

International Symposium
on Business and Industrial Statistics
2018

4-6 July 2018

University of Piraeus, Greece

by

International Society for Business and Industrial Statistics
(ISBIS)

and

International Statistical Institute (ISI)

PROGRAMME

July 3, 2018

Programme

Wednesday July 4 2018

08.00 – 08.25 **Registration**

The registration desk will be opened during all day

08.30 – 09.00 **Welcoming Remarks (Room A)**

Sotiris Bersimis

Chair of the LOC and chair of the SPC

Nalini Ravishanker

President of the ISBIS

Fabrizio Ruggeri

ISI representative

Chair of the SPC

Markos V. Koutras

Vice-Rector of Finance, Planning and Development of the University of Piraeus

Co-chair of the LOC and member of the SPC

Athanasios Kyriazis

Head of the Department of Statistics & Insurance Science, University of Piraeus

Aggelos Kotios

Rector of the University of Piraeus

Panagiotis Kourouplis

Minister of Merchant Shipping

Keynote Address (Room A)

09.00 – 09.45 Evdokia Xekalaki

On Modeling Overdispersion

Statistics in Operations (Room A)

Chair: Refik Soyer

- 09.45 – 10.15 Vadim Sokolov
Deep Learning: A Bayesian Perspective
- 10.15 – 10.45 Ehsan Soofi
Maximum entropy demand models with newsvendor information
- 10.45 – 11.15 Christopher Glynn
Bayesian Modeling of Abandonments in Ticket Queues

Data Science in Industry (Room B)

Chair: Ioanna Manolopoulou

- 09.45 – 10.15 David Hoyle
Data analysis challenges in analysing users sessions from an e-Commerce platform
- 10.15 – 10.45 Gavin Whitaker
Using player abilities to predict football
- 10.45 – 11.15 Christoforos Anagnostopoulos
Weak Supervision for Real-World Statistical Machine Learning: what to do you when you have hardly any labeled data

Combinatorial Testing (Room C)

Chair: Raghu Kacker

- 09.45 – 10.15 Raghu Kacker
Combinatorial testing: an adaptation of design of experiments
- 10.15 – 10.45 Jeff Yu Lei
Combinatorial Testing-Based Fault Localization
- 10.45 – 11.15 Dimitris Simos
Combinatorial Testing Methods and Algorithms for Detecting Cryptographic Trojans

Bayesian Inference (Room D)

Chair: Aleka Kapatou

- 09.45 – 10.15 Didem Egemen
Bayesian Modeling of Virtual Age in Repairable Systems
- 10.15 – 10.45 Olawale Awe
Bayesian Estimation of Time-Varying Parameters in the Presence of Discounted Evolution Variance
- 10.45 – 11.15 Gary Sharp
Tolerance intervals as a method for the assessment of energy output of a photovoltaic system

11.15 – 11.45 **Coffee Break**

Recent Advances in Data Mining Applications (Room A)

Chair: Paulo Canas Rodrigues

- 11.45 – 12.15 Tahir Ekin
Topic Model based Prescription Fraud and Abuse Detection
- 12.15 – 12.45 Ozan Kocadagli
Classification of EEG Signals for Epileptic Seizures using Hybrid Artificial Neural Networks based Wavelet Transforms and Fuzzy Relations
- 12.45 – 13.15 Rahim Mahmoudvand
A Comparison of the Multivariate SSA Methods for Forecasting Mortality Rates
- 13.15 – 13.45 Paulo Canas Rodrigues
Singular spectrum analysis for long and contaminated time series

Computational Statistics (Room B)

Chair: Martina Vandebroek

- 11.45 – 12.15 Aviwe Gqwaka
Evaluation of selection tools for the inefficiency distribution in stochastic frontier models
- 12.15 – 12.45 Jani Deyzel
Viability Assessment of Photovoltaic Systems using Bootstrap-based Tolerance Intervals
- 12.45 – 13.15 Martina Vandebroek
Designing and conducting discrete choice experiments with the R-package idifix
- 13.15 – 13.45 —
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Statistics in Business and Finance (Room C)

Chair: Ta-Hsi Li

- 11.45 – 12.15 Francesca Bassi
Patterns of adoption of circular economy in Europe
- 12.15 – 12.45 Renjie Lu
Buffered Vector Error-Correction Models
- 12.45 – 13.15 Ta-Hsin Li
Experiments with some interpretable neural network models for a customer classification problem in financial industry

ASMBI Session (Room D)

Chair: Fabrizio Ruggeri

- 11.45 – 11.50 Fabrizio Ruggeri
ASMBI: the ISBIS journal
- 11.50 – 12.40 Stergios Fotopoulos
Properties of the Multivariate Generalized Hyperbolic Laws
- 12.40 – 12.50 Rituparna Sen
Discussion
- 12.50 – 13.00 Vadim Sokolov
Discussion
- 13.00 – 13.10 Stergios Fotopoulos
Rejoinder
- 13.10 – 13.45 Floor discussion
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- 13.45 – 15.00 **Lunch**

Special issues of Statistical Process Monitoring (Room A)

Chair: Stelios Psarakis

- 15.00 – 15.30 Athanasios Sachlas
Multivariate Risk-Adjusted Control Charts
- 15.30 – 16.00 Javier M. Moguerza
Unattended smoothing of nonlinear profiles using R
- 16.00 – 16.30 Theodoros Perdikis
Adaptive Schemes for the Multivariate Control Charts

Market Surveys-Business and Statistical Perspectives (Room B)

Chair: Nalini Ravishanker

- 15.00 – 15.30 Nicholas Fisher
The Good, the Bad, and the Horrible: Interpreting Net-Promoter Score and the Safety Attitudes Questionnaire in the light of good market research practice
- 15.30 – 16.00 Kamal Sen
Market surveys in emerging markets - perspectives from CPG industry
- 16.00 – 16.30 Kostas Kotopoulos
Challenges for the researchers to measure marketing effectiveness in the fmcg sector

Network Modelling (Room C)

Chair: James D. Wilson

- 15.00 – 15.30 James D. Wilson
Weighted Exponential Random Graph Models: Specification and Application
- 15.30 – 16.00 Can Le
Edge sampling using network local information
- 16.00 – 16.30 Siraj Sengupta
Anomaly detection in static networks

Recent developments in statistical process monitoring (Room D)

Chair: Ronald Does

- 15.00 – 15.30 Mandla D. Diko
Guaranteed In-Control Performance of the EWMA \bar{X} Chart
- 15.30 – 16.00 Leo C.E. Huberts
The Performance of \bar{X} Control Charts for Large, Non-Normally Distributed Datasets
- 16.00 – 16.30 Xin Zhou
Comparison of Control Charts for Short Run Monitoring of Fractional Nonconformance

16.30 – 17.00 **Coffee Break**

Advances in SPC (Room A)

Chair: Daniel Jeske

- 17.00 – 17.30 Sven Knoth
Calibrating EWMA control charts for dispersion in presence of parameter uncertainty
- 17.30 – 18.00 Daniel Jeske
Weighted EWMA Charts for Monitoring Type I Censored Weibull Lifetimes
- 18.00 – 18.30 Karel Kupka
Approaches in aggregating and scaling-up quality and capability metrics in a corporate structure

Count Time Series (Room B)

Chair: Robert Lund

- 17.00 – 17.30 Robert Lund
Some New Ways of Modeling Stationary Integer Count Time Series
- 17.30 – 18.00 James Livsey
Multivariate Count Time Series with Flexible Autocorrelations
- 18.00 – 18.30 Stefanos Kechagias
Latent Gaussian Count Time Series Modelling

**Computationally Efficient Bayesian Modeling
of Non-Gaussian Processes (Room C)**

Chair: George Iliopoulos

- 17.00 – 17.30 Scott Holan
*Computationally Efficient Multivariate Spatio-Temporal Models
for High-Dimensional Count-Valued Data*
- 17.30 – 18.00 Refik Soyer
Bayesian Modeling of Non-Gaussian Multivariate Time Series
- 18.00 – 18.30 Kathy Ensor
*Dynamic Continuous Time Models with Discrete Observation Paths
of Different Frequencies with Application to Financial Models*
- 18.30 – 19.30 **ISBIS Assembly (Room A)**
- 19.30 – 21.00 **Welcome Reception**

Thursday July 5 2018

08.30 – 09.00 **Registration**

The registration desk will be opened during all day

Keynote Address (Room A)

09.00 – 09.45 Ron Kenett

On information quality and customer surveys

Design of Experiments I (Room A)

Chair: Haralambos Evangelaras

09.45 – 10.15 Stelios Georgiou

Screening designs based on weighing matrices with added two-level categorical factors

10.15 – 10.45 Stella Stylianou

Construction and analysis of D-optimal edge designs

10.45 – 11.15 Kalliopi Mylona

Supersaturated split-plot experiments

Models for Monitoring Non-Industrial Processes and Applications in Health (Room B)

Chair: Sotiris Bersimis

09.45 – 10.15 Kostas Triantafyllopoulos

Bayesian inference of high dimensional spatio-temporal data

10.15 – 10.45 Polychronis Economou

Simultaneous Monitoring the Number and the Spatial Distribution of Disease Events

10.45 – 11.15 Sotiris Bersimis

Public Health Monitoring Using Scans and Control Charts

Financial Time Series (Room C)

Chair: Abraham Bovas

09.45 – 10.15 Nalini Ravishanker

Multiple Day Biclustering of High-frequency Financial Time Series

10.15 – 10.45 Abraham Bovas

George Box: The "Accidental Statistician" who revolutionized time series analysis

10.45 – 11.15 Aera Thavaneswaran

Generalized Financial Risk Forecasting via Estimating functions with Applications

11.15 – 11.45 **Coffee Break**

Design of Experiments II (Room A)

Chair: Kalliopi Mylona

- 11.45 – 12.15 Peter Goos
Row-Column Screening Designs
- 12.15 – 12.45 Antony Overstall
Bayesian design for intractable models
- 12.45 – 13.15 Vasiliki Koutra
An algorithmic approach for designing experiments on networks
- 13.15 – 13.45 Werner Mueller
Copula-based robust optimal block designs

Time series and Sampling (Room B)

Chair: Athanasios Sachlas

- 11.45 – 12.15 Barbara Kowalczyk
Improved Poisson and Negative Binomial Item Count Models for Eliciting Truthful Answers to Sensitive Questions
- 12.15 – 12.45 Olugbemi A. Olujimi
Social Media Platforms: Tools for Data Collection in Technology-Driven Marketing Research
- 12.45 – 13.15 Miltiadis S. Chalikias
Optimal Repeated Measurements Two Treatment Designs for Dependent Observations: The Case of AR(1)
- 13.15 – 13.45 —
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New findings in the health state of populations and implications in the Health Systems (Room C)

Chair: Christos H. Skiadas

- 11.45 – 12.15 Christos H. Skiadas
Estimating the health state of populations: Implications in the Health Systems
- 12.15 – 12.45 Konstantinos Zafeiris
Comparing recent mortality and health experiences in Greece and Turkey
- 12.45 – 13.15 Fragiskos G. Bersimis
Indices in health related scientific fields
- 13.15 – 13.45 Yiannis Dimotikalis
Age Groups Demographics Based on Entropic Analytics
- 13.45 – 15.00 **Lunch and ASMBI Editorial Board Meeting (Room B)**

Topics in Industrial Statistics (Room A)

Chair: Marianthi Markatou

- 15.00 – 15.30 Elisavet M. Sofikitou
Some Bivariate Semiparametric Charts Based on Order Statistics
- 15.30 – 16.00 Lindsay Berry
Bayesian Forecasting for high dimensional time series counts
- 16.00 – 16.30 Nikolaos Demiris
Some challenges with large data and large models in Medical Statistics

Reliability (Room B)

Chair: Asha Gopalakrishnan

- 15.00 – 15.30 Maxim Finkelstein
Optimal mission duration for non-repairable and partially repairable systems
- 15.30 – 16.00 Jose Maria Sarabia
Aggregation of risks for lifetimes with mixture exponential distributions
- 16.00 – 16.30 Asha Gopalakrishnan
On the mean time to failure of an age replacement model

Advanced Methods in Statistical Process Control I (Room C)

Chair: Subha Chakraborti

- 15.00 – 15.30 Konstantinos Bourazas
A Bayesian self-starting Shiryaev statistic for Phase I data
- 15.30 – 16.00 Marien Graham
Nonparametric precedence control charts with improved runs-rules
- 16.00 – 16.30 Athanasios Rakitzis
Control Charts for the Simultaneous Monitoring of the Parameters of a Zero-Inflated Poisson Process Under Unknown Shifts
- 16.30 – 17.00 **Coffee Break**

Statistical Issues and Methods in Big Data (Room A)

Chair: Panagiotis Tsiamyrtzis

- 17.00 – 17.30 David Banks
Designing a Curriculum for Data Science
- 17.30 – 18.00 Foteini Panagou
Model Based Clustering through copulas for high dimensional data
- 18.00 – 18.30 Panagiotis Tsiamyrtzis
Statistical process control and monitoring in the big data era

Topics on applied statistical inference (Room B)

Chair: Markos V. Koutras

- 17.00 – 17.30 Marianthi Markatou
Clustering Mixed-Type Data
- 17.30 – 18.00 Ioannis S. Triantafyllou
*Wilcoxon-type rank-sum statistics for selecting the best population:
some advances*
- 18.00 – 18.30 —
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Advanced Methods in Statistical Process Control II (Room C)

Chair: Athanasios Rakitzis

- 17.00 – 17.30 Konstantinos Tasiias
Integrated Production Process Optimization: A Bayesian Approach
- 17.30 – 18.00 Kim Phuc Tran
Deep Learning and Computer Vision for Quality Control: A Perspective
- 18.00 – 18.30 —
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18.30 – 19.30 **ISBIS Council Meeting (Room A)**

20.30 – 24.00 **Conference Banquet**

Friday July 6 2018

08.30 – 09.00 **Registration**

The registration desk will be opened during all day

Keynote Address (Room A)

09.00 – 09.45 Subha Chakraborti

(Almost) Two Decades of Statistical Process Control Research: Some Reflections

Functional Time Series (Room A)

Chair: Rituparna Sen

09.45 – 10.15 Beatriz Bueno

Variable selection for $C[0, 1]$ -valued AR processes using RKHS

10.15 – 10.45 Pramita Bagchi

Test for stationarity in functional time series

10.45 – 11.15 Rituparna Sen

Granger causality in yield curves of different markets

Innovative Applications of Statistical Methods in Industry (Room B)

Chair: Balaji Raman

09.45 – 10.15 Balaji Raman

Measuring Effectiveness of Trade Schemes in CPG Domain Using DLM

10.15 – 10.45 Pradeep Sridharan

Multi-Party computations for Privacy Aware collaborative Analytics

10.45 – 11.15 Wee-Yeap Lau

Impact of Unconventional Monetary Policy on Japanese financial markets 2010 - 2016: A Comparison between CME and QQE periods

Novel Bayesian Tools for Analyzing Complex

Socio-Economic Data (Room C)

Chair: Xinyi Xu

09.45 – 10.15 Mario Peruggia

Bayesian models for response times in cognitive experiments

10.15 – 10.45 Xiaojing Wang

Detecting Earnings Management: A Novel Tobit Modeling Approach

10.45 – 11.15 Alessandra Mattei

Bayesian Inference for Sequential Treatments under Latent Sequential Ignorability

11.15 – 11.45 **Coffee Break**

Multivariate techniques (Room A)

Chair: Georgios Tzavelas

- 11.45 – 12.15 Luca Frigau
Comparison of Non-parametric Approaches in Classification of Seeds
- 12.15 – 12.45 Stephen France
Overlapping Clustering: A Framework, Software, and Empirical Analysis
- 12.45 – 13.15 Gonzalo Chebi
Penalized M-estimators for Logistic Regression
- 13.15 – 13.45 —
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Statistical Applications in Health Care Services Management (Room B)

Chair: Vassilis Plagiannakos

- 11.45 – 12.15 Vassilis Plagiannakos
Machine learning techniques for the analysis of composite quality indicators
- 12.15 – 12.45 Theodoros Paschalis
Composite quality indicators for assessing healthcare provision
- 12.45 – 13.15 Christina Georgakopoulou
Assessing the quality of health services using composite indicators
- 13.15 – 13.45 Spiros Goulas
Applications of composite indicators for the longitudinal assessment of the quality of health services

Reliability and Statistical Process Control (Room C)

Chair: Min Xie

- 11.45 – 12.15 Min Xie
Some Approaches for the Monitoring Event Magnitude and Frequency
- 12.15 – 12.45 Baris Surucu
Hazard Rate Estimation for Location-Scale Families: Monotonic and Non-monotonic Structures
- 12.45 – 13.15 Min Gong
Comparison of Several Samplers in a Stochastic EM Algorithm for Modeling Imperfect Maintenance Actions
- 13.15 – 13.45 —
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- 13.45 – 15.00 **Lunch**

ISBA-IS (Room A)

Chair: Refik Soyer

- 15.00 – 15.30 Sanjib Basu
Bayesian Variable Selection in Complex Lifetime Models
- 15.30 – 16.00 Joshua Landon
Bayesian Analysis of Markov Modulated Queues with Abandonment
- 16.00 – 16.30 Fabrizio Ruggeri
Project Risk Management under Dynamic Environments

Recent Advances in Time Series Analysis Methods and Applications (Room B)

Chair: Bo Lu

- 15.00 – 15.30 Ioannis Kamarianakis
Projection predictive variable selection for ARMA models
- 15.30 – 16.00 Beatriz (Stefa) Etchegaray Garcia
A Bayesian Model for Forecasting Hierarchically Structured Time Series
- 16.00 – 16.30 Bei Chen
Anomaly detection in time series using deep learning

Social Statistics (Room C)

Chair: Cleon Tsimbos

- 15.00 – 15.30 Per Eckefeldt
Assessing the macroeconomic and budgetary impact of an ageing population in the EU
- 15.30 – 16.00 Cleon Tsimbos
Estimating the effects of the recent financial crisis on the stillbirth rates employing distributed lag models and demographic decomposition techniques: the case of Greece
- 16.00 – 16.30 Georgia Verropoulou
The Effect of Wealth and Income on Depression across European Regions: an Analysis based on Instrumental Variable Probit Models
- 16.30 – 17.00 **Coffee Break**

Statistical modelling for inhomogeneous and structured data (Room A)

Chair: Ioanna Manolopoulou

- 17.00 – 17.30 Simon Lunagomez
A Class of Models for Multiple Networks Using Graph Distance
- 17.30 – 18.00 Ioanna Manolopoulou
Bayesian hierarchical modelling of sparse count processes with applications in retail analytics
- 18.00 – 18.30 Isadora Antoniano-Villalobos
Bayesian estimation of probabilistic sensitivity measures for computer experiments

Young Statisticians y-BIS Session (Room B)

Chair: Tahir Ekin

- 17.00 – 17.30 Ezgi Ozer
Detection of Epileptic Seizures using Deep Neural Networks Based on Discrete Wavelet Transforms
- 17.30 – 18.00 Ayfer Ezgi Yilmaz
Inter-rater Agreement and Adjusted Degree of Distinguishability for 2×2 Tables
- 18.00 – 18.30 Damla Iltter
Comparison of the Hybrid Artificial Intelligence Techniques for Credit Scoring

Evaluation and performance of decision making units (Room C)

Chair: Polychronis Economou

- 17.00 – 17.30 Eugenio Kahn Epprecht
Ensuring both the in-control and out-of-control Phase II performances of the S2 control chart with estimated variance
- 17.30 – 18.00 Sonia Malefaki
Studying the performance and the availability of multi-state deteriorating systems: The case study of a diesel engine system
- 18.00 – 18.30 —
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- 18.30 – 19.30 **Closing Remarks (Room A)**