
Preface

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Biographical notes: Francesco Longo is an Assistant Professor at the University of Calabria, Italy, the Director of the Research Laboratory Modeling and Simulation Center – Laboratory of Enterprise Solutions (MSC-LES) and CEO of the spin-off company CAL-TEK Srl. He has worked on both public and private research projects involving manufacturing and logistics systems and has published in the field of industrial plants management, modelling and simulation methodologies and applications. He also actively cooperates with many companies and research institutions all over the world, among others DIPTeM, University of Genoa, NASA Kennedy Space Center, NATO CMRE, York University (Canada), and Rutgers University (NJ, USA).

Agostino Bruzzone is General Director of M&S Net, member of the McLeod Institute of Simulation Science, Founder and member of the board of MIMOS, President for Simulation Team, and President of the MIPET of Genoa University. He serves in the DIME at the University of Genoa as a Full Professor and he is active in the field of simulator-based applications for defence and industrial applications coordinating many R&D projects involving innovative modelling and simulation (M&S). He has written more than 200 scientific papers plus reports in partnerships with major companies and agencies (e.g., NASA, European Defence Agency, NATO, DGA, DoD).

Antonio Padovano is currently working at the University of Calabria. His research interests include the development of interoperable multi-method simulations for decision support and education/training in complex systems in the areas of industry, logistics and defence, with a focus on human modelling. He has participated in various research projects and participated as a speaker at various international conferences. He visited and carried out research activities at the NATO STO CMRE and at the Rutgers University (NJ, USA). He also actively cooperates with University of Genoa, NASA Kennedy Space Center and several other research institutions.

Letizia Nicoletti was a CEO at CAL-TEK Srl where she is currently a Senior Manager. She has followed as Scientific Responsible many research projects in different areas including logistics and distribution, defence and cultural heritage in collaboration with international research centres (e.g., NATO STO CMRE). She is author of more than 50 scientific papers and has been actively involved in the organisation of the International Multidisciplinary Modeling and Simulation Multiconference (I3M), one of the major events in the field of modelling simulation worldwide. She is expert in software development and modelling and simulation (M&S) methodologies including distributed real time simulation.

Modelling and simulation (M&S) has a critical and strategic relevance in several areas of business and it is increasingly becoming a central methodology for the design of new systems (e.g., simulation-based design) as well as for the analysis and improvement of existing systems (decision making, training, education, etc.). Industrial and business performance has today multidimensional facets as it includes efficiency, safety, environment protection, service level and profitability. For its characteristics, M&S has also several military and defence applications, which are always considered as the pioneer of several civilian and business technologies.

This special issue follows the 13th edition of the 'International multidisciplinary modeling & simulation multi-conference' (I3M 2016), which was held in Larnaca (Cyprus) from 26 to 28 September, 2016. It is one of the biggest events of M&S worldwide, hosting eight international conferences/workshops (EMSS, HMS, MAS, IMAACA, DHSS, IWISH, SESDE and FOODOPS) and three co-located events (McLeod Workshop, Modelling and Simulation Network Workshop, New Simulation Project Workshop).

The special issue on 'New advances of modelling and simulation for business processes, production, services and supply chain' focuses on integrating M&S tools and methodologies in real-world complex systems for solving multidisciplinary problems, especially in the context of business processes, production, services and supply chains. This issue welcomes geographically dispersed high-level scientific contributions, from Spain to Thailand, from Norway/Sweden to Austria, from Mexico to China and Portugal, thus demonstrating how far-flung is the M&S community.

All the papers, after their extensions (devoted to include latest results and scientific achievements) have undergone rigorous peer review and revision process to ensure high-quality scientific relevance.

Contributions are given in different domains of business, supply chain and defence industry as follows:

- Logistics and transportation, with a focus on efficiency and service levels, with the papers 'The role of horizontal cooperation to improve service quality in last-mile distribution', by Serrano-Hernandez, Hirsch,

Faulin and Fikar, 'A case of a modelled saturation level for cooperative flight departures', by Schefers, González and Nosedal and 'Simulation model generation for warehouse management: case study to test different storage strategies', by Vieira, Dias, Pereira, Oliveira, Carvalho and Martins.

- Data interoperability on industry-wide operating platforms, with the paper 'Enterprise operating system framework: federated interoperability based on HLA', by Youssef, Zacharewicz, Chen and Tu.
- Environmental protection along the production systems, with the contribution 'System dynamics for the water footprint assessment and simulation in the bioethanol production', by Trujillo-Mata, Cortés-Robles, Sánchez-Ramírez, Blanco-Fernández and Jiménez-Macías.
- Safety and security in industrial plants and business, with the paper 'Setting up a serious game for major incident in industrial plants management: investigation of the learning effect', by Ferretti, Mazzoldi, Zanoni and Zavanella.
- Cybersecurity and financial simulation, with the interesting paper 'Analysis of fraud controls using the PaySim financial simulator', by Lopez-Rojas, Axelsson and Baca.
- Optimisation techniques for engineering design, with an outstanding contribution entitled 'Novel robustness measures for engineering design optimisation' by Fleck, Kommenda, Prante and Affenzeller.
- New technologies and methodologies in the defence industry, with the paper 'Simulation of counter drugs operations based on geospatial technology for use in a military training simulator', by Robert, Kumsap and Janpengpen.

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