

21st European Modeling and Simulation Symposium

(EMSS 2009)

Held at the International Mediterranean Modeling Multiconference

**Puerto de la Cruz, Spain
23-25 September 2009**

Editors:

**Rosa M. Aguilar
Claudia Frydman
Khalid Mekouar**

**Agostino G. Bruzzone
Francesco Longo
Miquel Angel Piera**

ISBN: 978-1-62993-463-1

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© (2009) 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

TABLE OF CONTENTS

Asymptotic Stability Of Positive Fractional 2D Linear Systems With Delays.....	1
<i>Tadeusz Kaczorek</i>	
Optimization Approach To Power Limits In Flow Energy Systems	7
<i>Stanislaw Sieniutycz</i>	
TSM: Temporal Sequential Machines	17
<i>Norbert Giambiasi</i>	
Conscience Simulation.....	23
<i>Tudor Niculiu, Maria Niculiu</i>	
Tests And Simulation Of Gas Boilers In Domestic Heating Plants	33
<i>Renzo Tosato</i>	
Fast Fully-Automated Model-Driven Liver Segmentation Utilizing Slicewise Applied Levelsets On Large CT Data	39
<i>Gerald Zwettler, Franz Pfeifer, Roland Swoboda, Werner Backfrieder</i>	
An Agent-Directed Multisimulation Framework For Management Simulation Games.....	45
<i>Galina Merkuryeva, Jana Bikovska, Tuncer Oren</i>	
Q-Learning Based Therapy Modeling	53
<i>Witold Jacak, Karin Proell</i>	
Programming Languages As Tools For Structured Description And Simulation Of Information Systems	58
<i>Eugene Kindler, Ivan Krivy, Cyril Klimes</i>	
Meningitis: The Quiet Before The Storm? (Simulation Of An On-Campus Outbreak).....	64
<i>Tracy A. Atkins, Ken K. Westerlund, Christine M. Allen, Omar Thompson</i>	
Heuristic Modeling Of The Mental Progress Of Persons With Normal Brain Aging, Subjective Cognitive Impairment, Mild Cognitive Impairment, Alzheimer's Disease And Related Dementia Disorders	71
<i>Stephan Winkler, Stefanie Auer, Michael Affenzeller, Yvonne Donabauer, Barry Reisberg</i>	
Considering Workpieces As Integral Parts Of A DEVs Model.....	77
<i>Christina Deatcu, Thorsten Pawletta, Olaf Hagendorf, Bernhard Lampe</i>	
Methods For Analysis Of The Time Aspect In The Behavior Of Agent-Based Material Flow Controls.....	86
<i>Sergey Libert, Andreas Nettstater, Michael Ten Hompel</i>	
The Discrete Event Simulation Framework DESMO-J And Its Application To The Java-Based Simulation Of Mobile AD HOC Networks	92
<i>J. Gobel, A. E. Krzesinski, B. Page</i>	
Agent Simulation Of Flour Silo Installations As Planning Tool For Decision-Making	102
<i>Alexander Ulbrich, Ralf Kraul, Christoph Tilke, Mukul Agarwal, Willibald A. Gunthner</i>	
Simulation And Analysis Of A Production Line With Multiple Output Formats.....	108
<i>Andrea Grassi, Giuseppe Perrica, Elisa Gebenini, Sara Dallari, Cesare Fantuzzi, Bianca Rimini</i>	
Collaborative Knowledge Networks Based On IHE	114
<i>Josef Altmann, Franz Pfeifer, Melanie Strasser, Barbara Franz, Herwig Mayr</i>	
A General Approach To High Fidelity Modeling, Simulation And Control Of Tactical Entities And Implementation In A Commercial Computer Generated Forces Toolkit	120
<i>Deniz Aldogan, Mehmet Haklidir, Levent Hakki Senyurek, Seniha Koksal, Omer Eroglu, Cemil Akdemir, Semuel Franko, Isa Tasdelen, Sevgi Akgun</i>	
Modeling Of Standardized Data Entry In Dermoscopy	130
<i>S. Dreiseitl, K. Auracher, S. Puig, J. Malvehy</i>	
Evaluation Of A Statistical Shape Model Based Approach For Recovering The 3D LV Shape From Projective X-Ray Images.....	135
<i>R. Swoboda, G. Zwettler, C. Steinwender, F. Leisch, J. Scharinger</i>	
Analysis And Simulation Of Political Parties With Different Statistical Distributions	142
<i>Alejandro Suarez Buenrostro, Miguel Angel Martinez Cruz, Idalia Flores De La Mota</i>	
Outpatient Appointment Scheduling With Patient Characteristics	147
<i>Athula Wijewickrama</i>	
Using Discrete-Event Simulation to Design Reliable and Cost-Efficient Civil-Engineering Structures.....	154
<i>A. Juan, A. Ferrer, C. Serrat, J. Faulin, J. Hester, P. Lopez</i>	
Challenges Of Building A Simulation Model Of The German Mental Health Care System.....	160
<i>Kristina Dammasch, Benjamin Rauch-Gebbensleben, Christfried Togel, Graham Horton</i>	

Development Of A Cargo Screening Process Simulator: A First Approach.....	166
<i>Peer-Olaf Siebers, Galina Sherman, Uwe Aickelin</i>	
A Hybrid Constraint Programming / Local Search Approach To The Pick-Up And Delivery Problem With Time Windows.....	176
<i>Daniel Guimaraes, Juan Jose Ramos, Mark Wallace, Daniel Riera</i>	
A Dynamic Process Modeling Of Warehouse Operations.....	183
<i>Raid Al-Aomar, Amer Momani</i>	
The Effects Of Brand Equity On Price Strategies: An Agent Based Model	189
<i>Sebastiano A. Delre, Skander Essegaier</i>	
Solving The Travelling Salesman Problem With Timewindows By Lagrangean Relaxation.....	194
<i>R. Herrero, J. J. Ramos, D. Guimaraes</i>	
Design Of Automotive Components Using Advanced CAE Systems.....	200
<i>L. Barbieri, F. Bruno, M. L. Luchi, G. Malito, M. Muzzupappa, F. Rotini</i>	
Automatic Warehouse Modeling And Simulation	207
<i>A. Guasch, M. A. Piera, J. Figueras</i>	
SICMA - Simulation Of Crisis Management Activities.....	212
<i>G. La Posta, T. Mischi</i>	
Integrated Care Using A Model-Based Patient Record Data Exchange Platform.....	216
<i>Barbara Franz, Herwig Mayr, Margit Mayr, Franz Pfeifer, Josef Altmann, Markus Lehner</i>	
Modeling And Simulation Of An Ultra-Stable Cryostat For Nahual.....	222
<i>D. Sosa-Cabrera, F. J. Fuentes</i>	
Silicon Oxide And High-K Dielectrics Modelling And Simulation For Advanced Semiconductor Devices	228
<i>Florin Babarada</i>	
Network Design Using Mix Integer Programming And Montecarlo Simulation In An International Supply Chain Network.....	234
<i>Eduardo Villareal, Idalia Flores</i>	
Coupling Effects In The Bidomain Model Of Functional Electrical Stimulation.....	242
<i>Johannes Martinek, Thomas Mandl, Winfried Mayr, Frank Rattay, Martin Reichel</i>	
Java For Parallel Discrete Event Simulation: A Survey.....	249
<i>I. Castilla, R. Aguilar</i>	
Metro Simulation And Optimization	257
<i>A. Guasch, D. Huguet, J. Montero, J. Figueras</i>	
Telescope Instrument Simulator Modeling Framework For Control System Development Support	263
<i>Jose Maria Perez Menor, Jose Carlos Lopez Ruiz, Pablo Lopez Ramos</i>	
PCA Filter For Sztintigraphic Imaging.....	269
<i>Werner Backfrieder, Martin Forster, Wilma Maschek</i>	
Bioinformatics Resource Facility Hagenberg—Building High Performance Computing Services For Solving Bioinformatical Problems.....	273
<i>Peter Kulczycki, Hannes Brandstatter-Muller, Gerald Lirk</i>	
Modbus Based Protocol For Communication Between A Distributed Co-Simulation Backbone And Real Elements For Simulation Matters.....	279
<i>Tales Marchesan Chaves, Braulio Adriano De Mello, Paulo Betencourt</i>	
Simulation-Based Model Of A Distributed GMPLs-Based IP-Over-Optical Network.....	284
<i>S. Albarak</i>	
Modelling and Simulation of the Anesthetic Process	294
<i>Juan Albino Mendez, Hector Reboso, Jose Antonio Reboso, Santiago Torres</i>	
The Simulation Of A Biosensor In MEMS Configuration	300
<i>C. Ravarin, F. Babarada</i>	
Solving Hidden Non-Markovian Models: How To Compute Conditional State Change Probabilities	304
<i>Claudia Krull, Graham Horton</i>	
A Constraint Programming-Based Library For The Vehicle Routing Problem	310
<i>Daniel Riera, Angel A. Juan, Daniel Guimaraes, Estella Pagans</i>	
Towards Cosimulating Systemc And Coloured Petri Net Models For SOC Functional And Performance Evaluation.....	316
<i>M. Westergaard, L. M. Kristensen, M. Kuusela</i>	
Towards A Numerical 3D Model Of Functional Electrical Stimulation Of Denervated, Degenerated Human Skeletal Muscle.....	323
<i>Thomas Mandl, Johannes Martinek, Winfried Mayr, Frank Rattay, Martin Reichel, Ewald Moser</i>	
Primos: An Integrated Platform For Exploring Protein-Protein Interactions	329
<i>Thomas Kern, Michael Kommenda, Viktoria Dorfer, Johann W. Bauer, Kamil Onder</i>	

Individual Assessment Of Muscle Fatigue And Its Relation To The N-Repetition Maximum.....	334
<i>Andreas Schrempf, Daniel Hametner, Armin Blaha</i>	
Petri Net Based Scheduling Approach Combining Dispatching Rules And Local Search	339
<i>Gasper Music</i>	
Extended Dynamic Structure DEVs.....	345
<i>Olaf Hagendorf, Thorsten Pawletta, Christina Deacu</i>	
The Impact Of Strategy On Material Handling System Performance: Case Studies In An Order Picking System.....	355
<i>Gaby Neumann</i>	
The Problem Of Designing Discrete Events Systems. A New Methodological Approach.....	362
<i>Juan Ignacio Latorre, Emilio Jimenez, Mercedes Perez, Julio Blanco</i>	
Optimizing Video-Oculography Systems By Simulating The Effect Of Slippage Artifacts.....	369
<i>Michael Platz, James K. Y. Ong, Thomas Haslwanter</i>	
The Design Of A Manufacturing Facility. An Efficient Approach Based On Alternatives Aggregation Petri Nets.....	375
<i>Juan Ignacio Latorre, Emilio Jimenez, Mercedes Perez, Eduardo Martinez</i>	
Decision Taking On The Production Strategy Of A Manufacturing Facility. An Integrated Methodology.....	382
<i>Juan Ignacio Latorre, Emilio Jimenez, Mercedes Perez</i>	
Use Of Simulation In Egovernment Process Development. A Case Study Using The Simulation Tool Sighos.....	389
<i>Y. Callero, R. Aguilar</i>	
Simulated Annealing Tuning Method For Multi-Rate PID Controllers	397
<i>Y. Cerezo, A. Cuesta, I. Lopez, L. Grau</i>	
Modelling And Simulation With Discrete And Continuous PN: Semantics And Delays.....	403
<i>Emilio Jimenez, Mercedes Perez, Juan Ignacio Latorre</i>	
Performance Optimization Of A CNC Machine Through Exploration Of Timed State Space	409
<i>Miguel A. Mujica, Miquel Angel Piera</i>	
Validating The Global Behavior Of A System Described With Scenarios Using GDEVs And Z.	416
<i>Wassim Trojet, Mamoun Sqali, Lucile Torres, Claudia Frydman, Amine Hamri</i>	
A Hyper-Heuristic Approach For Modeling Assignment Prioritization Rules On VRPTW	
Constructive Heuristic By Neural Networks	426
<i>Diego Crespo Pereira, David Del Rio Vilas, Alejandro Garcia Del Valle, Adolfo Lamas Rodriguez</i>	
Simulation-Based Optimization Of Process Network Synthesis Using Structured-State Reinforcement Learning	433
<i>Pedro Toledo, Jose Ignacio Estevez, Silvia Alayon, Jose Sigut</i>	
A Stochastic Model For Vehicular Resuspension Exposure Near Unpaved Roads.....	440
<i>A. Wellens, A. Jazcilevich, C. Siebe, I. Rosas, H. Riojas</i>	
Cooperation Among Production Chains To Mitigate Their Environmental Impact	445
<i>V. Albino, A. C. Garavelli, A. Messeni Petruzzelli, D. M. Yayan</i>	
Optimization Of Flows And Analysis Of Equilibria In Telecommunication Networks.....	452
<i>Ciro D'Apice, Rosanna Manzo, Luigi Rarita</i>	
Dynamic Stand Assignment To Improve Airport Gates Occupancy	461
<i>Miquel Angel Piera, Mercedes Narciso, Juan Jose Ramos, Toni Laserna</i>	
A Semantic Approach To Simulation Component Identification And Discovery	467
<i>Marianela Garcia Lozano, Farshad Moradi, Eneko Ibarzabal, Edward Tjornhammar</i>	
Risk Analysis For Industrial Plants Projects: An Innovative Approach Based On Simulation Techniques With Experimental Error Control.....	473
<i>Roberto Mosca, Agostino G. Bruzzone, Lucia Cassettari, Marco Mosca</i>	
Simulation As Support For Layout Redesign And Production Line Moving	479
<i>Marina Massei, Francesco Longo, Federico Tarone, Alberto Tremori</i>	
Simulation, Risks Modeling And Sensors Technologies For Container Terminals Security.....	486
<i>Francesco Longo, Giovanni Mirabelli, Alberto Tremori</i>	
Demand Forecasting. The Case Of An International Furniture Company	493
<i>Stefano Saetta, Lorenzo Tiacci</i>	
Author Index	