



Program - SMTDA 2022

7th Stochastic Modeling Techniques and Data Analysis International Conference
with Demographics2022 Workshop

Tuesday, 7.6.2022

09:00- 09:30 Registration - Preparation, interconnections

09:30 - 10:00
MUSES
Opening Ceremony

10:00-10:40
Chair: Christos H. Skiadas
Plenary Session-Honorary Guest
Claude Lefevre
UNIVERSITÉ LIBRE DE BRUXELLES
Honorary Speech:
Ruin Problems with the Insurance Coverage of an Epidemic Process

10:40- 11:00 Coffee Break - Preparation, interconnections

11:00-12.15
SCS1
Special and Contributed Sessions

Covid-19

Chair: Yiannis Dimotikalis

Alejandro Aguirre, Eliud Silva
The crossovers between Births and Deaths caused by COVID-19: The Mexican case

Jesús E. García, V.A. González-López
A Stochastic Characterization of Omicron Variant of SARS-COV 2 Virus

Stelios Zimeras
Markov epidemiological models for COVID-19

Yiannis Dimotikalis and Christos H Skiadas
Reaction to COVID-19 Pandemic: An Evaluation of Pandemic Management Around the World

12:15-13.30
SCS2
Special and Contributed Sessions

MARKOV

Chair: James Bozeman

J. R. Bozeman

On the Metric Topology Induced from the BIC-based Consistent Metric between Markovian Processes

Andreas C. Georgiou, Emmanuel Thanassoulis, Georgios Tsaples
Efficiency Evaluation and Markovian models, current state and research variants

Giannis A. Kechagias, Alexandros C. Diamantidis, Theodosios D. Dimitrakos
Optimal maintenance of a deteriorating equipment using semi-Markov decision processes and linear programming

Giannis A. Kechagias, Alexandros C. Diamantidis, Theodosios D. Dimitrakos
Optimal maintenance of a deteriorating equipment using semi-Markov decision processes and linear programming

Shafiqah A. Al-Awadhi
Student flow in an Academic Institution using an observing Markov Analysis

13:30-14:30 Lunch Break

14:30-16:00

SCS3

Special and Contributed Sessions

Special Session

Stochastic modelling with applications to finance and maintenance

Session organizers: Ying Ni (Mälardalen University, Sweden), Lu Jin (University of Electro-communications, Tokyo, Japan)

Kouki Takada, Marko Dimitrov, Lu Jin, Ying Ni

Properties of American options under a semi-Markov modulated Black-Scholes model

Mohammed Albuhayri, Marko Dimitrov, Ying Ni, Anatoliy Malyarenko

Numerical Studies of the Implied Volatility Expansions up to Third Order under the Gatheral Model

Marko Dimitrov, Achref Bachouch, Ying Ni, Anatoliy Malyarenko

Numerical BSDE Method for Pricing Options under Gatheral Model

Mizuki Kasuya, Lu Jin

Optimal maintenance policy for a two-state system with population heterogeneity under partial observation

Hossein Nohrouzian, Anatoliy Malyarenko, Ying Ni

Constructing Trinomial Models Based on Cubature Method on Wiener Space: Applications to Pricing Financial Derivatives

16:00- 16:15 Coffee Break - Preparation, interconnections

16:15-17:30

SCS4

Special and Contributed Sessions

Population - Networks

Chair: Konstantinos Zafeiris

Akiva Bruno Melka, Yoram Louzoun
High fraction of silent recombination in finite population two locus neutral birth-death-mutation model

Akiva Bruno Melka, Navit Dori, Yoram Louzoun
Invasion Rate versus Diversity in Population Dynamics with Catastrophes

Istvan Fazekas, Attila Barta
A continuous-time network evolution model describing N-interactions

Oladapo T. Ibitoye, Viranjay M. Srivastava
A Dynamic Neural Network Model for Accurate Recognition of Masked Faces

Lincoln S. Peter, Hlabishi I. Kobo, Viranjay M. Srivastava
A Comparative Analysis of OpenFlow and P4 Protocols Based on Software Defined Networks

17:30-19:00

SCS5

Special and Contributed Sessions

Estimators

Chair: Leandro Pardo, Co-Chair: Aida Toma

Frederico Caeiro, Ayana Mateus
An evaluation of the efficiency of a shape parameter estimator for the log-logistic distribution

María Jaenada, Leandro Pardo
Robust tests based on minimum Rényi pseudodistance estimators

Aida Toma, Amor Keziou
Robust Minimum Empirical Divergence Estimators for Moment Condition Models

N. Balakrishnan, M. Jaenada, L. Pardo
Robust Rao's tests for non-destructive one-shot device testing with Weibull lifetimes

End of the 1st Day



SMTDA 2022

7th Stochastic Modeling Techniques and Data Analysis International Conference
with Demographics2022 Workshop

Wednesday, 8.6.2022

08:00- 08:15 Preparation, interconnections

08:15-09:45

SCS6

Special and Contributed Sessions

Muses

Special Session: Stochastic processes and their applications

Chairs: Filippo Petroni and Riccardo De Blasis

Guglielmo D'Amico, and Filippo Petroni

On the ROCOF of higher order for semi-Markov processes with real applications

Guglielmo D'Amico, and Filippo Petroni

A joint probability density function of wind speed and direction for wind power plant analysis

Riccardo De Blasis

The weighted-indexed semi-Markov model: calibration and application to financial modelling

Giovanni Masala, Graziella Pacelli, and Filippo Petroni

Drawdown risk measures for asset portfolios with high frequency data

Salvatore Vergine, César Álvarez-Arroyo, Guglielmo D'Amico, Juan Manuel Escaño, Lázaro Alvarado-Barrios

Optimal Management of a hybrid Microgrid in a random setting

09:45- 10:00 Coffee Break - Preparation, interconnections

10:00-10:40

Plenary Session II

Chair: Dimitrios Sotiropoulos

Speaker: Sally McClean

School of Computing - Ulster University

Title: Smart Process Modelling for improved Process Mining

10:40-11:50

SCS7

Special and Contributed Sessions

Special Session on Healthcare and Sports Modelling

Chairs: Sally McClean and Adele Marshall

David. J.P. O'Sullivan, Sally MacClean

Flexible model retraining criterion via Markov Decision Process for model maintenance in the presence of Concept Drift

Leah. A. Keating, James. P. Gleeson, David. J.P. O'Sullivan

A Multi-Type Branching Process Method for Modelling Complex Contagion on Clustered Networks

Francesco Porro, Marialuisa Restaino, Juan Eloy Ruiz Castro, Mariangela Zenga
Statistics in sport: analysis of the turnover for football coaches in the Italian SERIE A

Pavlos Kolias, Alexandra Papadopoulou and Sally McClean
Markov modeling for the evaluation of basketball performance

11:50-13:00

SCS8

Special and Contributed Sessions

Models and Modeling

Chair: Liberato Camilleri, Co-Chair: Flavius Guias

Flavius Guias

Epidemic models with several levels of immunity

Liberato Camilleri, Lawrence Grech, Alex Manche
Bayesian Parametric Survival Models

Alvaro Montenegro, Daniel Montenegro
Automatic Essay Scoring of multiple traits based on Transformer-sentences models

Neringa Urbonaite, Leonidas Sakalauskas
Construction of a Kriging Model using Fractional Brownian Vector Fields

13:00- 14:00 Lunch

14:00-15:45

SCS9

Special and Contributed Sessions

Health

Chair: Konstantinos Zafeiris

Jana Vrabcová, Tomáš Fiala, Jitka Langhamrová
Possibilities of creating new health indicators

Konstantinos N. Zafeiris, Christos Skiadas
Comparing Healthy life expectancy between Bulgaria and Greece since the 1960s

Eleni Serafetinidou
Factors associated with direct and indirect aspects of loneliness among Europeans aged 50 or higher

Kornélia Svačinová, Markéta Majerová, Jana Vrabcová
A Tool for Measuring Alcohol Policy Scoring in Czechia and EU: The Innovative Alcohol Policy Indicator

Tomáš Fiala, Jitka Langhamrová, Jana Vrabcová
Could the idea of equitable normal pension age stabilize the pension system?

Nikolaos G Tsakalis, George Matalliotakis
The correlation between Quality of Life (QoL) and Health Literacy (HL) in gastrointestinal cancer patients.
A single-center cross-sectional study in Greece

T.P. Sabgaida, V.G. Semyonova, A.V. Zubko
Impact of the COVID-19 pandemic on the mortality of Muscovites from endocrine diseases

15:45- 16:00 Coffee Break - Preparation, interconnections

16:00-17:45

SCS10

Special and Contributed Sessions

Stochastics I

Chair: Mark Anthony Caruana

Cyprien Ferraris

Phi divergence and consistent estimation for stochastic block model

Ikhlef Lyes, Aïssani Djamil

Stochastic modeling of perishable inventory retrial system with generally distributed lead times

Marek T. Malinowski

Symmetric Fuzzy Stochastic Differential Equations: Generalization of the Lipschitz Condition

Jean-Paul Murara

Stochastic Optimal Control with a Multiscale Volatility Model

Samuel Bonello, David Suda, Monique Borg Inguanez

A Bayesian Approach to Measuring Risk on Portfolios with Many Assets

17:45-19:15

SCS11

Special and Contributed Sessions

Statistics I

Chair: Mark Anthony Caruana

George Tzavelas, Konstadinos Politis

A Study of the Failure Rate for the Convolution of Two Distribution Functions, One of Which is Uniform

Tareq F A Zanoon

Performance of the Barzilai-Borwein fixed step optimization approach in Ultra-Wide Band microwave tomography

Franca Crippa, Luca Cesana, Roberta Daini

Neuropsychological Normed Measures for the Tinker Toy Test (TTT). Exploring Latent Structures

Konstantina Tsiota, Konstantinos A. Tasiias

An action-based process monitoring tool for quality shifts with multiple root causes

Maria Symeonaki, D. Parsanoglou, Glykeria Stamatopoulou

Measuring transition smoothness into European labour market(s)

Eva Tsouparopoulou, Maria Symeonaki

Refusal to participate in a survey as an indicator of reluctant responses

Vladimir Rykov, Nika Ivanova

On Reliability Function of a k-out-of-n System with Dependent Failures

End of the 2nd Day



SMTDA 2022

*7th Stochastic Modeling Techniques and Data Analysis International Conference
with Demographics2022 Workshop*

Thursday, 9.6.2022

09:00- 09:15 Preparation, interconnections

09:15-11:00

SCS12

Special and Contributed Sessions

Statistics II

Chair: Mark Anthony Caruana, Co-Chair: Athanasios Rakitzis

Jesús E. García, V.A. González-López
Young diagram and Statistical Independence

Lazaros Kanellopoulos, Konstadinos Politis
Differentiated Laplace transform ratio order and some aging properties with applications

Jean-Paul Murara, Sergei Silvestrov, Bob Kirabo Ngoga
Portfolio Construction involving Vandermonde Matrix

Athanasios C. Rakitzis, Eftychia Mamzeridou
On the Design and Performance of Upper One-Sided Charts for Zero-Inflated Processes with Estimated Parameters

David Suda
Stability of Sampling Proposals for Reducible Diffusions over Large Time Intervals

Andrei Zaitsev
Some results on the distributions of sums of independent summands

11:00-11:20 Coffee-Break

11:20-12:40

SCS13

Special and Contributed Sessions

Muses

Special Session (Virtual)

Stochastic and Statistical Data Analysis Models and Methods
Chair: Iliá Vonta, National Technical University of Athens

Elisavet Beki, Kimon Ntotsis, Alex Karagrigoriou
A Novel Dimensionality Reduction Approach through Partial Least Squares Method

Konstantinos N. Makris, Ilia Vonta
An introduction to the indices $\mu^{[MKN]}$ and to the mathematical measure $V^{[MKN]}$

Christina Parpoula, Alex Karagrigoriou
The key role of change-point analysis in public health decisionmaking

Milan Stehlík
On tissue discrimination for cancer research

12:40-13:40
LUNCH

13:40-15:30
SCS14
Special and Contributed Sessions
Muses

Special Session (On-Site)
Stochastic and Statistical Data Analysis Models and Methods
Chair: Alex Karagrigoriou

Christos Meselidis, Alex Karagrigoriou, Takis Papaioannou
Robust Statistical Inference based on Dual Measures

Vlad S. Barbu, Thomas Gkelsinis
A class of Homogeneity tests for independent and dependent data with asymmetrically important transitions

Chrysoula Kroustalli, Alex Karagrigoriou, Andreas Makrides
Stochastic Processes and Reliability Analysis: Theoretical Issues and Applications

I. Mavrogiannis, A. Karagrigoriou, G. Papatirou, I. Vonta
Detecting Exponentiality via the catastrophe & conspiracy principles

Fatiha Mokhtari, Chafiâa Ayhar, Saâdia Rahmani, Vlad S. Barbu
Asymptotic properties of kernel estimators for continuous-time semi-Markov processes

15:30- 15:45 Coffee Break - Preparation, interconnections

15:45-16:30
Plenary Session III
Chair: Alex Karagrigoriou
Speaker: **Joseph E. Cavanaugh, Benjamin Riedle, and Andrew A. Neath**
Title: Probabilistic Pairwise Model Comparisons Based on Discrepancy Measures
and a Reconceptualization of the P-Value

16:30- 16:45 Preparation, interconnections

16:45-18:00
SCS15
Special and Contributed Sessions

Mortality
Chair: Konstantinos Zafeiris

Panagiotis Andreopoulos, Fragkiskos G. Bersimis, Kleomenis Kalogeropoulos, Alexandra Tragaki
Recent changes in Human mortality: The case study of Greece

Tiê Dias de Farias Coutinho, Neir Antunes Paes
Preventable deaths and maternal and newborn factors in a region of Brazil: panel data modeling

Traian Pirvu Joint work with Petar Jevtic and Minsuk Kwak
Practical partial equilibrium framework for pricing of mortality-linked instruments in continuous time

Konstantinos N. Zafeiris
Greece since the 1960s: the mortality transition revisited. A Joinpoint Regression Analysis

Maria Sachinidou and George Matalliotakis
**Comparative and Long-Term Financial Analysis of 4 General Hospitals
belonging to Island Areas of Greece during 2017-2020**

A.V. Zubko, T.P. Sabgaida, V.G. Semyonova
Features of changes in male mortality during a pandemic

18:00-19:00

SCS16

Special and Contributed Sessions

WORKSHOP: Financial effects / consequences of the COVID-19 pandemic on Crete
Chairs: Christos Floros and George Matalliotakis
**Implementing body and participants: Region of Crete, Accounting and Finance Laboratory (LAFIM) of the
Hellenic Mediterranean University**

Efthalia Tabouratzi and George Matalliotakis
The response of the Cretan companies to the COVID-19 pandemic

Christos Floros
Seasonality and persistence of air arrivals: The case of Crete

Nektarios Gavrilakis, Christos Floros, and Emiliios Galariotis
Corporate Governance Gender Equality and Firm Financial Performance: The Case of Euronext 100 Index

Dimitrios I. Vortelinos
Country tax measures in response to the Covid-19 pandemic and the foreign exchange market: International evidence

End of the 3rd Day



SMTDA 2022

7th Stochastic Modeling Techniques and Data Analysis International Conference
with Demographics2022 Workshop

Friday, 10.6.2022

09:00- 09:10 Preparation, interconnections

09:10-11:20

SCS17

Special and Contributed Sessions

Data Analysis I

Chair: Jang Schiltz

Elena Bamicha, Georgia Verropoulou

Assessment of the CASP-12 scale among people aged 50+ in Europe: An analysis using SHARE data

Nassira Menni

Asymptotic normality for regression function estimate under right censored data and association

Cédric Noel, Jang Schiltz

A new R package for Finite Mixture Models with an application to clustering countries with respect to COVID data

Áurea Sousa, Osvaldo Silva, Helena Bacelar-Nicolau

Comparison between two algorithms for computing the Weighted Generalized Affinity Coefficient in the case of interval data

Fabien Llobell, El Mostafa Qannari

Cluster Analysis in a Multi-Block Setting

Rafik Abdesselam

A Topological Clustering of Individuals

Valery Antonov

Comparative analysis of two signals of biomedical origin

11:20- 11:40 Coffee Break - Preparation, interconnections

11:40-13:30

SCS18

Special and Contributed Sessions

Data Analysis II

Chair: Jim Freeman, Co-Chair: Mark Anthony Caruana

Dominika Ballová

Comparison of selected methods commonly used to analyze changes in time series

Dominique Desbois

Applying Entropy Criterion to Cost Allocation: an Empirical Analysis of Fertilizer Cost Estimates for European Countries

Mark Anthony Caruana, Gabriele Lentini
Multivariate Kernel Discrimination Applied to Bank Loan classification

Jim Freeman, Haoyu Miao
Blackjack and the Kelly bet: a simulation assessment of selected playing strategies

Oladapo T. Ibitoye
Development of a Neural Network Based Vehicle License Plate Recognition System

Oswaldo Dias Lopes da Silva, Áurea Sandra Toledo de Sousa, Helena Bacelar-Nicolau
Hierarchical Cluster validation in context of comparison and evaluation of partitions

13:30- 14:30 Lunch

14:30-16:30

SCS19

Special and Contributed Sessions

Advances in Social Research Methods

Invited Session Chair: Maria Symeonaki

Aggeliki Yfanti, Catherine Michalopoulou

The demographic, social and regional “profile” of peoples’ perceptions of their social class: Evidence from the 7th wave of the World Values Survey, 2017-2020

Anastasia Charalampi, Catherine Michalopoulou, Clive Richardson
Exploring cross-national comparability of unidimensional constructs

Chrysoula Zerva and Maria Symeonaki
Machine learning and natural language processing as social research tools: Applications and challenges

Aggeliki Kazani, George Filandrianos, Maria Symeonaki and Giorgos Stamou
Semantic integration of data: from theory to social research practice

George Filandrianos, Aggeliki Kazani, Parsanoglou Dimitios, Giorgos Stamou and Maria Symeonaki
Introducing an ontology of adolescents’ digital leisure

Aliki Symeonaki, Maria Symeonaki
To read on not to read? Examining the relation between students’ well-being and their attitude towards reading

16:30-16:45 Coffee Break

16:45-18:15

Special Session

Chairs: Teresa A. Oliveira & Amilcar Oliveira

Statistical Modelling and Data Analysis

Fernanda Otilia Figueiredo, Adelaide Maria Figueiredo
Walking to the Digital Era: Comparison of the European Countries in the last decade

Adelaide Figueiredo, Fernanda Figueiredo
A three-way analysis for monitoring the Europe 2020 strategy's targets

M. Filomena Teodoro, Sofia Teles, Marta C. Marques and Francisco G. Guerreiro
Hyperbaric Oxygen Therapy - Is It a Safe Therapeutic?

Amílcar Oliveira, Teresa A. Oliveira and José António Seijas-Macias
The extended Skew-Normal Distribution on the Product of two Normal Variables: computational simulations

Teresa A. Oliveira and Sara Pires
Features and Topics of Combinatorial Designs with one factor

18:15- 18:30 Preparation, interconnections

18:30-19:10
Plenary Session IV
Room 1 (PS7)
Chair: Christos H Skiadas
Speaker: Elena Babatsouli
Title: Staircase probability distributions of speech measures in children

19:10-19:30
Muses
Closing Ceremony

End of the Conference