Editorial

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Biographical notes: Alfredo Garro is an Associate Professor of Computing Systems at the Department of Informatics, Modeling, Electronics and Systems Engineering (DIMES) of the University of Calabria (Italy). His main research interests include: systems and software engineering, reliability engineering, modelling and simulation. His list of publications contains about 80 papers published in international journals, books and conference proceedings. Since 2005, he is a member of the IEEE and of the following IEEE societies: Computer Society, Reliability Society, and Aerospace and Electronic Systems Society. He is a member of the INCOSE and of the SPACE Forum Planning and Review Panel (PRP) of SISO.

Marina Massei is an Associate Director of the McLeod Institute for Simulation Science located in Perugia University, Italy. She was Finance Control and Administration Director of Management of Advanced Solutions and Technologies (MAST). She conducted several projects on mobile and virtual simulation. She is currently enrolled in DIME (University of Genoa) as a member of the Simulation Team of Prof. Agostino Bruzzone. She is involved in the organisation of several teaching activities for M&S undergraduates and postgraduates courses. She is involved in the organisation of major M&S conferences and events and in the coordination of M&S technical councils.

The dynamic changing behaviour of industry and manufacturing processes, also due to markets globalisation, requires continuous research and development enhancements for guaranteeing higher competitiveness. Modelling and simulation is a growing research field capable of supporting, as a powerful decision making tool, this industrial evolution.

This special issue follows the 10th edition of the 'International Multidisciplinary Modelling and Simulation Multiconference' (I3M), that was held in Athens (Greece), and that is one of the biggest events of M&S worldwide hosting seven international conferences/workshops (EMSS, HMS, MAS, IMAACA, DHSS, IWISH, and SESDE) and three collocated events (McLeod Workshop, Modelling and Simulation Network Workshop, New Simulation Project Workshop).

The issue contains six papers, each of which is the enhanced and extended version of one of the works presented at I3M 2013, which was further selected for the journal publication. The resulting contributions deal with a wide range of topics ranging from methodological aspects and development frameworks for modelling and simulation to interesting case studies and concrete applications in various domains.

The paper 'Researching the application of battery traction technology for vehicles self-rescue' (by Congcong Che, Tai Liu and Huijuan Li) deals with the application of battery traction technology for the metro self-rescue during metro commercial service.

An interesting approach to the detection of dirt particles in pulp and paper in the papermaking industry is presented in the paper 'Performance assessment of multi-level image thresholding for paper quality inspection' (by Valentina Caldarelli, Luca Ceccarelli, Francesco Bianconi, Stefano Antonio Saetta and Antonio Fernández). In particular, the paper proposes a quantitative experimental evaluation of four image thresholding methods (i.e., Otsus, Kapurs, Kittlers and Yens) for dirt analysis in paper. The results show that Kittlers method is the most stable and reliable for this task.

The paper 'Finite element analysis and experimental study on metal joining by mechanical crimping' (by R. Kalyan Kumar and A. Suresh Babu) aims to provide an innovative joining method of mechanical crimping by plastic deformation of materials. Specifically, the paper investigates the crimping operation of an aluminium plunger and a steel push rod as used in a typical hydraulic clutch master cylinder assembly; moreover, the analysis of joint performance by conducting a pull-out load test both numerically and experimentally is also reported.

The paper 'Performance appraisal: the development of a multi-criteria management tool based on Erdogan's model' (by Fabio De Felice, Antonella Petrillo and Michele Tricarico) proposes a reference model to assess performance of human resource for the supervision and management of horse racing in the appraisal context. The paper uses Erdogan's model and analytic hierarchy process (AHP) to evaluate human performances and provides a way to rank the alternatives of the problem by deriving priorities.

In 'Predictive monitoring of production line efficiency' (by Gašper Mušič, Boštjan Hauptman, Peter Rogelj and Tomi Zebič), the authors deal with the analysis of production line performance efficiency and propose a prediction model that enables a short-term prediction of the expected performance based on the scheduled product mix. Besides the online operational management support the model can be used to experimentally evaluate the effect of different scheduling strategies by linking the performance model to a discrete event simulator.

The paper 'Using simulation to investigate the performance of a batch order manufacturing system' (by Franceso Longo, Letizia Nicoletti and Adriano O. Solis) describes the development and application of a simulation model characterising an existing manufacturing system devoted to producing furniture for schools, universities and offices. After verification and validation, the simulation model is used to pursue two different objectives:

1 evaluate the economic viability of acquiring new automated machines for the painting department

2 investigate shop orders scheduling by using genetic algorithms.

Last but not least, the guest editors would like to thank all the authors, the reviewers, and the editors of both *I3M 2013* and the *International Journal of Service and Computing Oriented Manufacturing* whose joint efforts allowed this special issue to become real. Thank you all and enjoy the reading!