mixture Models (Chair: Prof. Angela Montanari)
Visualization of Asymmetry (Chair: Dr. Akinori Okada)
Visualization of Symbolic Data (Chair: Prof. Tadashi Imaizumi)

Visualization I (Chair: Prof. Patrick J.F. Groenen)
Visualization II (Chair: Prof. Patrick J.F. Groenen)

Archaeology and Spatial Science

Archaeology and Historical Geography I  
(Chairs: Irmela Herzog, Dr. Tim Kerig)
Archaeology and Historical Geography II  
(Chairs: Irmela Herzog, Dr. Tim Kerig)
Spatial Classification II (Chair: Prof. Alexander Brenning)
Spatial Planning (Chair: Dr. Martin Behnisch)

Bio-Sciences

Biostatistics and Bioinformatics - Mult. Tests/Pred. with Genomics Data  
(Chair: Prof. Geoffrey J. McLachlan)

Highdimensional Genomics I (Chair: Axel Benner)
Highdimensional Genomics II (Chair: Prof. Iven Van Mechelen)
Medical Health I (Chair: Dr. Berthold Lausen)
Medical Health II (Chair: Prof. Taerim Lee)
Pre-Clinical Development and Biostatistics (Chair: Axel Benner)
SNPs and Genome Analysis (Chair: Prof. Gunter Ritter)

**Finance and Banking**

Banking and Finance I (Chair: Prof. Ursula Walther)
Banking and Finance II (Chair: Prof. Hermann Locarek-Junge)
Banking and Finance III (Chair: Prof. Matija Mayer-Fiedrich)
Banking and Finance IV (Chair: Prof. Alfred Ultsch)

**Linguistics and Text Mining**

Linguistics I (Chair: Prof. Jürgen Rolshoven)
Text Mining – Classification (Chair: Prof. Andreas Nuernberger)
Text Mining II (Chair: Prof. Andreas Nuernberger)

**Marketing**

Marketing and Management Science II (Chair: Prof. Daniel Baier)
Marketing and Management Science III (Chair: Prof. Winfried Steiner)
Marketing and Management Science IV (Chair: Prof. Daniel Baier)
Marketing and Management Science V (Chair: Prof. Winfried Steiner)
Marketing and Management Science VI (Chair: Prof. Reinhold Decker)
Retailing/Direktmarketing (Chair: Prof. Reinhold Decker)

**Music Science**

Statistical Musicology I (Chair: Prof. Claus Weihs)
Statistical Musicology II (Chair: Prof. Claus Weihs)

**Quality Assurance and Engineering**

Multicriteria Optimization II (Chair: Dr. Heike Trautmann)
Production Engineering (Chair: Dr. Jorn Mehnen)
Social Sciences

Psychology and Education (Chair: Prof. Sabine Krolak-Schwerdt)
Social Sciences I (Chair: Dr. Akinori Okada)
Social Sciences II (Chair: Prof. Eugeniusz Gatnar)

Web Mining

Web Mining I (Chair: Prof. W. Gaul)
Web Mining II (Chair: Prof. W. Gaul)
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