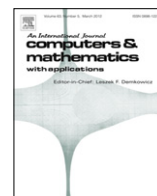


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Preface

Theory and Practice of Stochastic Modelling

Stochastic modelling techniques provide a powerful way to capture and analyse the dynamic behaviour of complex distributed systems and natural phenomena. Driven by significant advances in modelling theory and the opening up of novel application areas, such techniques are increasingly applied in many areas of science and engineering.

The development and deployment of effective stochastic models comes with significant challenges: their development usually requires collaborative efforts from theoretical researchers and practitioners with different domain knowledge and expertise. Further, their practical realisation may require large amounts of computational resources and access to large data sets.

This Special Issue encompasses sixteen research papers reporting theoretical advances and topical applications related to stochastic modelling. Several papers address the problem of accurately quantifying the survivability of systems in the face of phenomena such as correlated failures and malicious user behaviour – a highly relevant topic given the recent Fukushima nuclear disaster and increasing threats to both physical and cyber security. Other papers report theoretical and methodological advances in areas such as distribution fitting, product form approximation, and multiformalism modelling. Further papers focus on applications including climate modelling, chemistry, transportation logistics and sport.

We believe that all papers presented in this Special Issue ought to serve as a reference for students, researchers, and industry practitioners interested or currently working in the evolving and interdisciplinary area of stochastic modelling. We hope that the readers will find new inspiration for their research in stochastic modelling.

We are grateful to all the contributors of this issue. We thank the authors for their their time and efforts in the presentation of their recent research results. We also would like to express our sincere thanks to the reviewers, who have helped us to ensure the quality of this publication. Our special thanks go to Prof. Ervin Y. Rodin and Prof. Leszek Demkowicz – former and current Editors-in-Chief and all editorial and management team of *Computers and Mathematics with Applications* Elsevier journal for their great support throughout the entire publication process.

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