16th Conference of the International Federation of Classification Societies

26-29 August 2019
Thessaloniki Concert Hall
Thessaloniki, Greece
#IFCS2019

ORGANISED BY

THE GREEK SOCIETY OF DATA ANALYSIS

LOCAL ORGANISER

IN COOPERATION WITH

DIRECTOR OF THE CONFERENCE
Theodore Chadjipadelis
T. +30 2310 997912, E. chadji@polsci.auth.gr
Dear colleagues,

We are pleased to inform you that the 2019 conference of the International Federation of Classification Societies (IFCS) will take place on 26th - 29th of August 2019 in Thessaloniki (Greece).

On behalf of the Thessaloniki local organisers (Aristotle University of Thessaloniki in cooperation with Greek Society of Data Analysis – GSDA) and on behalf of the Federation we would like to invite you to join the IFCS-2019 Conference. The International Federation of Classification Societies (IFCS) founded in 1985 and is composed of many statistical societies all over the world. IFCS is an interdisciplinary and international organisation whose main purposes are to promote the scientific study of classification and clustering (including systematic methods of creating classifications from data), and to disseminate scientific and educational information related to its fields of interests.

The conference will bring some of leading researchers and practitioners in the related areas and will provide an opportunity for exchanging ideas, between researchers and practitioners, and establishing networking and collaborations. The conference will include several invited papers on important and timely topics from well-known leaders in the field, and parallel tracks of oral presentation sessions of the accepted papers. We will be glad to welcome you all to Thessaloniki in August 2019!

Best Regards,

Theodore Chadjipadelis

Director of the IFCS-2019 Conference
The 2019 conference of the International Federation of Classification Societies (IFCS) will be held in Thessaloniki, Greece from August 26 to 29, 2019. The conference theme will be ‘Data Analysis and Rationality in a Complex World’. The conference opening will take place on August 26 late afternoon and pre-conference workshops will be held. The conference itself will start on August 27 in the morning, and will close on August 29 with a full day conference program and a conference dinner. The conference will include a President’s invited session and a Presidential address, invited presentations, invited and contributed sessions, and poster sessions. The following awards and medals ceremony will be scheduled at the conference.

**Helga and Wolfgang Gaul Stiftung Award** (age < 30)

**Chikio Hayashi Award** (age 30 – 35)

**IFCS Research Medal for outstanding research achievements** (age > 35)

**Student/Postdoctoral Fellow Paper Competition and Travel Award** (age 22 – 29)

**Cluster Benchmarking Competition Award**

### COMMITTEES

#### Scientific Program Committee

- **Theodoros Chadjipadelis**: Chair
- **Berthold Lausen**: Vice-chair, IFCS President
- **Tae Rim Lee**: Vice-chair
- **Angela Montanari**: IFCS President Elect
- **Akinori Okada**: IFCS Past President
- **Christian Hennig**: IFCS Scientific Secretary
- **Sugnet Lubbe**: IFCS Treasurer
- **Katrijn van Deun**: Publication Officer
- **Eva Boj**: SEIO-AMyC
- **Paula Brito**: CLAD
- **Sanjeena Dang**: CS
- **Giannoula Florou**: GSDA
- **Krzysztof Jajuga**: SKAD
- **Hans Kestler**: GfKl
- **Simona Korenjak Černe**: SSS
- **Peter Kovacs**: HSA-CMSG
- **Koji Kurihara**: JCS
- **Angelos Markos**: GSDA
- **Paul McNicholas**: CS
- **Fionn Murtagh**: BCS
- **Mauricio Vichi**: CLADAG
- **Roberto Rocci**: CLADAG
- **Mark de Rooij**: VOC
- **Niel le Roux**: SASA-MDAG

#### Local Organizing Committee

- **Theodore Chadjipadelis**: LOC Chair, Aristotle University Thessaloniki
- **Giannoula Florou**: President GSDA
- **Sofia Anastasiadou**: University of Western Macedonia
- **Dimitris Karapostolis**: Alexandrian Technological Institute
- **Nikos Koutsoupias**: University of Macedonia
- **Angelos Markos**: Democritus University of Thrace
- **George Menexes**: Aristotle University Thessaloniki
- **Odysseas Moschidis**: University of Macedonia
- **Thanos Thanopoulos**: Hellenic Statistical Authority
- **Christos Tzimos**: Hellenic Statistical Authority
- **Despoina Amarantidou**: ARTION conferences & events
- **Vicky Bouranta**: Secretary
- **Marina Sotiropoglou**: Secretary
The Thessaloniki Concert Hall (Building M2) is located along the coast of the city, close to the city center and the airport. Designed by the renowned architect Arata Isozaki, M2 building adorns the city with a unique construction that epitomizes the virtues of modern architecture. Geometrical lines, extended glass surfaces and elements of steel compose an image of imposing simplicity. Filled with natural light and enjoying a superb view to the sea, M2’s foyer is a vast space of sophisticated aesthetics that expands in three levels and adjoins all of the Hall’s important spaces. Equipped with cutting-edge technology and having an exceptional infrastructure, it provides a contemporary cultural and conference center of international standards with the capacity to host various events.
**CONFERENCE TOPICS**

Contributed papers from scholars and practitioners are invited on any of the topics below as well as on related issues:


Special sessions on Official Statistics will be organized in collaboration with the Hellenic Statistical Authority.

The Cluster Benchmarking Task Force of the IFCS is calling for contributions to a cluster benchmarking competition as part of IFCS-2019. Benchmarking studies will be presented in special sessions.

**SOCIAL PROGRAM**

On Monday August 26th at 8:30pm, after the conference opening, the welcome reception will take place at the Prefecture of Thessaloniki (Leof. Vasilissis Olgas 198), a 15min walk from the conference venue.

The conference dinner will be held on Wednesday August 28th at 8:30p.m., in a beautiful restaurant by the sea. In a currently renewed environment just beside the sea you can experience a perfect gastronomical dinner.

A bus city tour will be provided starting at 7.10p.m. from 25 Martiou Str., the main street in front of the conference venue. The bus will end up at the restaurant.
INVITED SPEAKERS

David J. Hand

is Emeritus Professor of Mathematics and Senior Research Investigator at Imperial College, London, where he formerly held the Chair in Statistics. He is a Fellow of the British Academy, and an Honorary Fellow of the Institute of Actuaries, and has served (twice) as President of the Royal Statistical Society. He is a non-executive director of the UK Statistics Authority, a member of the European Statistical Advisory Committee, a member of the International Scientific Advisory Committee of the Canadian Statistical Sciences Institute, a member of the Advisory Board of the ONS’s Data Science Campus, and a member of the Advisory Board of the Cambridge Institute for the Mathematics of Information. He previously Chaired the Research Board of Imperial College’s Data Science Institute and was Chair of the UK’s Administrative Data Research Network. He spent eight years as Chief Scientific Advisor to Winton Capital Management. He has published 300 scientific papers and 29 books, including Principles of Data Mining, Information Generation, Measurement Theory and Practice, The Improbability Principle, and The Wellbeing of Nations. In 2002 he was awarded the Guy Medal of the Royal Statistical Society, and in 2012 he and his research group won the Credit Collections and Risk Award for Contributions to the Credit Industry. He was awarded the George Box Medal in 2016. In 2013 he was made OBE for services to research and innovation.

Vladimir Batagelj

is Professor Emeritus of the University of Ljubljana, Slovenia. He is also a member of the Institute of Mathematics, Physics and Mechanics (IMFM), Ljubljana, and of AMI, UP, Koper. His coauthored book *Generalized Blockmodeling* was awarded the 2007 Harrison White Outstanding Book Award by the Mathematical Sociology Section of the American Sociological Association. From the International Network for Social Network Analysis he was awarded the Georg Simmel Award (2007) and the Richards Software Award for the program Pajek (2013).

Theodoros Evgeniou

is a Professor of Decision Sciences and Technology Management at INSEAD in Fontainebleau France and an Academic Director of INSEAD eLab, a research and analytics center at INSEAD that focuses on data analytics for business. He graduated first in the MIT class of 1995 dual degrees in Mathematics, won medals in international mathematical Olympiads, and European awards for business case studies. At INSEAD, Theodoros has been focusing on data analytics applied to a range of areas from customer insights and marketing to finance. He has been developing and teaching courses on Data Analytics, Statistics and Decision Making.

Michael Greenacre

is Professor of Statistics at the Universitat Pompeu Fabra, Barcelona, Spain. He has authored and co-edited 10 books and over 100 journal articles and book chapters, mostly on correspondence analysis but more recently on compositional data analysis. He has given short courses in fifteen countries to environmental scientists, sociologists, data scientists and marketing professionals, and has specialized in statistics in ecology and social science. He is presently participating in many different research projects on Arctic ecology.
David Hunter
is Professor at Penn State Department of Statistics. His research interests include statistical computing, models for social networks, and statistical clustering. He has published extensively on networks, optimization algorithms and mixture models.

Julie Josse
is Professor of Statistics at Ecole Polytechnique in France. She has specialized in missing data, visualization and the nonparametric analyses of complex data structures. She has published over 30 articles and written 2 books in applied statistics. Julie Josse has developed packages to transfer her works such as missMDA dedicated to missing values. She is deeply involved in the R community and is part of Rforwards to widen the participation of minorities in the communities.

Andy Mauromoustakos
is Professor at the Department of Crop, Soil, and Environmental Sciences and works as an Applied Statistician for the AGRI STAT LAB at the University of Arkansas Fayetteville campus. Andy teaches graduate courses and does research related to Experimental Designs and Data Analysis for the AG Experiment Station and the Division of AG.

Sofia Olhede
is Professor of Statistics at University College London, director of UCL’s Centre for Data Science, an honorary professor of Computer Science and a senior research associate of Mathematics at University College London. Sofia has contributed to the study of stochastic processes; time series, random fields and networks. She is on the ICMS Programme Committee since September 2008, a member of the London Mathematical Society Research Meetings Committee, a member of the London Mathematical Society Research Policy Committee and an associate Editor for Transactions in Mathematics and its Applications. Sofia was also a member of the Royal Society and British Academy Data Governance Working Group, and the Royal Society working group on machine learning.
Workshop 1: Compositional Data Analysis in Practice
Date: Monday, August 26, 2019, 08.30am - 11:30am
Venue: University of Macedonia (Central PC Lab, 1st floor)
Fee: 50EUR (paid via the conference website or on-site)

Name of instructor:
Prof. Michael Greenacre, Universitat Pompeu Fabara, Barcelona.

Short description:
Compositional data are multivariate data with the constant sum constraint, for example sets of nonnegative data that each sum to 1, often found in chemistry (samples in bio- and geochemistry), sociology and economics (time and monetary budgets) and marketing (market shares), for example. The key idea is the logratio transformation, which has certain implications for the analysis and then the interpretation of the results. This short course explains the main features of this novel area of statistics, with many illustrations to real data in a variety of contexts.

Introductory background:
URL: https://github.com/michaelgreenacre/CODAinPractice

Tentative schedule:
1. Compositional data and the logratio transformation: practical implications and interpretation [50 min]
2. Total logratio variance and logratio distance; logratio analysis [50 min]
Break [20 min]
4. Modeling with logratios; variable selection; software [60 min].

Target Audience:
Practitioners and researchers related to any domains where compositional data are found. Statisticians who want an introduction to this field of research and application.

Facilities Required:
- Course participants should preferably bring their own laptops.
- Software: R, open source, with the R package easyCODA installed (which also requires the ca, vegan, boot and ellipse packages
- Course Material. All course materials, including the data and R scripts for the examples, will be made available for course participants.
Workshop 2: Symbolic Data Analysis: Parametric multivariate analysis of interval data

Date: Monday, August 26, 2019, 11.40am - 15.30pm
Venue: University of Macedonia (Central PC Lab, 1st floor)
Fee: 50EUR (paid via the conference website or on-site)

Names of instructors:
Paula Brito, University of Porto, Portugal
Pedro Duarte Silva, Católica Porto Business School, Portugal.

Short description:
Symbolic Data is concerned with analysing data with intrinsic variability, which is to be taken into account. In Data Mining, Multivariate Data Analysis and classical Statistics, the elements under analysis are generally individual entities for which a single value is recorded for each variable - e.g., individuals, described by age, salary, education level, etc. But when the elements of interest are classes or groups of some kind - the citizens living in given towns; car models, rather than specific vehicles - then there is variability inherent to the data. Symbolic data goes beyond the usual data representation model, considering variables whose observed values for each element are no longer necessarily single real values or categories, but may assume the form of sets, intervals, or, more generally, distributions. In this Tutorial we focus on the analysis of interval data, i.e., when the variables' values are intervals of IR, adopting a parametric approach. The proposed modelling allows for multivariate parametric analysis; in particular M(ANOVA), discriminant analysis, model-based clustering, robust estimation and outlier detection are addressed. The referred modelling and methods are implemented in the R package MAINT.Data, available on CRAN.

Introductory background:

Tentative schedule:
1. Introduction to Symbolic Data Analysis: Motivation. Examples. Types of symbolic variables and their representations. Sources of symbolic data: aggregation of microdata. [60 min].
   Break [15 min]
2. Parametric modelling of interval data: Gaussian and Skew-Normal models. (M)ANOVA, Discriminant Analysis, Robust estimation and outlier detection, Model-based clustering [90min].
   Break [15 min]
3. Case-studies with R Package MAINT.Data [60 min].

Target audience:
The course is aimed at all potential data analysts who need or are interested in analyzing data with variability, e.g. data resulting from the aggregation of individual records into groups of interest, or data that represent abstract entities such as biological species or regions as a whole. This methodology is particularly interesting for Economics and Management studies, Marketing, Social Sciences, Geography, Official Data statistics, as well as for Biology or Geology Data Analysis.

It is assumed that the participants have a good background in classical Statistics and Multivariate Data Analysis.

Facilities Required:
• Course participants' should bring own laptops, with R, RStudio, and the R package MAINT.Data installed.
• Course Material. All course materials, including the data and examples of software used for the case studies, will be made available for course participants.
INVITED SESSIONS

Theofanis Exadaktylos, Theodore Chadjipadelis (GSDA/ECPR): Analysis of European Parliament Elections
José Fernando Vera & Eva Boj del Val (SEIO-AMyC): New developments in clustering and scaling data
Christian Hennig (BCS): Philosophy relevant to classification and data science.
Christian Hennig (IFCS Cluster Benchmarking Task Force): Neutral Benchmarking Studies of Clustering
David Hunter (BCS): Statistical theory of cluster analysis
Salvatore Ingrassia (CLADAG): Advances in Mixture Modeling
Krzysztof Jajuga (SKAD): Data Analysis in finance
Aglaia Kalamatianou (GSDA): Data mining techniques and classification methods in Social Sciences
Nataša Kejžar, Simona Korenjak-Černe, Andrej Srakar (SSS): Advances in classification analysis for complex data – compositional and symbolic approaches
Koji Kurihara (JCS): Clustering for spatio-temporal data and its visualization
Paul McNicholas (CS): Clustering, Classification and Data Analysis via Mixture Models
Angela Montanari (CLADAG): Supervised classification with imprecise labels and complex data
Theophilos Papadimitriou, Periklis Gogas (GSDA): Emerging methodologies in economics and finance
Jannis Papadimitriou (GSDA): Developments of data analysis in Greece
Jozef Pociecha (SKAD): Classification methods in economics and business
Mark de Rooij (VOC): Crossroads of Statistical Learning and Psychometrics
Niel le Roux (SASA-MDAG): Classification, visualisation and dimension reduction
Cristina Tortora (GSDA): Clustering categorical and mixed-type data

President’s invited session
Berthold Lausen, Theodore Chadjipadelis: Data Science Education

Presidential Address
Berthold Lausen: Predictive ensemble methods for event time data

POST CONFERENCE PROCEEDINGS

Post conference proceedings will be published in Studies in Classification, Data Analysis, and Knowledge Organization. (Edited by Theodore Chadjipadelis, Berthold Lausen, Angelos Markos, Tae Rim Lee, Angela Montanari, Rebecca Nugent). Single papers can be made open access on payment of the open access to Springer.
The city was founded in 315 BC by Cassander, in honor of his wife Thessaloniki, sister of Alexander the Great. Since then, and due to its strategic position, Thessaloniki has been a commercial and cultural crossroad that brought together people and ideas from all over the world. The signs of this uninterrupted urban activity for more than 2,300 years are evident in each corner of the city. Nowadays, Thessaloniki is a big, modern city, with a population of around one million, and an important administrative and financial center of the Balkans. The warm and vibrant city life is largely influenced by the Aristotle University of Thessaloniki and the University of Macedonia which host tens of thousands of students. Thessaloniki is surrounded by places of great natural and historic beauty such as Olympus National Park, Vergina, where the Royal tomb of Philip II, father of Alexander the Great was found, the autonomous Mouth Athos, which is forbidden to women and children, and Halkidiki with its beautiful sandy beaches.

**People & Life**

Thessaloniki is a popular destination. You will certainly enjoy a pleasant and interesting stay in the city. People are friendly and happy to help with any questions. The atmosphere is unique during the day in the commercial and shopping centre, but especially during the evening, in the wide variety of bars, restaurants and theatres for entertainment. Thessaloniki is renowned for its unique location, along the Thermaikos Gulf, its sunsets, its long history, its monuments and museums as well as its distinguished cuisine.
IMPORTANT DATES

Monday, November 19, 2018  Start early bird registration
Sunday, May 05, 2019      Deadline for abstract submission
Sunday, May 19, 2019      Notification of acceptance for abstract submission
Sunday, May 26, 2019      Deadline for early bird registration
Sunday, June 23, 2019     Deadline for standard registration
Sunday, July 21, 2019     Deadline for late registration
Monday, August 26, 2019   Conference opening and pre-conference workshops
August 27-29, 2019       IFCS-2019 conference sessions

PUBLICATIONS RELATED TO THE CONFERENCE

We are planning to publish a post-conference proceedings. The tentative schedule is as follows:

December 31, 2019         Manuscript submission deadline
January 30, 2020          First notification
February 28, 2020         Deadline revised manuscript submission
June 15, 2020             Publication and shipment
ARTION CONFERENCES & EVENTS
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Conference Coordination
Despina Amarantidou

Co-ordination of the scientific program
Chara Ignatiadou, Kelly Angelaki

Management of delegates and residence
Markos Papadopoulos

Marketing, Publications, Sponsors
Prodromos Nikolaidis, Lila Stathaki, Efi Mamoglou

IT
George Kanakaris
### Monday, 26th August 2019

**Venue: University of Macedonia (Central PC Lab, 1st floor)**

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<th>Time</th>
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<tr>
<td>08.00 – 08.30</td>
<td>Workshop registration</td>
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| 08.30 – 10.00 | Workshop on **Compositional Data Analysis in Practice**  
Michael Greenacre (Part I) |
| 10.00 – 10.20 | Coffee Break                                                           |
| 10.20 – 11.30 | Workshop on **Compositional Data Analysis in Practice**  
Michael Greenacre (Part II) |
| 11.40 – 13.00 | Workshop on **Symbolic Data Analysis: Parametric multivariate analysis of interval data**  
Paula Brito and Pedro Duarte Silva (Part I) |
| 13.00 – 14.00 | Lunch Break                                                           |
| 14.00 – 15.30 | Workshop on **Symbolic Data Analysis: Parametric multivariate analysis of interval data**  
Paula Brito and Pedro Duarte Silva (Part II) |

**Venue: Thessaloniki Concert Hall (Building M2)**

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<td>16.30 – 18.00</td>
<td>Registration</td>
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<td>18.00 – 18.30</td>
<td>Opening Ceremony (Plenary Hall)</td>
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| 18.30 – 20.00 | Panel discussion on **Data Science, Elections and Government**  
Anna Diamantopoulou, President of DIKTIO - Network for Reforms in Greece and Europe  
Athanasiios Thanopoulos, President of the Hellenic Statistical Authority  
Theodoros Livanios, Deputy Minister for Local Government and Elections, Greece  
Christoforos Vernardakis, Professor of Political Science, Member of the Greek Parliament  
**Moderator:** Theodore Chadjipadelis |
| 20.30     | Welcome Reception                                                   |
### Tuesday, 27th August 2019

**Venue:** Thessaloniki Concert Hall (Building M2)

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<th>Time</th>
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<tr>
<td>08.00 – 09.00</td>
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| 09.00 – 10.40 | **CONTR1:** Supervised learning and applications I  
Chair: Pedro Duarte Silva  
- Multiclass posterior probability support vector machines for big data  
  Pedro Duarte Silva  
- Improving credit client classification by deep neural networks?  
  Klaus Bruno Schebesch, Ralf Stecking  
- Performance measures in discrete supervised classification  
  Ana Sousa Ferreira, Anabela Marques  
- Empirical comparison of recommendation strategies for legal documents on the web  
  Ruta Petraityte, Ansgar Scherp, Berthold Lausen  
- Multi-loss CNN architecture for image classification  
  Jian Piao, Mingzhe Jin |
| 09.00 – 10.40 | **SP1:** Data mining techniques and classification methods in Social Sciences  
organized by A. Kalamatianou  
Chair: Aglaia Kalamatianou  
- TV channels and predictive models: an analysis on social media  
  Paolo Mariani, Andrea Marletta, Mauro Mussini, Mariangela Zenga  
- Data mining techniques in autobiographical studies. Is there a chance?  
  Franca Crippa, Angela Tagini, Fulvia Mecatti  
- Requirements and competencies for labour market using conjoint analysis  
  Paolo Mariani, Andrea Marletta, Mauro Mussini, Mariangela Zenga  
- A data mining framework for Gender gap on academic progress  
  Aglaia Kalamatianou, Adele Marshall, Mariangela Zenga  
- Classification through graphical models: evidences from the EU-SILC data  
  Federica Nicolussi, Agnese Maria Di Brisco, Manuela Cazzaro |
| 09.00 – 10.40 | **CONTR2:** Data science education  
Chair: Sofia Anastasiadou  
- Cross-disciplinary higher education of data science – beyond the computer science student  
  Evangelos Pournaras  
- The implications of network science in economic analysis  
  Éva Kuruczleki  
- Conception of measures of central tendency of primary school teachers  
  Evanthis Chatzivasileiou |
| 09.00 – 10.40 | **CONTR3:** Classification and clustering in biological and medical research I  
Chair: Ana Sousa Ferreira  
- Quality of life profiles of colon cancer survivors: A three-step latent class analysis  
  Felix J. Clouth, Gijs Geleijnse, Lonneke van de Poll-Franse, Steffen Pauws, Jeroen Vermunt |

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Thessaloniki, Greece  #IFCS2019
Classifying functional groups of microorganisms with varying prevalence level using 16S rRNA
Rafal Kulakowski, Etienne Low-Decarie, Berthold Lausen

Identifying Chronic Obstructive Pulmonary Disease (COPD) phenotypes to predict treatment response
Vasilis Nikolaou, Sebastiano Massaro, Masoud Fakhimi, Lampros Stergioulas

The use of gene ontology to improve gene selection process for omics data analysis
Chadia Ed-driouch, Hassan Kafsaoui, Ahmed Moussa

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<tr>
<th>10.40 – 11.10</th>
<th>Coffee Break</th>
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<tr>
<td>11.10 – 12.00</td>
<td>President’s Invited Lecture: Deciding what’s what: classification from A to Z</td>
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<td></td>
<td>David Hand</td>
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<td>Chair: Berthold Lausen</td>
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<td>Plenary Hall</td>
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<tr>
<td>12.00 – 12.50</td>
<td>Award Session</td>
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<td>Chair: Maurizio Vichi</td>
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<td>Plenary Hall</td>
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<td>12.00 – 12.50</td>
<td>IFCS 2019 Research Medal: David Hand</td>
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<td>12.00 – 12.50</td>
<td>IFCS 2019 Chikio Hayashi Award: Sanjeena Dang, Abby Flynt, Brian Franczak, Cristina Tortora</td>
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<td>12.00 – 12.50</td>
<td>IFCS 2019 Helga and Wolfgang Gaul Stiftung Award: Aghiles Salah</td>
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<td>12.00 – 12.50</td>
<td>IFCS 2019 Student/Postdoctoral Fellow Paper Competition and Travel Award: Ali Mertcan Köse, Hanneke van der Hoef</td>
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| 13.00 – 14.00 | Lunch Break |

Parallel Sessions

14.00 – 15.20 | SP2: Classification, visualisation and dimension reduction I |
|              | dedicated to the late John Gower and organized by N. J le Roux |
|              | Chair: Sugnet Lubbe |
|              | Room I |
|              | Properties of individual differences scaling and its interpretation |
|              | Niël J le Roux, John Gower |
|              | Local and global relevance of features in multi-label classification |
|              | Trudie Sandrock |
|              | A multivariate ROC based classifier |
|              | Martin Kidd |
|              | Functional linear discriminant analysis for several functions and more than two groups |
|              | Sugnet Lubbe |

14.00 – 15.20 | SP3: Advances in mixture modeling |
|              | organized by S. Ingrassia |
|              | Chair: Salvatore Ingrassia |
|              | Room II |
|              | Variable selection in linear regression models with non-gaussian errors: a Bayesian solution |
|              | Giuliano Galimberti, Saverio Ranciati, Gabriele Soffritti |
|              | Finite mixtures of matrix-variate regressions with random covariates |
|              | Salvatore Daniele Tomarchio, Paul McNicholas, Antonio Punzo |
|              | Telescoping mixtures - Learning the number of components and data clusters in Bayesian mixture analysis, |
|              | Gertraud Malsiner-Walli, Sylvia Frühwirth - Schnatter, Bettina Grün |
|              | Finite mixture modeling and model-based clustering for directed weighted multilayer networks |
|              | Volodymyr Melnykov, Shuchismita Sarkar, Yana Melnykov |
14.00 – 15.20 CONTR4: Official statistics
Chair: Athanasios Thanopoulos (Room III)

- Intertemporal exploratory analysis of Greek households in relation to information and communications technology (ICT) from official statistics
  Stratos Moschidis, Athanasios Thanopoulos

- Hierarchical clustering for anonymization of economic survey data
  Kiyomi Shirakawa, Takayuki Ito

- Improvement of training data based on pattern of reliability scores for overlapping classification
  Yukako Toko, Mika Sato-Ilic, Shinya Iijima

14.00 – 15.20 SP4: Philosophy relevant to classification and data science
organized by C. Hennig (Room IV)
Chair: Christian Hennig

- The epistemology of nondistributive profiles
  Patrick Allo

- Prediction without estimation: a case study in computer vision
  Jérémy Grosman

- Reconceptualizing null hypothesis testing
  Jan Sprenger

14.00 – 15.20 SP5: Data science education I (President’s invited session)
organized by B. Lausen and T. Chadjipadelis (Room V)
Chair: Berthold Lausen

- Progress of statistics and data science education in Japanese universities
  Akimichi Takemura

- On data science education
  Rebecca Nugent

15.20 – 16:10 Plenary Invited: Modeling Networks and Network Populations via Graph Distances
Sofia Olhede (Plenary Hall)
Chair: Christian Hennig

16.10 – 17:00 Plenary Invited: Principles for building your own machine learning methods: From theory to applications to practice
Theodoros Evgeniou (Plenary Hall)
Chair: Odysseas Moschidis

17.00 – 17.30 Coffee Break

Parallel Sessions

17.30 – 18.50 CONTR5: Dimension reduction and clustering I
Chair: Alfonso Iodice D’Enza (Room I)

- Simultaneous clustering and dimension reduction on multi-block data
  Shuai Yuan, Katrijn Van Deun

- Model-based hierarchical parsimonious clustering and dimensionality reduction
  Carlo Cavicchia, Maurizio Vichi, Giorgia Zaccaria

- Active labeling using model-based classification
  Cristina Tortora

- Chunk-wise PCA with missings
  Alfonso Iodice D’Enza, Angelos Markos, Francesco Palumbo
17.30 – 18.50 CONTR6: Correspondence analysis I
**Chair:** Giannoula Florou

**Multidimensional data analysis of shopping records towards knowledge-based recommendation techniques**
George Stalidis, Pantelis Kaplanoglou, Kostas Diamantaras

**Principal Component Analysis to explore social attitudes towards the green infrastructure plan of Drama city**
Vassiliki Kazana, Angelos Kazaklis, Dimitrios Raptis, Efthimia Chrisanthidou, Stella Kazakli, Nefeli Zagourgini

**MCA’s visualization techniques: an application to social data**
Vasileios Ismyrlis, Efstratios Moschidis, Theodoros Tarnanidis

17.30 – 18.50 SP6: Data analysis in finance
organized by K. Jajuga

**Chair:** Krzysztof Jajuga

**Sentiment and return distributions on the German stock market**
Emile David Hövel, Matthias Gehrke

**Risk management based on conditional extreme quantile risk measures on energy market**
Grażyna Trzpiot, Alicja Ganczarek-Gamrot, Dominik Krężolek

**Comparison of systemic risk in the banking sector and selected sectors of real economy – case of Poland**
Katarzyna Kuziak, Krzysztof Piontek

**Credit risk with credibility theory: a distribution-free estimator for probability of default, value at risk and expected shortfall**
Anne Sumpf

17.30 – 18.50 CONTR7: Algorithms for clustering and classification I
**Chair:** Akinori Okada

**Flexible clustering**
Andrzej Sokołowski, Małgorzata Markowska

**A coefficient of determination for clusterwise linear regression with mixed-type covariates**
Salvatore Ingrassia, Roberto Di Mari

**Two new algorithms, critical distance clustering and gravity center clustering**
Farag Kuwil, Radwan Abu-Issa, Fionn Murtagh, Umit Atila

**Triplet clustering of one-mode two-way proximities**
Akinori Okada, Satoru Yokoyama

17.30 – 18.50 SP7: Data science education II (President’s invited session)
organized by B. Lausen and T. Chadjipadelis

**Chair:** Theodore Chadjipadelis

**Societal responsibility of data scientists**
Ursula Garczarek, Detlef Steuer

**Statistical analysis for entrepreneurial data**
Jenny Pange

**Data Science Education, Skills and Industry in Europe**
Berthold Lausen, Alexander Partner, Stephen Lee, Henrik Nordmark, Mahdi Salhi, Christopher Saker

**Discussion on Data Science Education**
moderated by Berthold Lausen, Theodore Chadjipadelis
18.50 – 19:40  **Plenary Invited: Correspondence analysis: Jack of all trades, Master of one**  
Michael Greenacre  
**Chair:** Patrick Groenen
Wednesday, 28th August 2019

08.00 – 09.00 Registration

Parallel Sessions

09.00 – 10.40 SP8: Classification methods in economics and business
organized by J. Pociecha
Chair: Józef Pociecha

Analysis of statistical tests indications in assessing data conformity to Benford’s Law in fraud detection
Józef Pociecha, Mateusz Baryła

Conditional extreme quantile risk measures on metals market
Dominik Kreżolek, Grażyna Trzpiot

Fuzzy clustering with skew components, with applications in Economics and Business
Francesca Greselin, Luis Angel García-Escudero, Agustín Mayo-Iscar

Distance measurement and clustering when fuzzy numbers are used. Survey of selected problems and procedures
Józef Dziechciarz, Marta Dziechciarz Duda

The impact of the publication of short selling positions on German stock returns
Matthias Gehrke, Jannis Kepper

09.00 – 10.40 CONTR8: Topic models, document clustering and classification I
Chair: Boris Mirkin

Japanese women’s attitudes towards childrearing: text analysis and multidimensional scaling
Kunihiro Kimura

Using domain taxonomy for computational generalization
Boris Mirkin, Dmitry Frolov, Susana Nascimento, Trevor Fenner

Detection of topics and time series variation in consumer web communication data
Atsuho Nakayama

Making product recommendations based on latent topics: an analysis of online purchase data with topic models
Johanna Fischer

Quantitative analysis of phonological structure used in dialects in Osamu Dazai’s works
Naoko Oshiro, Sayaka Irie, Mingzhe Jin

09.00 – 10.40 CONTR9: Supervised learning and applications II
Chair: Katrijn Van Deun

Isotonic boosting procedures for classification
Miguel Fernández, David Conde, Cristina Rueda, Bonifacio Salvador

Development of indices for the regional comparative analysis of musical compositions, focusing on rhythm
Akihiro Kawase, Mitsuru Tamatani

View selection through meta-learning
Wouter van Loon, Marjolein Fokkema, Botond Szabo, Mark de Rooij

The δ-machine: Classification based on distances towards prototypes
Beibei Yuan, Willem Heiser, Mark de Rooij
Riesz type kernel-based analysis
Yuri Drobotov, Andrey Piskunov

09.00 – 10.40 **SP9: Classification, visualisation and dimension reduction II**
organized by N. J. le Roux
**Chair:** Niël J le Roux

- **Tree-base ensemble methods for classification**
  Daniel Uys

- **Unsupervised feature selection and big data**
  Renato Cordeiro De Amorim

- **A simulation study for the identification of missing data mechanisms using visualisations**
  Johané Nienkemper-Swanepoel, Niël J le Roux, Sugnet Lubbe

- **Using separate sampling to understand mobile phone security compliance**
  Rénette Blignaut, Isabella Venter, Humphrey Brydon

09.00 – 10.40 **SP10: Clustering categorical and mixed-type data**
organized by C. Tortora
**Chair:** Cristina Tortora

- **Model based clustering through copulas: parsimonious models for mixed mode data**
  Dimitris Karlis, Ioannis Kosmidis, Fotini Panagou

- **Clustering ranked data using copula**
  Marta Nai Ruscone

- **Linking different kinds of omics data through a model-based clustering approach**
  Vincent Vandewalle, Camille Ternynck, Guillemette Marot

- **A probabilistic distance algorithm for nominal data**
  Francesco Palumbo, Mario Migliaccio, Cristina Tortora

- **Stability of joint dimension reduction and clustering**
  Michel van de Velden, Angelos Markos, Alfonso Iodice D’Enza

10.40 – 11.10 Coffee Break

Parallel Sessions

11.10 – 12.50 **CONTR10: Algorithms for clustering and classification II**
**Chair:** Francesco Palumbo

- **Hierarchical clustering through a penalized within-cluster sum-of-squares criterion**
  Patrick Groenen, Yoshikazu Terada, Mariko Takagishi

- **PerioClust: a new Hierarchical Agglomerative Clustering method including temporal ordering constraints**
  Lise Bellanger, Arthur Coulon, Philippe Husi

- **Iterated dissimilarities and some applications**
  François Bavaud

- **Constrained three-way clustering around latent variables approach**
  Véronique Cariou, Tom Wilderjans

- **Clustering binary data by application of combinatorial optimization heuristics**
  Javier Trejos, Luis Amaya, Alejandra Jiménez, Alex Murillo, Eduardo Piza, Mario Villalobos
### 11.10 – 12.50 CONTR11: Classification and clustering in biological and medical research II
**Chair:** Fionn Murtagh  
**Room II**

**Testing for equation of distance-based regressions to see whether two groups form a species**  
Christian Hennig, Bernhard Hausdorf

**Mental health: analytical focus and contextualization for deriving mental capital**  
Fionn Murtagh

**A deep learning analytics to detect prognosis of HCC**  
Taerim Lee

**Analysis of the regional difference of number of patients with blood coagulation disorders in Japan**  
Shinobu Tatsunami, Kagehiro Amano, Akira Shirahata, Masashi Taki

### 11.10 – 12.50 CONTR12: Data science in economics and business I
**Chair:** Tadashi Imaizumi  
**Room III**

**Analysis of the Power Balance of the companies of the "keirersu" with the Asymmetric MDS**  
Tadashi Imaizumi

**A fast-electric vehicle planner using clustering**  
Jaël Champagne Gareau, Vladimir Makarenkov, Éric Beaudry

**The technology innovation and the critical raw material stock**  
Beatrix Margit Varga, Kitti Fodor

**Knowledge graph mining and affinity analysis for product recommendation on online-marketplace platforms**  
Siti Nur Muninggar, Reza Aditya Permadi, Simon Simbolon, Verra Mukty, Putri Wikie Novianti

**Pension expenditure modelling and classification analysis**  
Kimon Ntotsis, Marianna Papamichail, Peter Hatzopoulos, Alex Karagrigoriou

### 11.10 – 12.50 SP11: Supervised classification with imprecise labels and complex data
organized by A. Montanari
**Chair:** Angela Montanari  
**Room IV**

**Estimation of classification rules from partially classified data**  
Geoffrey McLachlan

**Classification with imperfect training labels**  
Timothy Cannings, Yingying Fan, Richard Samworth

**Classification with unknown class conditional label noise on non-compact feature spaces**  
Henry Reeve, Ata Kaban

**Supervised classification of long or unbalanced datasets**  
Laura Anderlucci, Roberta Falcone, Angela Montanari

### 11.10 – 12.50 CONTR13: Modeling of psychological processes and clustering in educational research
**Chair:** Eva Ceulemans  
**Room V**

**Kernel change point detection on the running statistics: A flexible, comprehensive and user-friendly tool**  
Eva Ceulemans, Jedelyn Cabrieto, Kristof Meers, Janne Adolf, Peter Kuppens, Francis Tuerlinckx

**School motivation profiles of students in secondary education**  
Matthijs Warrens, Denise Blom
Probing the nature of psychological constructs with Taxometrics and Latent Class Analysis: The case of children’s mental models
Dimitrios Stamovlasis, Julie Vaiopoulou, George Papageorgiou

On the use and reporting of cluster analysis in educational research: A systematic review
Hanneke van der Hoef, Matthijs Warrens, Marieke Timmerman

11.10 – 12.50 Poster Session
Chairs: Sofia Anastasiadou, Odysseas Moschidis

The relationship of the apolipoprotein E genotype gene to the Alzheimer’s Disease: A meta-analysis
Sofia Anastasiadou

Bayesian analysis for chromosomal interactions in hi-c data using hidden Markov random field model
Osuntoki Intunu, Andrew Harrison, Hongsheng Dai, Yanchun Bao, Nicolae Zabet

New financial instruments: Pollution emission rights and their trading on the stock exchange
Argiro Dimitoglou

Econometric assessment of the relation between the situation of youth on the labour market and macroeconomic situation among the EU countries
Beata Bal-Domańska, Elżbieta Sobczak

Comparison of patterning methods: Clustering of variables, Implicative Statistical Analysis and Correspondence Analysis
Sofia Anastasiadou

Framing coworking spaces digital marketing strategy via social media analytics
Dimitrios Vagianos, Nikos Koutsoupias

Sales performance measure: A systematic review and typology of research studies
Tor Korneliussen, Per Ivar Seljeseth, Michael Greenacre

Document clustering via multiple correspondence, term and metadata analysis in R
Nikos Koutsoupias, Kyriakos Mikelis

Comparison of multivariate methods in group/cluster identification: PCA vs Discriminant Analysis and K-Means clustering
Sofia Anastasiadou

Automatic learning of fine motor skills via genetic positionnal clustering for evolved virtual creature (EVC)
Eric Lavallee, Éric Beaudry, Alexandre Blondin Massé

Asymptotic cumulants of the minimum phi-divergence estimator for categorical data under possible model misspecification
Haruhiko Ogasawara

Multidimensional data analysis in perception of European Union by different generations
Agnieszka Stanimir

13.00 – 14.00 Mid-day Break

14.00 – 14.50 Presidential Address: Predictive ensemble methods for event time data
Berthold Lausen
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| 14.50 – 15.40 | **Plenary Invited:** On the consistency of supervised learning with missing values  
**Julie Josse**  
**Chair:** Angelos Markos |
| 15.40 – 16.10 | **Coffee Break**                                                         |
| 16.10 – 17.10 | **Parallel Sessions**                                                    |
| **SP12:**     | New developments in clustering and scaling data                         |
|               | organized by J. F. Vera & E. Boj del Val                                 |
|               | **Chair:** Jose Luis Vicente-Villardón                                     |
|               | **A cellwise trimming approach to Cluster Analysis**                     |
|               | Luis Angel Garcia-Escudero, Diego Rivera-Garcia, Joaquin Ortega, Agustin Mayo-Iscar |
|               | **Redundancy analysis for categorical data based on logistic regressions**|
|               | Jose Luis Vicente-Villardón, Laura Vicente-Gonzalez                      |
|               | **A log-ratio approach to cluster analysis of count data when the total is irrelevant**|
|               | Marc Comas-Cuf, Josep Antoni Martin-Fernández, Gloria Mateu-Figueras, Javier Palarea-Albaladejo |
| 16.10 – 17.10 | **SP13:** Developments of data analysis in Greece                        |
|               | organized by I. Papadimitriou and T. Chadjipadelis                      |
|               | **Chair:** Giannoula Florou                                               |
|               | **Doing research and teaching data analysis in Greek higher education** |
|               | Iannis Papadimitriou, Vicky Bouranta                                    |
|               | **Data Analysis Bulletin**                                               |
|               | Dimitris Karapistolis, Marina Sotiropoglou                               |
|               | **The Past, the Presence and the Future (round table)**                  |
|               | Ilias Athanasiadis, Giannoula Florou, Georgia Panagiotidou               |
| 16.10 – 17.10 | **CONTR14:** Symbolic data                                              |
|               | **Chair:** Paula Brito                                                    |
|               | **Clustering and classification of interval time series**                |
|               | Ann Maharaj, Paula Brito, Paulo Teles                                    |
|               | **Multiple-valued symbolic data clustering using regression mixtures of Dirichlet distributions**|
|               | José Dias                                                                |
|               | **Visualization of heterogeneity in exploratory meta-analysis**          |
|               | Masahiro Mizuta                                                          |
| 16.10 – 17.10 | **CONTR15:** Multivariate visualization                                 |
|               | **Chair:** Adalbert Wilhelm                                               |
|               | **QVisVis: Framework and R toolkit for Exploring, Evaluating, and Comparing Visualizations**|
|               | Stephen L. France, Ulas Akkucuk                                           |
|               | **Visual exploration for feature extraction and feature engineering**    |
|               | Adalbert Wilhelm                                                         |
|               | **Multivariable analysis on the use of social media & web 2.0/3.0. Modeling & clustering of users**|
|               | Evangelia Nikolaou Markaki, Theodore Chadjipadelis                      |
| 16.10 – 17.10 | **CONTR16:** Data science in economics and business II                   |
|               | **Chair:** George Stalidis                                                |
Probabilistic collaborative representation learning
Aghiles Salah, Hady Lauw

User profiling for a better search strategy in e-commerce website
Putri Wikie Novianti, Fatia Kusuma Dewi

Comparison of the sharing economy participants’ motivation
Roland Szilágyi, Levente Lengyel

17.10 – 18.00 Plenary Invited: Model-based clustering without parametric assumptions
David Hunter
Chair: Akinori Okada

18.00 – 19.45 IFCS Council Meeting
19.10 Bus City Tour
20.30 Conference Dinner
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<td>Classification of suicidal execution area in Japan by areal statistics of committed suicide</td>
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<td>Visualization and provision method of meteorological data for Energy Management System</td>
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<td>Spatial perception for structured and unstructured data in topological data analysis</td>
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<td>Yoshitake Kitaniishi, Fumio Ishioka, Masaya Iizuka, Koji Kurihara</td>
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<td>Dimensional reduction clustering with modified outcome method</td>
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<td>Forecasting transportation demand for the U.S. market</td>
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<td>Money neutrality, monetary aggregates and machine learning</td>
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<td>Forecasting S&amp;P 500 spikes: an SVM approach</td>
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<td>Assessing the resilience of the U.S. banking system</td>
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<td>Gender quotas and electoral outcomes for women in European parliamentary elections</td>
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<td>First-time voter in Greece: Views and attitudes of youth on Europe and Democracy</td>
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<td>Developing a model for the analysis of the political programmes</td>
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<td>Improving the performance of Japanese authorship attribution with phonetic related</td>
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<td>Hao Sun, Mingzhe Jin</td>
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Double helix multi-stage text classification model to enhance chat user experience in e-commerce website
Firy Revadiansyah, Abdullah Ghifari, Rya Meyvriska

Latent dimensions of the museum experience: the role of the online reviews
Melisa Diaz, Anna Calissano

A corpus-based approach to explore the stylistic peculiarity of Kouji Uno’s postwar works
Xueqin Liu, Mingzhe Jin

10.40 – 11.10 Coffee Break

Parallel Sessions

11.10 – 12.50 CONTR18: Network analysis and applications
Chair: Vladimir Batagelj
Room I

The analyses of the WoS data on network clustering
Anuška Ferligoj, Vladimir Batagelj, Patrick Doreian

Approximate core-and-shell supercluster in statics and dynamics
Boris Mirkin

Trust your data or not - Standard remains Standard (QP); implications for robust clustering in social networks
Immanuel Bomze, Michael Kahr, Markus Leitner

Classifying users through keystroke dynamics
Ioannis Tsimeridis, George Peikos, Avi Arampatzis

11.10 – 12.50 SP17 Neutral Benchmarking Studies of Clustering
organized by the IFCS Cluster Benchmarking Task Force
Chair: Iven Van Mechelen, Moderator: Christian Hennig
Room II

Introduction
Matthijs Warrens

K-means, spectral clustering, or DBSCAN: a benchmarking study
Irene Cho, Nivedha Murugesan, Cristina Tortora*

Benchmarking minimax linkage
Xiao Hui Tai, Kayla Frisoli

Benchmarking in cluster analysis for mixed-type data
Madhumita Roy, Jarrett Jimeno, Cristina Tortora*

Comparison of dimensionality reduction and cluster analysis methods for high dimensional datasets
Jingfei Gong, Yuwen Luo, Cristina Tortora*

Evaluation of text clustering methods and their dataspace embeddings: an exploration
Alain Lelu, Martine Cadot
*video-recorded presentation

11.10 – 12.50 SP18: Advances in classification analysis for complex data – compositional and symbolic approaches
organized by N. Kejžar, S. Korenjak-Černe, A. Srakar
Chair: Simona Korenjak-Černe
Room III

Clustering transformed compositional data using K-means, with applications in gene expression and bicycle sharing system data
Antoine Godichon-Baggioni, Cathy Maugis-Rabousseau, Andrea Rau
Entrepreneurial regimes classification: a symbolic polygonal clustering approach
Andrej Srakar, Marilena Vecco

Distances and discriminant analysis for microbial communities composition to classify inflammatory bowel diseases
Glòria Mateu-Figueras, Pepus Daunis-i-Estadella, Mireia López-Siles, Josep Antoni Martin-Fernández

Symbolic data analysis of gender-age-cause-specific mortality in European countries
Filipe Afonso, Aleša Lotrič Dolinar, Simona Korenjak-Černe, Edwin Diday

11.10 – 12.50 SP19: Clustering, classification and data analysis via mixture models
organized by P. McNicholas
Chair: Brian Franczak

Clustering multivariate count data using a family of multivariate Poisson log-normal distributions
Sanjeena Dang

Growth mixture modeling with measurement selection
Abby Flynt, Nema Dean

On the use of multiple scaled distributions for outlier detection and model-based learning
Brian Franczak, Antonio Punzo, Cristina Tortora

Skewed distributions or transformations? Accounting for skewness in cluster analysis
Michael Gallaugher, Paul McNicholas, Volodymyr Melnykov, Xuwen Zhu

13.00 – 14.00 Lunch Break

14.00 – 14.50 Plenary Invited: Clustering in networks
Vladimir Batagelj
Chair: Angela Montanari

Parallel Session

14.50 – 15.50 CONTR19: Dimension reduction and clustering II
Chair: Vartan Choulakian

Clustering of variables using CDPCA
Adelaide Freitas

A study of the variable outlyingness ranking that is obtained using different loading similarity coefficients
Sopiko Gvaladze, Kim De Roover, Francis Tuerlinckx, Eva Ceulemans

Some properties of coherent clusters of rank data
Vartan Choulakian

14.50 – 15.50 CONTR20: Classification and regression trees
Chair: Iven Van Mechelen

C443: A methodology to see a forest for the trees
Iven Van Mechelen, Aniek Sies

Assessing how feature selection and hyper-parameters influence optimal trees ensemble and random projection
Nosheen Faiz, Naz Gul, Metodi Metodiev, Andrew Harrison, Zardad Khan, Berthold Lausen

Residual diagnostics for model-based trees for ordinal responses
Rosaria Simone, Carmela Cappelli, Francesca Di Iorio
### 14.50 – 15.50 **CONTR21: Functional data**

**Chair:** Tomasz Górecki  
**Room III**

**Measuring and testing mutual dependence for functional data**  
Tomasz Górecki, Miroslaw Krzyśko, Waldemar Wołyński

**A co-clustering method for multivariate functional curves**  
Amandine Schmutz, Julien Jacques, Charles Bouveyron, Laurence Chèze, Pauline Martin

**One-way repeated measures ANOVA for functional data**  
Łukasz Smaga

### 14.50 – 15.50 **SP20: Statistical theory of cluster analysis**

organized by D. Hunter  
**Chair:** David Hunter  
**Room IV**

**Hidden Markov models for continuous multivariate data with missing responses**  
Fulvia Pennoni

**Mixtures of cluster-weighted models with latent factor analyzer structure**  
Sanjeena Dang

**Specification of basis spacing for process convolution Gaussian process models**  
Herbert Lee, Waley Liang

### 15.50 – 16.20 Coffee Break

### 16.20 – 17.10 **Plenary Invited: Recent developments in design of experiments for agricultural research**

Andy Mauromoustakos, Bradley Jones  
**Chair:** George Menexes  
**Plenary Hall**

### 17.10 – 18.30 **SP21: Crossroads of statistical learning and psychometrics**

organized by M. de Rooij  
**Chair:** Mark de Rooij  
**Room I**

**Recursive partitioning of longitudinal and growth curve models**  
Marjolein Fokkema

**Bayesian regularization in probabilistic PCA with sparse weights matrix**  
Davide Vidotto

**Gaussian process panel modeling – statistical learning inspired analysis of longitudinal panel data**  
Julian Karch, Andreas Brandmaier, Manuel Voelkle

**Finding the hidden link: Sparse common component analysis**  
Katrijn Van Deun

### 17.10 – 18.30 **CONTR22: Correspondence analysis II**

**Chair:** Michel van de Velden  
**Room II**

**Variants of three-way correspondence analysis: An R package**  
Rosaria Lombardo, Michel van de Velden, Eric Beh

**Another view of Correspondence Analysis through Design and Projection matrices and General Linear Models**  
George Menexes, Angelos Markos, Emmanouil Pratsinakis

**Implicative and conjugative variables in the context of Correspondence Analysis**  
Odysseas Moschidis, Angelos Markos
Combined use of Correspondence Analysis and Ordinary kriging to display “supplementary” values of quantitative variables onto the factorial planes
Georgios Menexes, Thomas Koutsos

17.10 – 18.30  **CONTR23: Classification and clustering in biological and medical research III**
**Chair:** George Menexes  
Room III

A probabilistic framework for gene tree reconstruction and reconciliation to a known species tree in the presence of complex events including duplication, loss and Horizontal gene transfer
Abdoulaye Baniré Diallo

Comparison of hierarchical clustering methods for binary data from SSR and ISSR molecular markers
Emmanouil Pratsinakis, Lefkothea Karapetsi, Symela Ntoanidou, Angelos Markos, Panagiotis Madesis, Ilias Eleftherohorinos, George Menexes

Inspecting smoking addiction of youth in Turkey through a latent class analysis
Ali Mertcan Köse, Elif Çoker

Data analysis on the annual use of the new deferasirox formulation in pediatric thalassemia patients
Alkistis Adramerina, Aikaterini Teli, Symeon Symeonidis, Nikoleta Printza, Antonios Papastergiopoulos, Labib Tarazi, Emmanouil Chatzipadelis, Marina Economou

**17.10 – 18.30 CONTR24: Model-based clustering**
**Chair:** Geoffrey McLachlan  
Room IV

On missing label patterns in semi-supervised learning
Daniel Ahfock, Geoffrey McLachlan

Bayesian nonparametric mixture modeling for ordinal regression
Athanasios Kottas, Maria DeYoreo

Assessment of recent social attitudes in Japan: a latent class item response theory model for web survey data
Fulvia Pennoni, Miki Nakai

18.30 – 19.00  **Benchmarking Challenge Award**
Presentation of IFCS-2021
Closing Ceremony  
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