

International Society on Multiple Criteria Decision Making



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Letter from the President

Dear Members,

With very positive experiences related to the 21st International Conference on Multiple Criteria Decision Making (MCDM2011), I am happy to start my four-year term as the President of the International Society on Multiple Criteria Decision Making. Once again, warm thanks to you members for voting me as the president. I am following the path paved by Stan Zionts, Ralph Steuer, Pekka Korhonen, Val Belton, Theo Stewart and Jyrki Wallenius and am naturally very honoured.

We have never before had over 300 participants in the history of MCDM conferences and it was very positive to see that Jyväskylä and MCDM2011 attracted such a large number of both theoreticians, method and software developers and people applying MCDM methods in numerous fields including environment and policy (being the conference theme) and engineering, healthcare, economics, etc. It was a great pleasure to meet old friends and get to know new people interested in MCDM. More information about MCDM2011 is available in this newsletter and at www.jyu.fi/mcdm2011.

During the MCDM2011 conference, the location of the following conference, *MCDM2013*, was decided. It will be organized at the University of Malaga in Spain on June 17-21, 2013 and the general chair will be Francisco Ruiz who will also continue as the secretary of our society. The program committee co-chairs will be Rafael Caballero and Carlos Romero. I am sure that Francisco and his team will prepare an excellent conference and hope to see many of you there!

In addition to the main conference of our field, in 2013, the International *Summer School* on MCDM will also be organized. Information about the dates etc. will be published at the society's website as soon as possible. Summer Schools are mainly directed at (PhD) students and typically last around two weeks. During MCDM2011, an increasing need of *tutorials* was emphasized introducing methods and terminology of MCDM to the large number of people who apply or want to apply MCDM methods in their fields. This is definitely an important challenge for our society and we should do our best to answer this need.

Our society has about 1700 members in 97 countries, which makes it highly international. In MCDM2011 we had participants from over 40 countries and new members are most welcome to join the society. Because the society has no fees, it is very easy to join at the society's website www.mcdmsociety.org!

Please, remember that MCDM-Discussion is an *electronic discussion list* for sharing information about MCDM in all its aspects. The list is non-moderated and non-digested. MCDM-Discussion is a great place to ask questions and communicate with the membership, so do not hesitate to use it. Further information can be found at the society's website.

I want to thank Jyrki Wallenius for his efforts as the President of the society and congratulate Murat Köksalan who became the President-Elect of the society in Jyväskylä. No election was needed because there were no other candidates. For the same reason we already know that Birsan Karpak will continue as the Vice-President of Finance.

As an outcome of the societies' elections, four new members have joined the executive committee: The new members are Kalyanmoy Deb, Salvatore Greco, Carlos Romero and Jaap Spronk (in alphabetical order). It will be a pleasure to work with all these colleagues! Furthermore, our society is seeking a volunteer Newsletter Editor to continue the good work that Martin has done for many years. Many thanks, Martin!

Murat Köksalan, Jyrki Wallenius and Stanley Zionts have written an interesting book entitled MCDM: From Early History to the 21st Century, which was advertised in MCDM2011. It provides valuable insight and serves well as an informal history of MCDM.

Finally, I would also like to remind you of the email addresses

President (at) mcdmsociety.org,
President-elect (at) mcdmsociety.org,
Secretary (at) mcdmsociety.org and
Newsletter (at) mcdmsociety.org.

If you wish to contact some officers of the society, you do not necessarily need to remember who that person is!

Have a nice autumn!

Kaisa Miettinen
President of the International Society on MCDM
President (at) mcdmsociety.org



Looking for a Volunteer as the Newsletter Editor

The executive committee of the International Society on Multiple Criteria Decision Making is seeking a Newsletter Editor for the four-year term 2011-2015 starting from September 2011. The newsletter of the society is electronic and is published twice a year. The Newsletter Editor is automatically a member of the executive committee. The newsletter informs the members of the society about the activities of the society and developments in the MCDM field including conferences, other relevant events and publications. The newsletter editor collects the material in collaboration with the executive committee and prepares the newsletter.

Past issues of the Newsletter can be seen at <http://mcdmsociety.org/MCDMNews/>.

If you are interested in becoming the Newsletter Editor, send email to president@mcdmsociety.org before September 2, 2011, briefly indicating your motivation and possible experience in similar tasks.



The 21st International Conference on Multiple Criteria Decision Making

Jyväskylä, Finland,
June 13-17, 2011
www.jyu.fi/mcdm2011

- **311** registered participants (1/4 of whom women) from **41** countries across **6** continents
- **245** talks and **15** posters scheduled
- **3** plenary, **28** invited and **40** contributed sessions (max. **5** in parallel)
- **87** students/PhD students

The 21st International Conference on Multiple Criteria Decision Making (MCDM2011) was the 21st of the biennial conferences of the International Society on Multiple Criteria Decision Making (www.mcdmsociety.org). It was organized and held at the University of Jyväskylä, Finland, and co-organized by the Aalto University in Helsinki, Finland, which conducted a pre-conference seminar and an intensive course for young scientists.

The MCDM2011 Organizing Committee consisted of the following people:

- **Kaisa Miettinen** (General Chair), University of Jyväskylä, Department of Mathematical Information Technology
- **Jussi Hakanen**, University of Jyväskylä, Department of Mathematical Information Technology
- **Pekka Salminen**, University of Jyväskylä, School of Business and Economics
- **Tero Tuovinen**, University of Jyväskylä, Department of Mathematical Information Technology
- **Hannele Wallenius**, Aalto University, School of Science and Technology
- **Marja-Leena Rantalainen** (Secretary), University of Jyväskylä, Department of Mathematical Information Technology.

Program Committee co-chairs were **Pekka Korhonen** and **Jyrki Wallenius**, Aalto University, School of Economics.

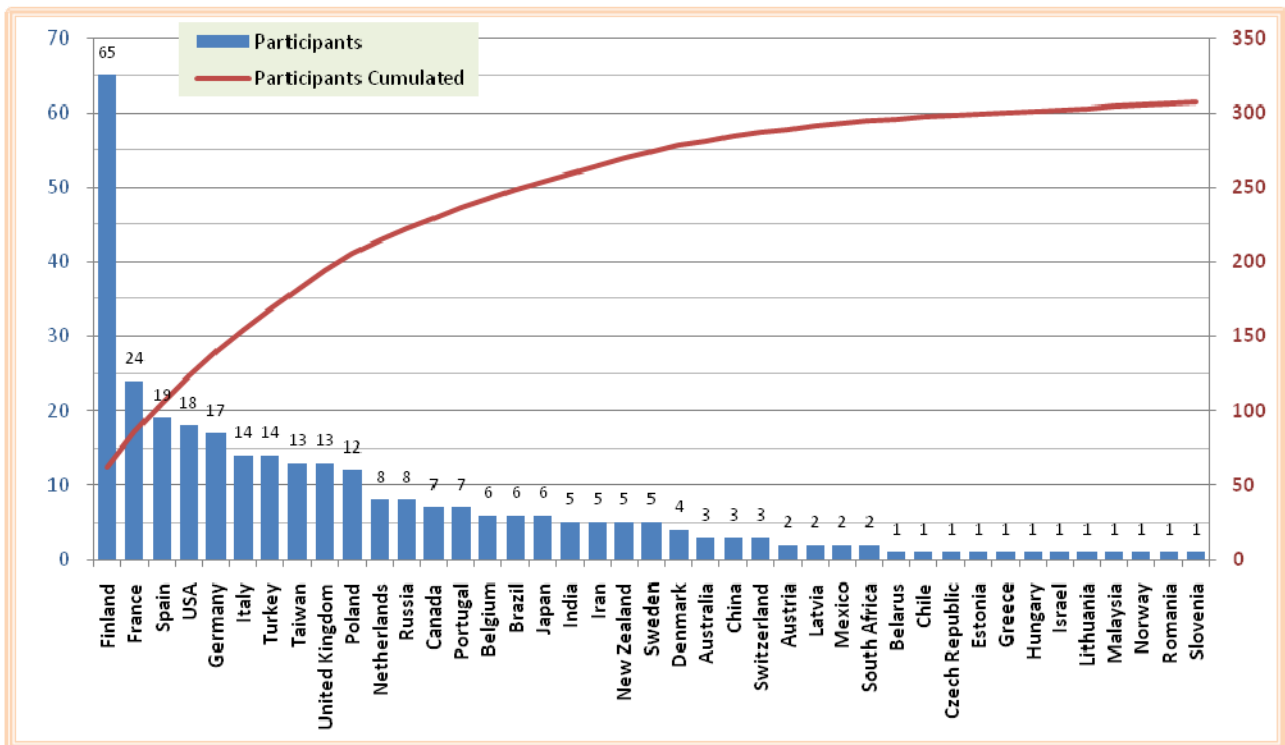
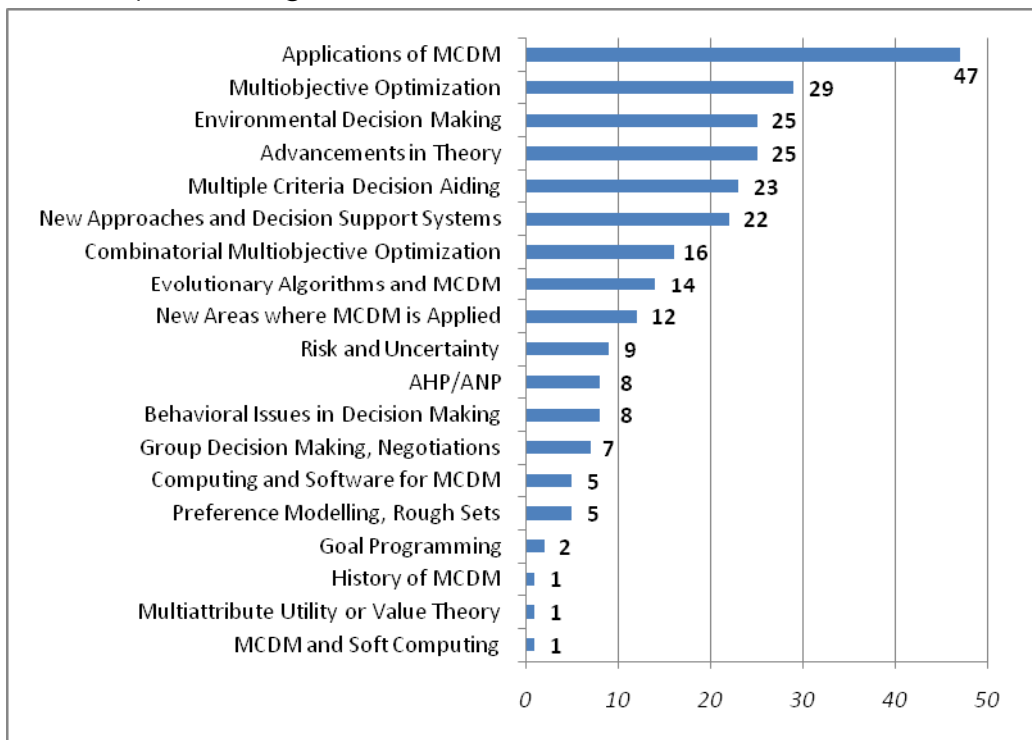


Diagram of registered participants by country

The MCDM2011 Conference presentations were distributed among topics as follows (according to how authors classified their own abstracts):



One should take this diagram with some reservation, as some topics intersect, and many of presented works could be fairly attributed to multiple different research fields.

MCDM2011 made **the record** in the number of participants in the history of MCDM conferences. The theme of the conference was environment and policy. It was very positive that both people developing theory and methods and people applying the MCDM methods in various fields (including healthcare and engineering) attended the conference.



The conference was opened by **Aino Sallinen**, rector of the University of Jyväskylä. Plenary talks were given by **Jared Cohon**, **Jyrki Kangas** and **Stanley Zionts**. **Jyrki Wallenius** chaired a panel and business meeting of the society. In the closing session, the general chair of MCDM2011, **Kaisa Miettinen** started her four-year term as the President of the society following Jyrki Wallenius in this position.



It was the first time Finland hosted the MCDM conference. According to the traditions of the society, besides the extensive scientific program, conference organizers offered to participants many attractions introducing various faces of Finnish culture, such as music and dance performances, outdoor activities and smoke sauna during the half-day outing, traditional Finnish cuisine in the banquet and mid-night sightseeing of breathtaking landscapes during the boat cruise.

Warm thanks to sponsors are in order because they enabled keeping the registration fee at a low level: Foundation of Economic Education, The Federation of Finnish Learned Societies, Jenny and Antti Wihuri Foundation, City of Jyväskylä, Metsähallitus and Fingrid.



MCDM Awards 2011

The International Society on MCDM has three scientific awards for scholars who have made an exceptional career in the field of MCDM. These awards are The MCDM Gold Medal, The MCDM Edgeworth-Pareto Award, and The Georg Cantor Award. The awards will be traditionally announced and presented in the banquet of the international conference of the society. The conferences will be held approximately every second year. The awardees are expected to give a lecture at the same international conference at which they receive an award.

The awards were presented for the first time in 1992 at the Taipei conference. The father of the idea, Ralph Steuer, spoke about the awards with various people already in 1990 in Fairfax (Virginia). Ralph's idea was not only to present the awards, but also to make their appearance prestigious. In Taipei, Ralph together with Yacov Haimes and Wolfram Stadler formulated the texts for the awards and Gwo-Hshiong Tzeng offered the possibility to produce the plaques for the awards in Taiwan. Since then Tzeng has carried the plaques to all international MCDM-conferences.

All members of the Society are eligible to make nominations to the Awards Committee. The final decision is made by the Awards Committee which is appointed by the Executive Committee of the Society. The current committee consists of the following members: Pekka Korhonen (chair), Murat Köksalan, Benedetto Matarazzo, Hirotaka Nakayama, Carlos Romero, Jaap Spronk, Jyrki Wallenius (ex officio), and Detlof von Winterfeldt. All members of the committee are ex-awardees.

This year the committee received six proposals. All candidates were good and each of them could have been a possible awardee. However, the committee considered that none of the candidates was superior compared to the other candidates and decided not to give the gold medal to any of the candidates. The final decision of the committee was to present The MCDM Edgeworth-Pareto Award to Professor Matthias Ehrgott and The Georg Cantor Award to Professor Tetsuzo Tanino.

Matthias Ehrgott is Professor and Head of Department of Engineering Science at the University of Auckland, New Zealand. Matthias obtained his Diploma in Management Mathematics (1992), PhD in Mathematics (1997) and Habilitation in Mathematics (2001) from the University of Kaiserslautern, Germany. Matthias has been actively involved in the MCDM Society and has been a member of its Executive Committee since 2002. He is currently also Vice President of the Operations Research Society of New Zealand (since 2007). He has been involved in organizing the MCDM Cluster at IFORS 2005 Hawaii, the MOPGP Conference in Tours 2006, the MCDM Conference 2008 in Auckland, and the EMO Conference 2009 in Nantes (and hence been an editor of the proceedings of the 3 major MCDM related international conferences).

To date, he has published 3 authored books, 10 edited books, 6 special issues of journals, 8 book chapters, 57 journal papers and 18 refereed papers in conference proceedings. Many of his publications deal with multiobjective optimization. Last but not least, Matthias serves on the editorial board of 10 journals, including Management Science and he has supervised 8 PhD, 17 Masters and 29 undergraduate research projects.

Tetsuzo Tanino is Professor at the Graduate School of Engineering, Osaka University. He received his master in Applied Mathematics and Physics at the Kyoto University 1975 and Ph.D. in Applied Mathematics and Physics 1978 at the Kyoto University.

Tanino has been engaged in MCDM research for about 35 years, and made significant contributions to several important topics in MCDM, covering mathematical theory of multiobjective optimization, group decision making methods, interactive methods in multiple criteria decision making and Data Envelopment Analysis, applications of multiobjective optimization to pattern classification, cooperative games, and so on.

In the MCDM-field, Tanino has published 39 articles in refereed journals, 49 in conference proceedings, 2 books and edited 4 books.

In addition to the two scientific awards, the society also presents The MCDM Presidential Service Award to the retiring President and the MCDM Conference Chairmanship award to the organizer of the conference. The MCDM Presidential Service Award was given to Professor **Jyrki Wallenius** for his leadership, inspiration, and resourcefulness as President of the International Society on MCDM from 2008 to 2011. During Jyrki's tenure as Society President, the Chengdu and Jyväskylä conferences were organized, the membership grew, the MCDA journal was restructured, and an initiative was made to form the MCDM Section within INFORMS, attracting younger scholars. The MCDM Conference Chairmanship Award was presented to Professor **Kaisa Miettinen** for her hospitality and for her outstanding leadership in organizing, managing, and chairing the Twenty-first International Conference on Multiple Criteria Decision Making, Jyväskylä, Finland, June 13-17, 2011. Kaisa and her staff made an excellent job. Everything was working. Thanks Kaisa for the nice conference!

On my behalf, I would like once more to congratulate all awardees!

Pekka Korhonen

Chairman of the awards committee

Report about the 2011 MCDM doctoral dissertation award

Based on the proposals submitted by 7 individuals from 5 countries: Germany, India, Turkey, New Zealand and United Kingdom, the committee of the 2011 MCDM doctoral dissertation award has selected 3 individuals as the finalists to present at the award competition in the afternoon of June 14, 2011. They are:

1. Dhish Kumar Saxena, who obtained his Ph.D degree with the dissertation entitled “On Determination of Redundant Objectives and Constraints in Multi-objective Optimization Problems” in 2009, under the supervision of Professor Kalyanmoy Deb at IIT Kanpur, India.
2. Andrea Raith, who obtained her Ph.D. degree at Engineering Science from University of Auckland, Auckland, New Zealand, PhD, 2010. Professor Matthias Ehrgott, Dr. Judith Y.T. Wang and Dr. Stuart Mitchell were her supervisors. Her dissertation title is “Multiobjective Routing and Transportation Problems.”
3. Özgür Özpeynirci, who obtained his Ph.D. degree in Industrial Engineering, Middle East Technical University, Ankara, Turkey, 2008. The thesis title was “Approaches for Multiobjective Combinatorial Optimization Problems” and his supervisor was Prof. Dr. Murat Köksalan.

According to a majority vote of the committee, Dr. Özgür Özpeynirci became a recipient of the 2011 MCDM doctoral dissertation award. Congratulations to the recipient, finalists and candidates!

Yong Shi (Chair), Chinese Academy of Sciences, China /University of Nebraska at Omaha, USA
Andrzej Jaszkiwicz, Poznań University of Technology, Poland
Kathrin Klamroth, University Wuppertal, Germany
Gang Kou, University of Electronic Science and Technology, China
Heeseok Lee, Korea Advanced Institute of Science and Technology, Korea
Hirotaka Nakayama, Konan University, Japan
Serpil Sayin, Koç University, Turkey
Francisco Ruiz, University of Málaga, Spain
Lothar Thiele, Swiss Federal Institute of Technology Zurich, Switzerland
Margaret Wiecek, Clemson University, USA

MCDM2013. Málaga, Spain, 17 – 21 June, 2013.



The 22nd International Conference on Multiple Criteria Decision Making, MCDM2013, will be held in Málaga, Spain, from the 17th to the 21st of June of 2013.

The conference will be chaired by Prof. Francisco Ruiz (University of Málaga, Spain), and the local organizing committee is initially formed by José Manuel Cabello, Mariano Luque, Oscar D. Marcenaro, Beatriz Rodríguez, Ana Belén Ruiz and Rubén Saborido.

The program committee will be co-chaired by Profs. Rafael Caballero (University of Málaga, Spain), and Carlos Romero (Technical University of Madrid, Spain).

Málaga is a city located in the South of Spain, and bathed by the Mediterranean Sea. Its population is around 550.000 inhabitants, and it ranks as the fifth most populated city in Spain. It has become the number one driving force behind the Andalusian economy. Malaga's geostrategic location in Southern Europe bordering on the Maghreb provides it with an international base for the economic and sociocultural development of the area. Malaga is the capital of the Costa del Sol, one of the major tourist destination in Europe. More information can be found in:

http://www.malagaturismo.com/opencms/opencms/turismo/home.jsp?id_idioma=2



Malaga's International Airport is the fourth-largest in Spain in terms of both air traffic and number of passengers (almost ten million per year). It can handle 500 flights per day and enjoys direct links with over 60 destinations worldwide, including most of Europe's main capitals and major cities such as New York. The Railway Network is also becoming a key means of transport to the city. The AVE (Spanish High Speed train) which arrived to Malaga in December 2007, enables passengers to reach Madrid in just two and a half hours and provides faster connections to other cities such as Barcelona, Zaragoza, Cordoba, Sevilla and Valencia. As for the road network, Malaga is connected to the major cities of Andalusia and the rest of Spain by motorways such as the A-7 Mediterranean road, the A-92, which provides communications with the whole of Andalusia, and the A-45, which provides fast access to the motorway that links Andalusia with the plateau.

The venue of the conference will be the Faculty of Economy and Business of the [University of Málaga](#). The Faculty will provide us with rooms for the sessions and space for posters display, stands, secretariat, coffee breaks and lunches. The Faculty is located within walking distance from the historical city centre of the city, where the main hotels of the conference are located.



Málaga is mainly a seaside city. Besides, the temperatures in June are warm and pleasant, and the probability of rain is very low. This is why the social program will include activities on the beach and in the open air, where participants will be able to enjoy our excellent gastronomy in the “malagueño” style.



Contact data:

Address: Dpt. of Applied Economics (Mathematics).
Faculty of Economy and Business.
Calle Ejido, 6
29071-Málaga (Spain)
Phone: +34 952131167 / +34 951952020
Fax: +34 952132061
Email: <mailto:mcdm2013@uma.es>
Webpage: <http://www.uma.es/mcdm2013>

Cutting-Edge Research Topics on Multiple Criteria Decision Making

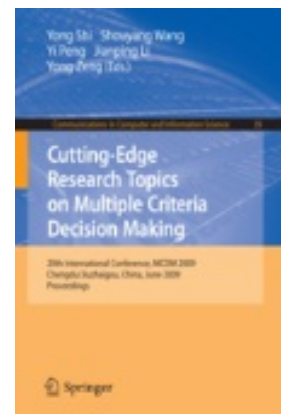
20th International Conference, MCDM 2009, Chengdu/Jiuzhaigou, China, June 21-26, 2009. Proceedings
Series: Communications in Computer and Information Science, Vol. 35

Shi, Y.; Wang, S.; Peng, Y.; Li, J.; Zeng, Y. (Eds.)

Springer Verlag, ISBN 978-3-642-02297-5

This book constitutes the refereed proceedings of the 20th International Conference on Cutting-Edge Research Topics on Multiple Criteria Decision Making, MCDM 2009, held in Chengdu/Jiuzhaigou, China, in June 2009.

The 72 revised full papers presented together with 49 short papers were carefully reviewed and selected from 350 submissions. The papers are organized in workshops on evolutionary methods for multi-objective optimization and decision making; text mining, semi-structured, web, or multimedia data; knowledge management and business intelligence; data mining based extension theory; intelligent knowledge management; meta-synthesis and complex systems; risk correlation analysis and risk measurement; optimization-based data mining method and applications; risk analysis with multiple criteria decision making; applications of decision theory and method to financial decision making; hybrid MCDM techniques for problems-solving.



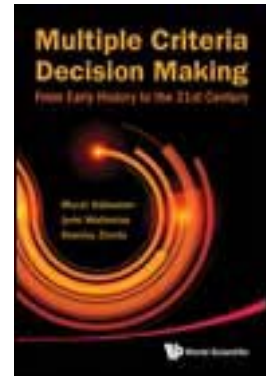
MULTIPLE CRITERIA DECISION MAKING

From Early History to the 21st Century

by **Murat Köksalan** (*Middle East Technical University, Turkey*),
Jyrki Wallenius (*Aalto University, Finland*), & **Stanley Zionts** (*SUNY Buffalo, USA*)

World Scientific Publishing , ISBN 978-981-4335-58-4

Multiple Criteria Decision Making (MCDM) is all about making choices in the presence of multiple conflicting criteria. MCDM has become one of the most important and fastest growing subfields of Operations Research/Management Science. As modern MCDM started to emerge about 50 years ago, it is now a good time to take stock of developments. This book aims to present an informal, nontechnical history of MCDM, supplemented with many pictures. It covers the major developments in MCDM, from early history until now. It also covers fascinating discoveries by Nobel Laureates and other prominent scholars.



The book begins with the early history of MCDM, which covers the roots of MCDM through the 1960s. It proceeds to give a decade-by-decade account of major developments in the field starting from the 1970s until now. Written in a simple and accessible manner, this book will be of interest to students, academics, and professionals in the field of decision sciences.

Contents:

- The Early History of MCDM
- MCDM Developments in the 1970s
- MCDM Developments in the 1980s
- MCDM Developments in the 1990s and Beyond
- MCDM Conferences
- MCDM Society Traditions
- Awards and Presidents
- Biographies of Leading MCDM Scholars
- Conclusion

Readership: Graduate-level students in business administration or operations management; engineers involved in decision making and policy implementation; business analysts, financial planners.

20% Discount Available Online!

Multiple Attribute Decision Making

Methods and Applications

Gwo-Hshiung Tzeng and Jih-Jeng Huang

Covering modern decision-making techniques, this reference focuses on the fuzzy set approach to multiple attribute decision making (MADM). Drawing on their extensive experience, the authors present methods and real-life applications of MADM techniques that can be used in decision analysis. The methodological section of the text explains the theory of each method and then illustrates the methods using a numerical example that can be calculated without a computer, providing a complete understanding of the procedures of MADM methods. The application section explores methods, such as DEMATEL, ISM, and FCM, that are used to solve real-world MADM problems.

Contents

Introduction.

CONCEPTS AND THEORY OF MADM: Analytic Hierarchy Process.

Fuzzy Analytic Network Process. Simple Additive Weighting Method.

TOPSIS and VIKOR.

Electre Method.

Promethee Method. Grey Relation Model.

Fuzzy Integral Technique.

Rough Sets. Structural Modelling.

APPLICATIONS: AHP—An Application.

A VIKOR Technique with Applications Based on DEMATEL and ANP.

TOPSIS and VIKOR—An Application. Electre—An Application. Promethee—An Application.

Grey Relation—An Application.

Fuzzy Integral—An Application.

Rough Sets—An Application.

Extending the DEMATEL Method for Group Decision Making in Fuzzy Environments.

Publication date: May 2011

ISBN: 978-1-4398-6157-8

Price: £82.00

Optimization Based Data Mining: Theory and Applications

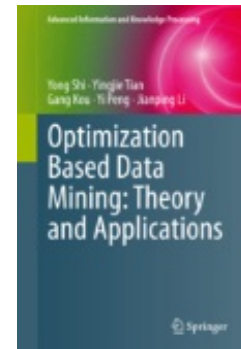
Shi, Y., Tian, Y., Kou, G., Peng, Y., Li, J.

Springer Verlag, ISBN 978-0-85729-503-3

Optimization techniques have been widely adopted to implement various data mining algorithms. In addition to well-known Support Vector Machines (SVMs) (which are based on quadratic programming), different versions of Multiple Criteria Programming (MCP) have been extensively used in data separations. Since optimization based data mining methods differ from statistics, decision tree induction, and neural networks, their theoretical inspiration has attracted many researchers who are interested in algorithm development of data mining.

Optimization based Data Mining: Theory and Applications, mainly focuses on MCP and SVM especially their recent theoretical progress and real-life applications in various fields. These include finance, web services, bio-informatics and petroleum engineering, which has triggered the interest of practitioners who look for new methods to improve the results of data mining for knowledge discovery.

Most of the material in this book is directly from the research and application activities that the authors' research group has conducted over the last ten years. Aimed at practitioners and graduates who have a fundamental knowledge in data mining, it demonstrates the basic concepts and foundations on how to use optimization techniques to deal with data mining problems.



Sources of Information

- Homepage of the International Society on Multiple Criteria Decision Making. Website: <http://www.mcdmsociety.org>
- Kaisa Miettinen's website has several interesting links with Operational Research and Multi-Criteria websites (scientific societies, journals, conferences, etc.). Website: <http://users.jyu.fi/~miettine/lista.html>
- The website of the EURO Working Group on Multicriteria Decision Aiding has lots of useful information on multi-criteria. Website: <http://www.cs.put.poznan.pl/ewgmcda/>
- Vincent Mousseau's database of research publications on MCDA has more than 2400 records, and it is a good source of information. Website: <http://www.lamsade.dauphine.fr/mcda/biblio/>
- Carlos A. Coello Coello maintains the EMOO web page, an archive of publications, software and other material related to multi objective optimization. Website: <http://www.lania.mx/~ccoello/EMOO/>
- Information on the Analytic Hierarchy Process (AHP) and the related International Symposia Series: <http://www.isahp.org/>
- The Continuous Optimization Working Group of EURO: <http://www.iam.metu.edu.tr/EUROPT/>
- AHP on Facebook: <http://www.facebook.com/AHPforDecisionMaking>

Imprint

Martin Josef Geiger
Department of Logistics Management
Helmut Schmidt University
D-22043 Hamburg
Germany

☎: +49 40 6541 2591

☎: +49 40 6541 3044

✉: newsletter@mcdmsociety.org