12th International Conference on Modeling and Applied Simulation

(MAS 2013)

Held at the International Multidisciplinary Modeling and Simulation Multiconference

Athens, Greece 25 – 27 September 2013

Editors:

Michael Affenzeller Agostino G. Bruzzone Fabio De Felice David Del Rio Vilas Claudia Frydman Marina Massei Yuri Merkuryev

ISBN: 978-1-62993-490-7

Printed from e-media with permission by:

Curran Associates, Inc. 57 Morehouse Lane Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2013) by CAL-TEK S.r.l. All rights reserved.

Printed by Curran Associates, Inc. (2014)

For permission requests, please contact CAL-TEK S.r.l. at the address below.

CAL-TEK S.r.l. Via Spagna 240-242 87036 Rende (CS) Italy

Phone: +39 333 7042 612 Fax: +39 0984 937849

info@cal-tek.eu

Additional copies of this publication are available from:

Curran Associates, Inc. 57 Morehouse Lane Red Hook, NY 12571 USA

Phone: 845-758-0400 Fax: 845-758-2634

Email: curran@proceedings.com Web: www.proceedings.com

<u>Index</u>

Proposal of agent simulation methodology for the prospective analysis of mineral commodities markets Fenintsoa Andriamasinoro, Bruno Martel-Jantin	1
Simulation analysis for cascading failure of an electrical power grid Chulhan Kim, Kiwook Bae, Soojeong Bae, Tae-Eog Lee	11
Falling stars: simulation of the effect of firm culture on employee performance Roderick Duncan, Terry Bossomaier	18
Using conversive hidden non-markovian models for multi-touch gesture recognition Tim Dittmar, Claudia Krull, Graham Horton	23
A flexible decision support tool for maintenance float systems - a simulation approach Francisco Peito, Guilherme Pereira, Armando Leitão, Luís Dias, José Oliveira	29
From safety requirements to simulation-driven design of safe systems Alfredo Garro, Andrea Tundis, Lena Buffoni-Rogovchenko, Peter Fritzson	40
Looking for the equilibrium of the shields production system via simulation model Pavla Ficova , Martina Kuncova	50
A parallel approach of interest management in exascale simulation systems Elvis S. Liu	57
SimUse: modeling recreational polydrug use through an agent-based model Francois Lamy, Terry Bossomaier, Pascal Perez	61
Evaluation and modeling the aerodynamic properties of mung bean seeds Feizollah Shahbazi, Ali Dowlatshah, Saman Valizadeh	69
Using analytic hierarchy process to evaluate human performance Fabio De Felice, Antonella Petrillo, Michele Tricarico	75
Problems of information systems integration in large transport companies Eugene Kopytov, Vasilijs Demidovs, Natalia Petukhova	85
Simulating continuous time production flows in food industry by means of discrete event simulation Fabio Bursi, Andrea Ferrara, Andrea Grassi, Chiara Ronzoni	95
Performance analysis of a water supply system of a dairy company by means of advanced simulative methods Davide Marchini, Marta Rinaldi, Roberto Montanari, Eleonora Bottani, Federico Solari	103
A data collection methodology to perform DHMS-based ergonomic analysis of manufacturing tasks Nadia Rego-Monteil, Mariangela Suriano, Diego Crespo Pereira, David del Rio Vilas, Rosa Rios Prado, Francesco Longo	114

Comparing material flow control mechanisms using simulation optimization Manuela André, Luís Dias, Guilherme Pereira, José Oliveira, Nuno Fernandes, Sílvio Carmo-Silva	122
The use of simulation as a tool to support decision-making in a piston manufacturing system Alexandre Massote, Bruno Ignácio	128
Simulating an internet product delivery supply chain with multi-item orders Oliverio Cruz-Mejia, Richard Eglese	135
A study of DEVS-based process scheduling on multi-user semiconductor test equipment Soonchul Lim, Youngsin Han, Chilgee Lee	141
Addressing robust berth planning under uncertainty via simulation based optimization Pasquale Legato, Rina Mary Mazza	144
Modelling and multiobjective optimization of the VHP sterilization process of pouch packaging Matteo Folezzani, Michele Manfredi, Giuseppe Vignali	153
Multi-perspective visualization within simulation-based design enhanced shared understanding Bart van Zaalen, Rens Kortmann, Wijnand Veeneman, Alexander Verbraeck, Marten Busstra	161
Polynomial controller for AC-DC converter with power factor correction Jean N. Razafinjaka, Jean Daniel Lan Sun Luk	167
A preliminary supply chain model to housing recovery after the occurrence of a natural disaster Rafael Diaz, Joshua Behr, Sameer Kumar, Ange Lionel Toba, Francesco Longo, Letizia Nicoletti	173
A mechanical approach of multivariate density function approximation László Mohácsi, Orsolya Rétallér	179
Orchestrating the interoperability workflow within a transport simulation platform Judicael Ribault, Gregory Zacharewicz	185
The impact of external disturbances on the performance of a cellular manufacturing system Sameh M Saad, Carlos R. Gómez, Nabil Gindy	194
Modelling fresh goods supply chain contamination Agostino Bruzzone, Marina Massei, Matteo Agresta, Angelo Ferrando	204
Applying modeling and simulation to evaluate statistical accuracy and inventory control perfomance of lumpy demand forecasting methods Adriano Solis, Francesco Longo, Letizia Nicoletti, Aliaksandra Yemialyanava	212
Author's Index	221