2007 IEEE Symposium on Computational Intelligence in Multicriteria Decision Making
Hilton Hawaiian Village Beach Resort & Spa

Program Chairs: Piero Bonissone, Carlos Coello Coello, Yaochu Jin

Technical Program

Monday, April 2, 2007

Session Title: Plenary and Planning
Session Chair: Carlos Coello Coello
M-AM1: 8:00am-10:00am
Lehua Suite
8:00am

Plenary Lecture
“Multi-criteria decision-making: The intersection of search, preference tradeoff, and interaction visualization processes”
by Piero Bonissone

9:00am
“Fuzzy multi-objective mission flight planning in unmanned aerial systems” by Paul Wu, Reece Clothier, Duncan Campbell and Rodney Walker

9:30am
“UAV swarm mission planning and routing using multi-objective evolutionary algorithms” by Gary Lamont, James Slear and Kenneth Melendez

10:00am-10:15am BREAK

Session Title: Plenary and MOEA with Imprecision
Session Chair: Piero Bonissone
M-AM2: 10:15am-12:15pm
Lehua Suite
10:15am

Plenary Lecture
“Tools and techniques for managing many-criteria decision-making” by Peter Fleming

11:15am
“MCDM techniques selection approaches: State of the art” by Elena Kornyshova and Camille Salinesi

11:45am
“Modeling vague data with genetic fuzzy systems under a combination of crisp and imprecise criteria” by Luciano Sanchez, Ines Couso and Jorge Casillas

12:15pm-1:15pm BREAK

Session Title: MOEA with Imprecision and Fuzziness
Session Chair: Luciano Sanchez
M-PM1: 1:15pm-3:15pm
Lehua Suite
1:15pm

“Robust basis of interval multiobjective linear and quadratic programming” by Masaaki Ida

1:45pm
“Relation between Pareto-optimal fuzzy rules and Pareto-optimal fuzzy rule sets” by Hisao Ishibuchi, Isao Kuwajima and Yusuke Nojima

2:15pm
“Multiobjective genetic algorithm for extracting subgroup discovery fuzzy rules” by Pedro Gonzalez, Maria Jose del Jesus and Francisco Herrera

2:45pm
“Fuzzy optimization with multi-objective evolutionary algorithms: A case study” by Gracia Sanchez, Fernando Jimenez and Pandian Vasant

3:15pm-3:30pm BREAK
**Session Title: MOEA with Uncertainty**
Session Chair: Hisao Ishibuchi and Hideki Katagiri

**M-PM2: 3:30pm-5:30pm**
**Lehua Suite**

3:30pm
“Strategy generation under uncertainty using Bayesian networks and black box optimization” by Eli Faulkner

4:00pm
“An interactive fuzzy satisficing method through particle swarm optimization for multiobjective nonlinear programming problems” by Takeshi Matsui, Koichi Tamada, Kosuke Kato, Takeshi Uno and Masatoshi Sakawa

4:30pm
“Interactive fuzzy programming through genetic algorithm for two-level integer programming problems involving random variable constraints” by Kosuke Kato and Masatoshi Sakawa

5:00pm
“Decision making under subjective uncertainty” by Fabio Campos, Andre Neves and Fernando Campello de Souza

5:30pm-7:00pm BREAK

7:00pm-9:00pm
**M-Poster Session**
**Coral Ballroom I/II**

Poster Paper #1
“A multi-objective solution applying MOEA in optical networks” by Yezid Donoso, Carolina Alvarado, Alfredo Perez and Ivan Herazo

Poster Paper #2
“An application of interactive fuzzy satisfying approach with particle swarm optimization for multiobjective emergency facility location problem with A-distance” by Takeshi Uno, Sakawa Masatoshi, Kato Kosuke and Katagiri Hideki

Poster Paper #3
“Fuzzy decision support for service selection in E-business environments” by Stefan Schmidt, Elizabeth Chang, Tharam Dillon and Robert Steele

**Tuesday, April 3, 2007**

**Session Title: Multiobjective Machine Learning (MOML)**
Session Chair: Yaochu Jin

**T-AM1: 8:00am-10:00am**
**Lehua Suite**

8:00am
“Variants of differential evolution for multi-objective optimization” by Karin Zielinski and Rainer Laur

8:30am
“Managing population diversity through the use of weighted objectives and modified dominance: An example from data mining” by Alan Reynolds and Beatriz de la Iglesia

9:00am
“Use of radial basis functions and rough sets for evolutionary multi-objective optimization” by Luis V. Santana-Quintero, Victor Serrano-Hernandez, Carlos A. Coello Coello, Alfredo Hernandez-Diaz and Julian Molina

9:30am
“Deciding on the ideal channel coefficients in multi-channel manufacturing” by Feristah Ozcelik
10:00am-10:15am BREAK

**Session Title: Plenary and MOML**  
Session Chair: Naresh Yier  
**T-AM2: 10:15am-12:15pm**  
Lehua Suite  
10:15am  
*Plenary Lecture*  
“Multi-criterial decision-making and the cognitive architecture of problem solving” by B. Chandrasekaran

11:15am  
“Nonlinear dynamic system identification based on multiobjectively selected RBF networks” by Nobuhiko Kondo, Toshiharu Hatanaka and Katsuji Uosaki

11:45am  
“Improving classifier fusion using particle swarm optimization” by Kalyan Veeramachaneni, Lisa Osadciw, Kai Goebel and Yan Weizhong

12:15pm-1:15pm BREAK

**Session Title: MCDM Applications 1**  
Session Chair: Peter Fleming  
**T-PM1: 1:15pm-3:15pm**  
Lehua Suite  
1:15pm  

1:45pm  
“Development of an integrated decision support system to aid the cognitive activities of operators in main control rooms of nuclear power plants” by Seung Jun Lee, Kun Mo and Poong Hyun Seong

2:15pm  
“A new MCDM approach to solve public sector planning problems” by Pervin Kaplan and S. Ranji Ranjithan

2:45pm  
“Tradeoffs on the efficient frontier of network disruption attacks” by Mark Carroll, John Josephson and James Russell

3:15pm-3:30pm BREAK

**Session Title: Interactive Visualization**  
Session Chair: John R. Josephson  
**T-PM2: 3:30pm-5:30pm**  
Lehua Suite  
3:30pm  
“A proposal of visualization of multi-objective Pareto solutions: Development of mining technique for solutions” by Daisuke Yamashiro, Tomohiro Yoshikawa and Takeshi Furuhashi

4:00pm  
“A proposal of visualization of multi-objective Pareto solutions: Development of mining technique for solutions” by Daisuke Yamashiro, Tomohiro Yoshikawa and Takeshi Furuhashi

4:30pm  
“Interactive utility maximization in multi-objective vehicle routing problems: A ‘decision maker in the loop’ approach” by Martin Josef Geiger, Wolf Wenger and Walter Habenicht

5:00pm  
“Exploring robustness of plans for simulation-based COA planning: An illustrative example” by B. Chandrasekaran and Mark Goldman

5:30pm-7:00pm BREAK

7:00pm-9:00pm  
**T-Poster Session**  
Coral Ballroom I/II
Poster Paper #4  
“Use of the WFG toolkit and PISA for comparison of MOEAs” by Lucas Bradstreet, Luigi Barone, Lyndon While, Simon Husband and Philip Hingston

Poster Paper #5  
“Determination of pruned Pareto sets for the multi-objective system redundancy allocation problem” by Sadan Kulturel-Konak and David W. Coit

Poster Paper #6  
“Stability of optimal solutions: Multi- and single-objective approaches” by Alex Podgaets and Wubbo Ockels

Wednesday, April 4, 2007

Session Title: MCDM Applications 2  
Session Chair: Raj Subbu  
W-AM1: 8:00am-10:00am  
Lehua Suite  
8:00am  
“The interactive Pareto iterated local search (iPILS) metaheuristic and its application to the biobjective portfolio optimization problem” by Martin Josef Geiger

8:30am  
“ISM band antenna design based on fuzzy MCDM selection technique” by Sai Ho Yeung, Kim Fung Man and Wing Shing Chan

9:00am  
“Prediction of stock price movements based on concept map information” by Ankit Soni, Nees Jan van Eck and Uzay Kaymak

9:30am  
“Multi-criteria identification of a controllable descending system” by Vladimir Dobrokhodov and Roman Statnikov

Session Title: Plenary and Preferences in Decision Making  
Session Chair: Matthias Ehrgott  
W-AM2: 10:15am-12:15pm  
Lehua Suite  
10:15am  
Plenary Lecture  
“Fuzzy methods for constructing multi-criteria decision functions” by Ronald Yager

11:15am  
“Efficient decision making with interactions between goals” by Rudolf Felix

11:45am  
“Multicriterion decision making with dependent preferences” by Wynn Stirling, Richard Frost, Matthew Nokleby and Yabing Luo

12:15pm-1:15pm BREAK

Session Title: Preferences in Decision Making  
Session Chair: B. Chandrasekaran  
W-PM1: 1:15pm-3:15pm  
Lehua Suite  
1:15pm  
“An interactive approach to integer linear vector optimization problems using enumerative cuts” by Walter Habenicht

1:45pm  
“Stackelberg solutions to stochastic two-level linear programming problems” by Hideki Katagiri, Ichiro Nishizaki, Masatoshi Sakawa and Kosuke Kato

2:15pm  
“Finding Representative Nondominated Points in Multiobjective Linear Programming” by Lizhen Shao and Matthias Ehrgott

10:00am-10:15am BREAK
2:45pm
“On the Convergence of Multi-Objective Descent Algorithms” by Martin Brown and Nicky Hutauruk

3:15pm-3:30pm BREAK

Session Title: Integrations and Applications
Session Chair: Rudolph Felix
W-PM2: 3:30pm-5:30pm
Lehua Suite
3:30pm
“A multi-objective genetic algorithm for optimizing highway alignments” by Manoj Jha
4:00pm
“A decision making framework for dressing consultant” by Ching-I Cheng and Damon Shing-Min Liu
4:30pm
“Automated risk classification and outlier detection” by Naresh Iyer and Piero Bonnisone
5:00pm
“Obtaining robust decisions under uncertainty by sensitivity analysis on OWA operator” by Mahdi Zarghaami, Reza Ardakanian and Ferenc Szidaroszky

5:30pm-7:00pm BREAK

7:00pm-9:00pm BANQUET
Coral Ballrooms I/II/III

Thursday, April 5, 2007

Session Title: Multiobjective Evolutionary Algorithms (MOEAs)
Session Chair: B. de la Iglesia
Th-AM1: 8:00am-10:00am
Lehua Suite

8:00am
“Fuzzy multiple attribute decision making with eight types of preference information on alternatives” by Quan Zhang, Wang Yucai and Yang Yuxian
8:30am
“The application of agent-based co-evolutionary system with predator-prey interactions to solving multi-objective optimization problems” by Rafal Drezewski and Leszek Siwik
9:00am
“Solving the molecular sequence alignment problem with generalized differential evolution 3 (GDE3)” by Saku Kukkonen, Sujit Jangam and Nirupam Chakraborti
9:30am
“Local dominance including control of dominance area of solutions in MOEAs” by Hiroyuki Sato, Hernan Aguirre and Kiyoshi Tanaka
10:00am-10:15am BREAK

Session Title: Plenary and MCDM Applications 3
Session Chair: Xin Yao
Th-AM2: 10:15am-12:15pm
Lehua Suite
10:15am
Plenary Lecture
“Two decades Of evolutionary multi-criterion optimization: A glance back and a look ahead” by Eckart Zitzler
11:15am
“Combining aspiration level methods in multi-objective programming and sequential approximate optimization using computational intelligence” by Hirotaka Nakayama and Yeboon Yun
11:45am
“Playing in the objective space: Coupled approximators for multi-objective optimiz-ation” by Harold Soh, Yew Soon Ong, Mohamed Salahuddin and Terence Hung

12:15pm-1:15pm BREAK

Session Title: MCDM Applications 4
Session Chair: Eckhart Zitzler
Th-PM1: 1:15pm-3:15pm
Lehua Suite
1:15pm
“Crowding population-based ant colony optimisation for the multi-objective travelling salesman problem” by Daniel Angus

1:45pm
“Visualization tools for multicriteria analysis of the prototype improvement problem” by Roman Statnikov, Kivanc Anil, Alex Bordetsky and Alexander Statnikov

2:15pm
“A spatial classification model for multicriteria analysis” by Ana Del Amo, Luis Garmendia, Daniel Gomez and Javier Montero

2:45pm
“A two-level information filtering model for warning systems” by Jun Ma, Jie Lu and Guanquan Zhang