Contents

Section I: Plenary Presentations
Evolution Toward a New State of Multi-criteria Decision Making
Po Lung Yu

The Seven Pillars of the Analytic Hierarchy Process
Thomas L. Saaty

Section II: Structural Issues of MCDM
General Structure
Learning Aspects of Decision Aids
David L. Olson, Alexander Mechitov, Helen Moshkovich

Information Overload: A Decision Making Perspective
John Buchanan, Ned Kock

What is the Relative Importance of Criteria and how to Use it in MCDM
Vladimir D. Noghin

Decision-Maker Centred MCDM: Some Empirical Tests and their Implications
Cathal M. Brugha

Comparing Numerical and Verbal Decision Analysis Using an Arctic Resource Management Problem
Oleg I. Lariechev, Rex V. Brown

On Testing Performance of a Negotiation Procedure in Distributed Environment
Przemyslaw Polak, Tomasz Szapiro

An Artificial Neural Network Approach to Multicriteria Model Selection
Fusun Ulengin, Y. Ilker Topcu, Süle Onsel Sahin

Combinatorial and Methodological Structure
A New Technique to Compare Algorithms for Bi-criteria Combinatorial Optimization Problems
Bosun Kim, Esma S. Gel, W. Matthew Carlyle, John W. Fowler
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-attribute Sorting of Qualitative Objects in Multiset Spaces</td>
<td>124</td>
</tr>
<tr>
<td><em>Alexey B. Petrovsky</em></td>
<td></td>
</tr>
<tr>
<td>Classification of Nondominated Solutions in Multiple Objective Linear</td>
<td>132</td>
</tr>
<tr>
<td>Integer Programming Problems</td>
<td></td>
</tr>
<tr>
<td><em>Rui Pedro Lourenço, João Paulo Costa</em></td>
<td></td>
</tr>
<tr>
<td>Competence Set Analysis: An Effective Means to Solve Non-trivial</td>
<td>142</td>
</tr>
<tr>
<td>Decision Problems</td>
<td></td>
</tr>
<tr>
<td><em>Chin-I Chiang, Po Lung Yu</em></td>
<td></td>
</tr>
<tr>
<td>Distributed Database Design Using Multiple Criteria: A New Method</td>
<td>152</td>
</tr>
<tr>
<td><em>Ambrose Goicoechea</em></td>
<td></td>
</tr>
<tr>
<td>Section III: Theoretical Issues of MCDM</td>
<td>163</td>
</tr>
<tr>
<td>Discrete Alternative Problems</td>
<td>163</td>
</tr>
<tr>
<td>PRIME Decisions: An Interactive Tool for Value Tree Analysis</td>
<td>165</td>
</tr>
<tr>
<td><em>Janne Gustafsson, Ahti Salo, Tommi Gustafsson</em></td>
<td></td>
</tr>
<tr>
<td>Using Intervals for Global Sensitivity Analyses in Multiattribute</td>
<td>177</td>
</tr>
<tr>
<td>Value Trees</td>
<td></td>
</tr>
<tr>
<td><em>Mats R.K. Lindstedt, Raimo P. Hämäläinen, Jyri Mustajoki</em></td>
<td></td>
</tr>
<tr>
<td>Continuous Solution Space Problems</td>
<td>187</td>
</tr>
<tr>
<td>Characterization of the Benson Proper Efficiency and Scalarization</td>
<td>189</td>
</tr>
<tr>
<td>in Nonconvex Vector Optimization</td>
<td></td>
</tr>
<tr>
<td><em>Rafail N. Gasimov</em></td>
<td></td>
</tr>
<tr>
<td>Problems in Scalarizing Multicriteria Approaches</td>
<td>199</td>
</tr>
<tr>
<td><em>Petra Weidner</em></td>
<td></td>
</tr>
<tr>
<td>Decision Analysis of the Interval-Valued Multiobjective Linear</td>
<td>210</td>
</tr>
<tr>
<td>Programming Problems</td>
<td></td>
</tr>
<tr>
<td><em>Hsiao-Fan Wang, Miao-Ling Wang</em></td>
<td></td>
</tr>
<tr>
<td>Computing Nadir Values in Three Objectives</td>
<td>219</td>
</tr>
<tr>
<td><em>Matthias Ehrgott, Dagmar Tenfelde-Podehl</em></td>
<td></td>
</tr>
<tr>
<td>Combinatorial Problems</td>
<td>229</td>
</tr>
<tr>
<td>Multiple Objective Genetic Local Search Algorithm</td>
<td>231</td>
</tr>
<tr>
<td><em>Andrzej Jaszkiewicz</em></td>
<td></td>
</tr>
<tr>
<td>Bounds and Bound Sets for Biobjective Combinatorial Optimization</td>
<td>241</td>
</tr>
<tr>
<td>Problems</td>
<td></td>
</tr>
<tr>
<td><em>Matthias Ehrgott, Xavier Gandibleux</em></td>
<td></td>
</tr>
</tbody>
</table>
Quick Evaluation of the Efficient Solution Set for the Biobjective Knapsack Problem  
*Xavier Gandibleux*

254

An Interactive Genetic Algorithm Applied to the Multiobjective Knapsack Problem  
*Selcen Pamuk, Murat Köksalan*

265

Evolutionary Algorithms for Multicriteria Optimization of Program Module Allocations  
*Jerzy Balicki*

273

**Problems of Group Decision Support**  

Treating Ordinal Criteria in Stochastic Weight Space Analysis  
*Kaisa Miettinen, Pekka Salminen, Risto Lahdelma*

283

Modification of the Nominal Group Technique by Using the Analytic Hierarchy Process  
*Rafikul Islam*

285

The Priorities Aggregation Approach in Unequal Power Group Decision Making  
*Chang-Ming Yan, Ludmil Mikhailov*

294

Solving a Co-operative Two-person Game under Uncertainty Using Multiple Criteria Optimization  
*Moussa Labani, Farida Achemine*

304

**Section IV: Applications of MCDM**  

**Production Problems**  

A Multi-criteria Model for Warehouse Layout Design  
*Massoud Bazargan-Lari*

325

Multi-objective Optimization of Lot Size Balancing for Multi-products Selective Disassembly  
*Elif Kongar, Surendra M. Gupta*

327

An Internet System to Apply the Balanced Scorecard Concept to Supply Chain Management  
*Ralph Scheubrein, Beate Bossert*

338

**Problems of the Environment**  

Prioritizing Clean-up of Contaminated Lightstation Sites  
*Larry Jenkins*

348

359

361
Environmental Application of the Feasible Goals Method: Screening of Water Quality Improvement Strategies
*Alexander A. Lotov, Lioubov V. Bournistrova, Roman V. Efremov, Vladimir A. Bushenkov*

Choosing a Reparation Method for a Landfill by Using the SMAA-O Multicriteria Method
*Risto Lahdelma, Pekka Salminen, Ari Simonen, Joonas Hokkanen*

**Problems Involving Human Resources**

Personnel Selection Using a Fuzzy MCDM Approach Based on Ideal and Anti-ideal Solutions
*E. Ertugrul Karsak*

A Decision Model, via Integer Goal Programming, for Hiring and Promoting Staff in the Departments of a University
*Rafael Caballero, Mercedes González, Monica Hernández, Mariano Luque, Julian Molina, Francisco Ruiz*

**Other Applications**

Multiple Attribute Probabilistic Assessment of the Performance of Some Airlines
*Alan Jessop*

Data Mining in Credit Card Portfolio Management: A Multiple Criteria Decision Making Approach
*yong Shi, Morgan Wise, Ming Luo, Yachen Lin*

Issues in the Development of a Multi-objective GA to Optimise Traffic Signal Controller Parameters
*Tessa Sayers*

From a Data Base to a Reference for Workplace Accident Prevention
*Maria Franca Norese, Provino Meles, Gianmario Mollea*

A Multi-criteria Approach for Power Generation Expansion Planning
*Vladimir I. Kalika, Shimon Frant*

Integrated Approaches for Determining the Turkish Naval Force Structure by Using the Analytic Hierarchy Process and Goal Programming Methods
*Günay Uzun, Demet Bayraktar*

**List of Reviewers**

**Author Index**
Multiple Criteria Decision Making in the New Millennium
Proceedings of the Fifteenth International Conference
on Multiple Criteria Decision Making (MCDM) Ankara,
Turkey, July 10-14, 2000
Köksalan, M.; Zionts, S. (Eds.)
2001, XII, 482 p. 1 illus., Softcover
ISBN: 978-3-540-42377-5