

10th International Conference on Modeling and Applied Simulation

(MAS 2011)

**Held at the International Mediterranean and Latin American
Modeling Multiconference**

**Rome, Italy
12-14 September 2011**

Editors:

**Agostino Bruzzone
Claudia Frydman
Marina Massei**

**Mike McGinnis
Miquel Angel Piera
Gregory Zacharewicz**

ISBN: 978-1-62993-481-5

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© (2011) 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

Index

Part I: Mothballing (Asset Preservation) of a Crude Oil Gathering Center <i>Musleh Al-Otaibi, Abdul-Hassan Mohammed</i>	1
An efficient hybrid approach based on SVM and Binary ACO for feature Selection <i>O. Kadri, L. H. Mouss, F. Merah, A. Abdelhadi, M. D. Mouss</i>	8
Study for a Mechanism Aided by Asynchronous Actuator Powered by Asynchronous Diesel Generator <i>Meglouli H., Ikhlef B.</i>	16
Mathematical Modeling and Simulation for Detection of Suicide Bombers <i>William Fox, John Vesecky, Kenneth Laws</i>	22
Comparing Decision Support Tools for Cargo Screening Processes <i>Peer-Olaf Siebers, Galina Sherman, Uwe Aickelin, David Menachof</i>	31
Improvement of the Forecast of Economic Processes Parameters <i>Yuri Menshikov</i>	40
Solving Fully Fuzzy Linear Programming Problem with Equality and Inequality Constraints <i>Ahmad Jafarnejad, Mahnaz Hosseinzadeh, Hamed Mohammadi Kangarani</i>	45
Restoring Aquatic Ecosystems on the Basis of the GMAA DSS <i>Antonio Jiménez, Alfonso Mateos</i>	50
Planning Highways Resurfacing Using Computer Simulation <i>Mohamed Marzouk, Marwa Fouad, Moheeb El-Said</i>	56
3 Years of Funding Initiative for Computational Mathematics in Austria <i>Peter Kersch, Alexander Pogány</i>	61
Dynamic Phenomena and Quality Defects in Laser Cutting <i>Dieter Schuöcker, Joachim Aichinger, Georg Schuöcker</i>	65
Analysis of a Warehouse Management System by Means of Simulation Experiments <i>Giuseppe Aiello, Mario Enea, Cinzia Muriana</i>	70
CoMModO - Complex Material Modeling Operations, A Comprehensive Approach to the Modeling of Complex Materials with Machine Learning Models within Finite Element Simulations <i>Andreas Kuhn, Toni Palau, Gerolf Schlager, Helmut Böhm, Sergio Nogales, Victor Oancea, Ritwick Roy, Andrea Rauh, Jürgen Lescheticky</i>	80
Multi-Objective Optimization in Urban Design <i>Michele Bruno, Kerri Henderson, Hong Min Kim</i>	90
Additive Fault Tolerant Control for Delayed System <i>Abdelkrim Nouceyba, Tellili Adel, Abdelkrim Mohamed Naceur,</i>	96
Centralized and Decentralized Adaptive Fault-Tolerant Control applied to Interconnected and Networked Control System <i>Amina Challouf, Adel Tellili, Christophe Aubrun, Mohammednaceur Abdelkrim</i>	101
Modelling NONI (Morinda Citrifolia L.) Pulp Spray Drying Using a Crossed Mixture-Process Design and Feed Optimization <i>Eliosbel Márquez González, Débora Castro Espín, Margarita Núñez de Villavicencio, José Luis Rodríguez</i>	107
Factory layout Planner: how to speed up the factory design process in a natural and comfortable way <i>Antonio Avai, Giovanni Dal Maso, Paolo Pedrazzoli, Diego Rovere</i>	113

Release Kinetics of Cardamom Oil from Microcapsules Prepared by Spray and Freeze Drying	120
<i>Masoud Najaf Najafi, Rassoul Kadkhodae</i>	
Genetic Algorithm approach to modelling fractal manufacturing layout	126
<i>Julian Aririguzo, Sameh Saad,</i>	
Mechanical Damage to Navy Beans as Affected by Moisture Content, Impact Velocity and Seed Orientation	136
<i>Feizollah Shahbazi</i>	
How important is price leadership in the UK fresh fruit and vegetable market?	139
<i>Cesar Revoredo-Giha, Alan Renwick</i>	
Simulations of liquid film flows with free surface on rotating silicon wafers (RoWaFlowSim)	149
<i>Markus Junk, Frank Holsteyns, Felix Staudegger, Christiane Lechner, Hendrik Kuhlmann, Doris Prieling, Helfried Steiner, Bernhard Gschaider, Petr Vita</i>	
PLC Code Processing for Automatic Simulation Model Generation	155
<i>Gergely Popovics, András Pfeiffer, Botond Kádár, Zoltán Vén, László Monostori</i>	
Modelling and Analysing the Impact of Manual Handling Processes in Seaports	160
<i>Bernd Scholz-Reiter, Michael Görge, Ralf Matthies</i>	
Numerical Analysis of Wind Induced Pressure Loads on an Integrated Roof-Based Photovoltaic System	166
<i>Marco Raciti Castelli, Sergio Toniato, Ernesto Benini</i>	
Modeling of Drying Process of Candies Obtained with Starch Molding Technique	173
<i>Noemi Baldino, Lucia Seta, Francesca Romana Lupi, Domenico Gabriele, Bruno de Cindio</i>	
Benchmarking Real-World Job-Shop Scheduling using a Genetic Algorithm with a Simulation Approach	179
<i>Peter Steininger</i>	
Improving Patient Safety: A Model of Drift in Health Care Teams	185
<i>R. Severinghaus, C. Donald Combs</i>	
Modelling of Gestures with Differing Execution Speeds: Are Hidden non-Markovian Models Applicable for Gesture Recognition?	189
<i>Sascha Bosse, Claudia Krull, Graham Horton</i>	
Modelling and interpolation of spatial temperature during food transportation and storage by the Variogram	195
<i>Reiner Jedermann, Javier Palafox-Albarrán, Pilar Barreiro, Luis Ruiz-García, Jose Ignacio Robla, Walter Lang</i>	
Modeling and Simulation of an assembly line: a new approach for assignment and optimization of activities of operators	202
<i>Domenico Falcone, Alessandro Silvestri, Antonio Forcina, Antonio Pacitto</i>	
Dynamic Spectrum Management with Minimizing Power Allocation	207
<i>Tawiwat Veeraklaew, Settapong Malisuwan</i>	
Large Target-Weapon Assignment Problems with Evolutionary Programming as applied to the Royal Thai Armed Forces ground-to-ground rocket simulation system	211
<i>Settapong Malisuwan, Teeranan Nandhakwang, Tawiwat Veeraklaew</i>	
Data Presentation and Transformation in Train Schedule Information Systems	216
<i>Eugene Kopytov, Vasilij Demidovs, Natalia Petukhova</i>	
Dynamic Simulation Based Design of Powered Support in Integrated	226

Mechanized Coal Mining <i>Zhifeng Dong, Guozhu Liu, Jian Wang, Jiangang Qian, Shouxiang Zhang, Dongsheng Bao</i>	
Impact of Occupants Behavior on Building Energy Use: an Agent-Based Modeling Approach <i>Elie Azar , Carol Menassa</i>	232
Sheeting Process Modelling and Rheological Analysis of an Olive-Oil-Emulsion-Based Puff Pastry <i>Francesca Romana Lupi, Noemi Baldino, Lucia Seta, Domenico Gabriele, Bruno de Cindio</i>	242
New Evolutionary Algorithm Based on Particle Swarm Optimization and Adaptive Plan System With Genetic Algorithm <i>Pham Ngoc Hieu, Hiroshi Hasegawa</i>	249
The Art of Data-Driven Modelling in Logistics Simulation <i>Rainer Frick</i>	255
Evaluation of Climate-Efficient Cross-Company Logistics Models based on Discrete Event Simulation <i>Christian Hillbrand, Susanne Schmid</i>	259
Building a System for Automated Modeling and Simulation of Plants <i>Robert Schöech, Susanne Schmid, Christian Hillbrand</i>	266
Dynamics of direct transports in autonomously controlled production networks <i>Bernd Scholz-Reiter, Michael Görges</i>	273
Advanced Design of a Static Dryer for Pasta with Simulation Tools <i>Mattia Armenzoni, Federico Solari, Davide Marchini, Roberto Montanari, Gino Ferretti</i>	281
Bakery Production Scheduling Optimization -a PSO Approach <i>Florian Hecker, Walid Hussein, Mohamed Hussein, Thomas Becker</i>	289
Simulation Based Design Optimization Framework for a Gait Pattern Generation of a small Biped Robot with Tiptoe Mechanism <i>Krissana Nerakae, Hasegawa Hiroshi</i>	295
Rfid-Based Real-Time Decision Support in Supply Chains <i>Tobias Hegmanns, Michael Toth</i>	303
Feature Selection for Datasets of Wine Fermentations <i>Antonio Mucherino, Alejandra Urtubia</i>	309
Demand-Supply Interaction and Inventory Buildup Strategies for Short Life Cycle Products <i>Rong Pan, Adriano Solis, Bixler Paul</i>	314
Evaluation of the Performance of Solar Air Collector by Using Bond Graph Approach <i>Hatem Oueslati, Salah Ben Mabrouk, Abdelkader Mami</i>	322
The Use of Simulation as a Pedagogical Tool in Construction Education <i>Ronald Ekyalimpa, Jangmi Hong, Simaan AbouRizk</i>	330
Logical Operator Usage in Structural Modelling <i>Ieva Zeltmate</i>	338
A Survey on Performance Modelling and Simulation of Sap Enterprise Resource Planning Systems <i>Manuel Mayer, Stephan Gradl, Veronika Schreiber, Harald Kienegger, Holger Wittges, Helmut Krcmar</i>	347
Understanding the Performance Behavior of a Sap Erp System for the Use of	353

Queuing Models	
<i>Stephan Gradl, Manuel Mayer, Alexandru Danciu, Holger Wittges, Helmut Krcmar</i>	
Object-Oriented Model of Fixed-Bed Drying of Coffee Berries	361
<i>Emilio de Souza Santos, Paulo Cesar Corrêa, Brian Lynn Steward, Daniel Marçal de Queiroz</i>	
Scheduling Patients Based on Provider's Availability	370
<i>Jose Sepulveda, Waldemar Karwowski, Francisco Ramis, Pablo Concha</i>	
An Overall DHM-Based Ergonomic and Operational Assessment of a Manufacturing Task: a Case Study	375
<i>Nadia Rego Monteil, David del Rio Vilas, Diego Crespo Pereira, Rosa Rios Prado</i>	
A Computationally Efficient and Scalable Shelf Life Estimation Model for Wireless Temperature Sensors in the Supply Chain	383
<i>Ismail Uysal, Jean-Pierre Emond, Gisele Bennett</i>	
Simulation as a Decision Support Tool in Maintenance Float Systems - System Availability Versus Total Maintenance Cost	389
<i>Francisco Peito, Guilherme Pereira, Armando Leitão, Luís Dias</i>	
ANP Approach For Improving Public Participation In Strategic Environmental Management Planning	397
<i>Fabio De Felice, Antonella Petrillo</i>	
Distributed M&S for Product Service System	406
<i>Thecle Alix, Greg Zacharewicz</i>	
Design and Development of Realistic Food Models with Well Characterised Micro and Macro- Structure and Composition	412
<i>Monique Axelos, Jean-Dominique Daudin, Guy DellaValle, Nathalie Perrot, Catherine MGC Renard, Caroline Sautot, Jean-Louis Sebedio</i>	
From Expert Knowledge to Qualitative Functions: Application to The Mixing Process	419
<i>Kamal Kansou, Guy Della Valle, Amadou Ndiaye</i>	
Simulation Based Modeling of Warehousing Operations in Engineering Education Based on an Axiomatic Design	427
<i>Rafael S. Gutierrez, Sergio Flores, Fernando Tovia, Olga Valerio, Mariano Olmos</i>	
A Multi-Item Multi-Rack Approach for Designing LIFO Storage Systems: a Case Study from the Food Industry	437
<i>Elisa Gebennini, Andrea Grassi, Bianca Rimini, Rita Gamberini</i>	
A Process Mining Approach Based on Trace Alignment Information for Very Large Sequential Processes with Duplicated Activities	442
<i>Pamela Viale, Claudia Frydman, Jacques Pinaton</i>	
Modeling Psychological Messages and Their Propagation	452
<i>Colette Faucher</i>	
NAV - The Advanced Visualization Station: a Mobile Computing Center for Engineering Project Support	464
<i>Gabriel A. Fernandes, Gerson G. Cunha, Tiago Mota, Celia Lopes</i>	
Competition and Information: Cumana a Web Serious Game for Education in the Industrial World	471
<i>Marina Massei, Alberto Tremori, Alberto Pessina, Federico Tarone</i>	
Modeling Logistics & Operations in a Port Terminal for Environmental Impact Evaluation and Analysis	480
<i>Marina Massei, Francesca Madeo, Francesco Longo</i>	
Modelling a Traceability System for a Food Supply Chain: Standards,	488

Technologies and Software Tools <i>Bruno De Cindio, Francesco Longo, Giovanni Mirabelli, Teresa Pizzuti</i>	
Command Feedback and Response (CFR) - the Evolution of Command and Control in an Immersive and Interactive Environment (C2I2) <i>Marco Biagini, Michele Turi</i>	495
Modelling and Simulation of the Sterilization Process Of Pouch Packaging In an Aseptic Line <i>Paolo Casoli, Gabriele Copelli, Michele Manfredi, Giuseppe Vignali</i>	503
Authors' Index	510