

Oldenburger Schriften zur
Wirtschaftsinformatik

**Marx Gómez / Baldoquín de la Peña
(Eds.)**

XII CLAIO



**Operations Research - Applications in
Business Informatics and
Soft Computing**

Selected Papers

Oldenburger Schriften zur Wirtschaftsinformatik

Band 1

Marx Gómez / Baldoquín de la Peña (Eds.)

XII CLAIO

Operations Research - Applications in
Business Informatics and Soft Computing

Selected Papers

Shaker Verlag
Aachen 2006

Bibliographic information published by the Deutsche Nationalbibliothek

The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available in the Internet at <http://dnb.d-nb.de>.

Copyright Shaker Verlag 2006

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the publishers.

Printed in Germany.

ISBN-10: 3-8322-5720-9

ISBN-13: 978-3-8322-5720-0

ISSN 1863-8627

Shaker Verlag GmbH • P.O. BOX 101818 • D-52018 Aachen

Phone: 0049/2407/9596-0 • Telefax: 0049/2407/9596-9

Internet: www.shaker.de • e-mail: info@shaker.de

Preface

The Latin-Ibero-American Conference on Operations Research (CLAIO), sponsored by the Latin-Ibero-American Association for Operational Research (ALIO, <http://www.dc.uba.ar/alio>), takes place biannually since 1982 in different Latin American cities. Their main goals are to further the exchange of experiences; to contribute, establish and deepen ties between researchers and practitioners in the region, as well as to help young undergraduate and graduate students in their professional development. The twelfth edition took place in 2004 in Havana, Cuba (XII CLAIO, <http://www.cujae.edu.cu/eventos/claiio>).

In the last years there has been a growing interest in the research, by the community of Operations Research, in subjects like Applications of the Operations Research to Public Management, Human Resources and Businesses as well as Informatics and Computer Sciences. In correspondence with it they were presented in the XII CLAIO a group of papers related with topics like Neural Networks, Technology Intelligence, Soft Computing, Artificial Intelligence, Knowledge Management, Information Systems with applications in areas like Business, Websites, Environment, etc.

A selected group of these papers are presented in this special issue.

November 2006

Jorge Marx Gómez
María Gulnara Baldoquín de la Peña

Editors

Prof. Dr.-Ing. Jorge Marx Gómez

Universität Oldenburg
Department für Informatik
Abt. Wirtschaftsinformatik
Ammerländer Heerstr. 114-118
26129 Oldenburg
Germany
jorge.marx.gomez@uni-oldenburg.de

Prof. Dr.-Lic. María Gulnara Baldoquín de la Peña

Technical University of Havana
Instituto Superior Politécnico José A Echeverría
Industrial Faculty
Calle 114, No. 11901 e/ y 127, Marianao
CP. 19390, C. Habana
Cuba
mgulnabp@yahoo.com

Program Committee

President: María Gulnara Baldoquín de la Peña

Members:

S. Allende (Cuba)
J. Barceló (Cuba)
A. Bofill (Cuba)
R. Hing (Cuba)
E. Michelena (Cuba)
M. Garay (Cuba)
L. García (Cuba)
J. Telot (Cuba)
A. Mesa (Cuba)
G. Joya (Spain)
A. Marín (Spain)
L. Pedreira (Spain)
L. Escudero (Spain)
J. Marx Gómez (Germany)
D. Hinrichssen (Germany)
J. Guddat (Germany)
I. Loisseau (Argentina)
I. Méndez (Argentina)
H. Scolnik (Argentina)
L. Quintas (Argentina)
L. Morales (Mexico)
M. Osorio (Mexico)
R. Rios (Mexico)
J. Rückman (Mexico)
L. Satoru (Brazil)
N. Maculan (Brazil)
C. Ribeiro (Brazil)
V. Parada (Chile)
C. Ortiz (Chile)
R. Weber (Chile)
A. Weintraub (Chile)
H. Cancela (Uruguay)

M. Urquart (Uruguay)
R. Meziat (Colombia)
Carlos J. Vidal (Colombia)
P. Michelon (France)
Silvano Martello (Italy)

Table of Contents

Predicting Sales of Liquefied Gas for Domestic Consumption by a Neural Network Approach: A Case Study	1
<i>Miguel Alfaro, Juan Sepulveda, Cristian Sugg</i>	
A Process Assignment Algorithm for a Broker on the Internet	13
<i>Carlos Gómez, Mauricio Solar, Mauricio Marín</i>	
A Neuro-Fuzzy Approach to Forecast Tracking	30
<i>Angél Maria Augusta Soares Machado, Luiz Alfredo Rodrigues Gaspar, André Machado Caldeira</i>	
Technology Intelligence System Design	44
<i>Eugenio López-Ortega, Tamara Alcantára-Concepción, Sonia Briceño-Vílora</i>	
Analysis by Neural Networks of the Influence of Press News in the Forecast of Common Stock Prices	54
<i>Pedro Palominos, Juan Sepulveda, Yeny Mendoza</i>	
A Framework for integrating Computerized Vehicle Routing Systems with Distribution Management in SMEs	67
<i>Juan Sepulveda, Emilio Herrera</i>	
The Use of Fuzzy Inference Systems to automatically identify Box & Jenkins Seasonal Structures	79
<i>Luiza Maria Oliveira da Silva, Maria Augusta Soares Machado, Reinaldo Castro Souza</i>	
Reapplication of Disassembly Products within Reactive Disassembly Planning	88
<i>Jorge Marx Gómez, Alexander Huber</i>	
Supermarket Category Performance Evaluation using Data Envelopment Analysis	101
<i>Maximo Bosch, Marcel Goic, Pablo Bustos</i>	

Application Usage Mining as Instrument of Process Improvement	112
<i>Gamal Kassem</i>	
Development and Validation of an XML Schema for Automated Environmental Reporting on XML Basis	129
<i>Jorge Marx Gómez, Christoph Hermann</i>	
Aonde.Com: A Search Engine	146
<i>Edgard Nogueira, Denis S. Silveira, Simone B. L. Ferriera, Eliane M. Loiola</i>	
Gestión del Conocimiento en la Implantación de ERP	155
<i>Broderick Crawford Labrin</i>	
Development of an eElection Application for University Purposes	167
<i>J. Lichtenberg, J. Marx Gómez</i>	