2009 IEEE Symposium on Computational Intelligence in Multi-Criteria Decision-Making (MCDM)

Nashville, TN, USA
30 March – 2 April 2009
TABLE OF CONTENTS

Special Session MCDM-1: Multi-Criteria Decision Making in Sensor Networks
Monday, March 30, 11:00AM-1:00PM, Room: Tulip Grove E, Chair: Viswanath Avasarala, GE CRD, USA

Autonomous Market-Based Approach for Resource Allocation in A Cluster-Based Sensor Network [#3] ............................................................................................................................................................................1
Wei Chen, Heh Miao and Koichi Wada
Tennessee State University, United States; Nagoya Institute of Technology, Japan

Localization Strategies for Large-Scale Airborne Deployed Wireless Sensors [#4] ........................................9
Saleh Zein-Sabatto, Vinayak Elangovan, Wei Chen and Richard Mgaya
Tennessee State University, United States

Generalized Neuron Based Secure Media Access Control Protocol for Wireless Sensor Networks [#8] ...16
Raghavendra Kulkarni, Ganesh Venayagamoorthy, Abhishek Thakur and Sanjay Madria
Missouri University of Science and Technology, United States

Using Bayesian Inference for Sensor Management of Air Traffic Control Systems [#35] ...........................23
Xiang Ye, Ganapathi Kamath and Lisa Osadciw
Syracuse University, United States

An Experimental Study on Agent Learning for Market-based Sensor Management [#31] .........................30
Viswanath Avasarala, Tracy Mullen, David Hall and Sudheer Tumu
GE CRD, United States; PSU, United States; Hetero Drugs, India

Session MCDM-2: Keynote Lecture 1
Monday, March 30, 3:00PM-4:00PM, Room: Tulip Grove E, Chair: Carlos A. Coello Coello, CINVESTAV-IPN, Mexico

Solving problems with 1,000,000 (or fewer) objectives
David Corne
Heriot-Watt University, United Kingdom

Session MCDM-3: Multi-Objective Metaheuristics and Applications I
Monday, March 30, 4:30PM-6:30PM, Room: Tulip Grove E, Chair: Carlos A. Coello Coello, CINVESTAV-IPN, Mexico
Evolutionary Multi-objective Optimization of Robustness and Innovation in Redundant Genetic Representations [#1] ..........................................................38
Yaochu Jin, Robin Gruna, Ingo Paenke and Bernhard Sendhoff
Honda Research Institute Europe, Germany; University of Karlsruhe, Germany

Fleet Mix Computation Using Evolutionary Multiobjective Optimization [#5] .........................................................46
Michael Mazurek and Slawomir Wesolkowski
CFAWC, Canada; DRDC CORA, Canada

Multiobjective Tuning of a Multitarget Tracking Algorithm using an Evolutionary Algorithm [#26] ............51
Barry Secrest and Gary Lamont
Air Force Institute of Technology, United States

On The Use of Informed Initialization and Extreme Solutions Sub-population in Multiobjective Evolutionary Algorithms [#12] .............................................................................................................................58
Dipankar Dasgupta, German Hernandez, Andres Romero, Deon Garrett, Aishwarya Kaushal and James Simien
The University of Memphis, United States; National University of Columbia, Colombia; Navy Personnel Research, Studies, and Technology, United States

SMPSO: A New PSO-based Metaheuristic for Multi-objective Optimization [#11] .................................................66
Antonio J. Nebro, Juan J. Durillo, Jose Garcia-Nieto, Carlos A. Coello Coello, Francisco Luna and E. Alba
University of Malaga, Spain; CINVESTAV-IPN, Mexico

Tutorial MCDM-T1: Metaheuristics for Multiobjective Optimization
Tuesday, March 31, 8:30AM-10:30AM, Room: Tulip Grove E, Instructor: Carlos A. Coello Coello, CINVESTAV-IPN, Mexico

Session MCDM-4: Multi-Objective Metaheuristics and Applications II
Tuesday, March 31, 11:00AM-1:00PM, Room: Tulip Grove E, Chair: Hernan Aguirre, Shinshu University, Japan

A Multiobjective Approach for Finding Equivalent Inverse Images of Pareto-optimal Objective Vectors [#27] ........................................................................................................................74
Guenther Rudolph and Mike Preuss
TU Dortmund University, Germany

An Empirical Comparison of Memetic Algorithm Strategies on the Multiobjective Quadratic Assignment Problem [#22] ...............................................................................................................80
Deon Garrett and Dipankar Dasgupta
University of Memphis, United States
A Unified Model for Evolutionary Multi-objective Optimization and its Implementation in a General Purpose Software Framework [#34] ................................................................. 88
Arnaud Liefooghe, Laetitia Jourdan and Talbi El-Ghazali
LIFL, INRIA Lille Nord Europe, Universite des Sciences et Technologies de Lille, France

Multi-objective functional analysis for product portfolio optimization [#29] ........................................ 96
Amitabha Mukerjee and Madan Mohan Dabbeeru
Indian Institute of Technology Kanpur, India; Indian Institute of Technology Kanpur, India

Adaptive epsilon-Ranking on MNK-Landscapes [#30] ......................................................................... 104
Hernan Aguirre and Kiyoshi Tanaka
Shinshu University, Japan

Session MCDM-5: Decision Making Techniques
Tuesday, March 31, 2:20PM-4:00PM, Room: Tulip Grove E, Chair: Guenter Rudolph, TU Dortmund University, Germany

Visualization of Client Service Events Statistics [#14] ........................................................................... 112
Alexandre Zolotovitski
Sun Microsystems Inc, United States

Modelling Bipolar Multicriteria Decision Making [#23] ....................................................................... 115
J. Tinguaro Rodriguez, Begona Vitoriano, Javier Montero and Daniel Gomez
Complutense University, Spain

Aggregation and Coalition Formation on Value-based Decision [#19] .................................................... 118
Christiono Utomo, ArazI Idrus, Madzian Napiah and Mohd. Faris Khamidi
Universiti Teknologi PETRONAS, Malaysia

Robust Model Selection Decision-making using a Fuzzy Supervisory Approach [#20] ..................... 126
Xiao Hu, Piero Bonissone and Raj Subbu
GE Global Research Center, United States

Tutorial MCDM-T2: Evolutionary Programming with Diversity Enhancement and Ensemble Strategies
Tuesday, March 31, 4:30PM-6:30PM, Room: Tulip Grove E, Instructor: Ponnuthurai Nagaratnam Suganthan, Nanyang Technological University, Singapore

Tutorial MCDM-T3: An Introduction to Computational Intelligence in Multi-Criteria Decision-Making
Wednesday, April 1, 8:30AM-10:30AM, Room: Tulip Grove E, Instructor: Piero Bonissone, GE Global Research, USA
Session MCDM-6: Integration of Techniques to Support Multi-Criteria Decision Making
Wednesday, April 1, 11:00AM-1:00PM, Room: Tulip Grove E, Chair: Oscar Cordon, European Centre for Soft Computing, Spain

Comparison of Two Prototype-Based Multicriteria Classification Methods [#25] ........................................ 133
Amaury T. Brasil Filho, Placido R. Pinheiro, Andre L. V. Coelho and Nathanael C. Costa
University of Fortaleza, Brazil

Interactive Genetic Fuzzy Rule Selection through Evolutionary Multiobjective Optimization with User Preference [#36] ........................................................................................................................................ 141
Yusuke Nojima and Hisao Ishibuchi
Osaka Prefecture University, Japan

Semantic Multi-Criteria Decision Making SeMCDM [#18] ........................................................................................................ 149
Ghadi Mahmoudi and Christian Mueller-Schloer
Institute for Rechner- und SystemArchitektur, University of Hannover, Germany

Integration of an EMO-based Preference Elicitation Scheme into a Multi-objective ACO Algorithm for Time and Space Assembly Line Balancing [#13] ...................................................................................................... 157
Manuel Chica, Oscar Cordon, Sergio Damas and Joaquin Bautista
European Centre for Soft Computing, Spain; Nissan Chair - Universitat Politecnica de Catalunya, Spain

Session MCDM-7: Keynote Lecture 2
Wednesday, April 1, 3:00PM-4:00PM, Room: Tulip Grove E, Chair: Piero Bonissone, GE Global Research, USA

Evolutionary Multi-objective Optimization in Uncertain Environments
Kay Chen Tan
National University of Singapore, Singapore

AUTHOR INDEX