SMTDA 2010

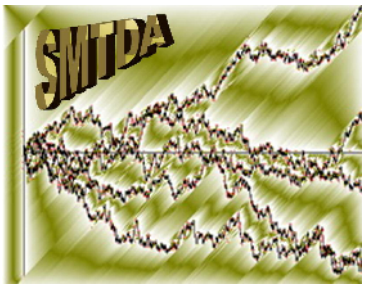
Book of Abstracts

Stochastic Modeling Techniques and Data Analysis

International Conference

Editor

Christos H. Skiadas



June 8 - 11, 2010

Chania Crete Greece

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Introduction

Stochastic Modeling Techniques and Data Analysis International Conference (SMTDA 2010)

Chania, Crete Greece, June 8 - 11, 2010

It is our pleasure to welcome the guests, participants and contributors to the International Conference (SMTDA 2010) on Stochastic Modeling Techniques and Data Analysis.

The main goal of SMTDA 2010 is to promote new methods and techniques for analyzing data, in fields like stochastic modeling, optimization techniques, statistical methods and inference, data mining and knowledge systems, computing-aided decision supports, neural networks and chaotic data analysis.

SMTDA aims at bringing together people from both stochastic and data analysis areas. Special attention is given to applications or to new theoretical results having potential of solving real life problems.

SMTDA2010 International Conference focus in expanding the development of the theories, the methods and the empirical data and computer techniques, and the best theoretical achievements of the Stochastic Modeling Techniques and Data Analysis field, bringing together various working groups for exchanging views and reporting research findings.
We thank all the contributors to the success of this conference and especially the authors of this *Book of Abstracts* of SMTDA 2010.

Chania, May 2010

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Conference Chair

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K. Zografos, Department of Mathematics, University of Ioannina, Greece

Keynote Talks

Narayanaswamy Balakrishnan
Department of Mathematics and Statistics
McMaster University, Hamilton, Ontario
Canada
Some Cure Rate Models and Associated Inference and Application to Cutaneous Melanoma Data

Erricos John Kontoghiorghes
University of Cyprus and Queen Mary, University of London, UK
Efficient algorithms for computing the best subset regression model

Rémi Léandre
Institut de Mathématiques de Bourgogne
Université de Bourgogne , Dijon
France
Wentzel-Freidlin estimates in semi-group theory

Nozer D. Singpurwalla
Institute for Reliability and Risk Analysis
Department of Statistics, The George Washington University
Washington, D.C., USA
Network Routing in a Dynamic Environment
Related Book: *Reliability and Risk: A Bayesian Perspective, Wiley, 2006*

However, providing real time travel time information for an en route school bus is a difficult task as travel time information is uncertain due to external interferences. Hence no consistent tendency can be easily observed. In this research, we develop a novel approach that combines grey theory (for travel time prediction) and empirical decomposition method (for data analysis) to predict the arrival time at each stop along the school bus route. The experiments showed that our prediction approach employing real time data collected from geographic positioning system as well as historic data outperforms the approach involving historic data only. In addition, sensitivity analysis is performed for different number of stops used in the prediction process.
Keywords: Travel Time, Hilbert-Huang Transform, Empirical Mode Decomposition, Grey Theory.

The Spike Noise Based on the Renewal Point Process and Its Possible Applications

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We consider a non-Markovian random process in the form of spikes train, where the time intervals between neighboring delta-pulses are mutually independent and identically distributed, i.e. represent the renewal process (1967). This noise can be interpreted as the derivative of well-known continuous time random walk (CTRW) model process with fixed value of jumps. The closed set of equations for the characteristic functional of the noise, useful to split the correlations between stochastic functionals (2008), is obtained. In the particular case of Poisson statistics these equations can be exactly solved and the expression for the characteristic functional coincides with the result for shot noise (2005). Further we analyze the stability of some first-order system with the multiplicative spike noise. We find the momentum stability condition for arbitrary probability distribution of intervals between pulses. The general condition of stability is analyzed for the special probability distribution of intervals between pulses corresponding to so-called dead-time-distorted Poisson process. It means that within some time interval after each delta pulse the occurrence of new one is forbidden (like in neurons). The possible applications of the model to some problems of neural dynamics, epidemiology, ecology, and population dynamics are discussed.

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Application of the computer simulation technique for investigating problems of parametric AFT-model construction

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This paper is devoted to the investigation of the problems of selecting distribution law for time-to-event data obtained by accelerated life testing. The problems of parametric model verification based on testing goodness-of-fit to a specified distribution law by samples of