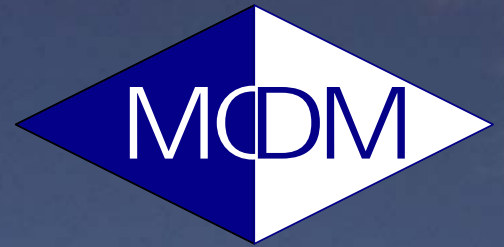


# International Society on Multiple Criteria Decision Making



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## Letter from the President

Dear Society Members,

I salute you as the new President of our Society. The role of the President is to strengthen the Society, ensure its long-term health, and promote MCDM at large. The latter entails promoting research, education, and practical applications of MCDM. My vision builds upon the work and ideas of past Presidents.

We should be proud of our accomplishments in theory and methodological development, the development of computer-based support systems, and the modelling of preferences. We have been less successful in promoting good practical applications, although there are wonderful exceptions. Interestingly, with the maturation of our field, it is penetrating other neighbouring fields - and having an impact on these fields. We have always been open to new ideas and fostered a spirit of international friendship. We have wonderful traditions that we seek to document.

We can further strengthen our Society by broadening its scope and working with scholars in related fields. We also need to involve a larger number of young people in the Society. I find this of prime importance. We need to brainstorm how to best accomplish this. We should also fight what I call the fragmentation of our field into several schools, which do not sufficiently interact and collaborate with each other. I am committed to building bridges across different schools. I think that a beautiful example of such beginning interaction and collaboration is already taking place between the EMO and mainstream MCDM communities. The Dagstuhl conferences play an important role in this endeavour. We also need stronger ties with application areas. Multiple criteria type analyses are used in environment, forestry, quality, design, engineering, medicine, artificial intelligence, eCommerce, etc. A recent bibliometric study using broad key words related to MCDM identifies more than 15,000 published papers in our field over its lifetime, with an exponential growth pattern. But many people who work in these areas seem not to be aware of the developments in MCDM. It would be good to interact with their societies and journals in various ways.

Regarding current matters, when writing this editorial, the elections for Society's officers was going on. We are experimenting with a new online voting system. A lesson that we are learning is that it is very important for members to keep their email addresses updated. Discussions are also under way with Wiley to strengthen our journal: the Journal of Multi Criteria Decision Analysis. Many of us took part in a memorable conference hosted by Matthias Ehrgott from University of Auckland. For most of us this represented the first visit to New Zealand. The location and dates for the next MCDM conference have also been decided: Chengdu in South-Central China, June 22-26, 2009. It promises to be a great conference.

The Society has been close to my heart since its birth. I would like to be an active President. I look forward to working with the executive Committee and the membership at large. I welcome any ideas, how to promote our field and secure its long-term health.

Heartfelt thanks to Theo for his leadership of the Society over the past four years.

Jyrki Wallenius

President

International Society on Multiple Criteria Decision Making

# 1 Society News

## 1.1 Results of the Elections in 2008

*Jyrki Wallenius, Chair of the Election Committee*

In 2008, the members of the International Society on Multiple Criteria Decision Making elected **Kaisa Miettinen** (Finland) as the President-Elect and the following persons to the International Executive Committee for three-year terms 2008-2011:

- **James Corner** (New Zealand)
- **Kalyanmoy Deb** (India)
- **Xavier Gandibleux** (France)
- **Gilberto Montibeller** (UK)

## 1.2 2008 MCDM Awards

*Murat Köksalan, Middle East Technical University, Turkey*

International Society on Multiple Criteria Decision Making (MCDM) presented the 2008-awards at the 19th International Conference on MCDM in Auckland, New Zealand.

The *MCDM Gold Medal* is the highest honor that the Society bestows upon a scholar who, over a distinguished career, has devoted much of his talent, time, and energy to advancing the field of MCDM, and who has markedly contributed to the theory, methodology, and practice of MCDM. The Gold Medal was awarded to Professor *Theodor J. Stewart*, University of Cape Town, South Africa.



Theo Stewart, Jyrki Wallenius, Murat Köksalan

The *MCDM Edgeworth-Pareto Award* is the highest distinction that the Society bestows upon a researcher who, over his career, has established a record of creativity to the extent that the field of MCDM would not exist in its current form without the far-reaching contributions from this distinguished scholar. The award was given to Professor *Kalyanmoy Deb*, Indian Institute of Technology, Kanpur, India.





Kalyanmoy Deb, Theo Stewart, Murat Köksalan

The *Georg Cantor Award* is the highest form of recognition that the Society bestows upon a researcher who, over a distinguished career, has personified the spirit of independent inquiry and whose many innovative ideas and achievements are decidedly reflected in the theory, methodology, and current practices of MCDM. The award was given to Professor *Valerie Belton*, University of Strathclyde, Glasgow, UK.



Valerie Belton, Theo Stewart, Murat Köksalan

*MCDM Conference Chairmanship Award* was presented to Professor *Matthias Ehrgott*, The University of Auckland, New Zealand, for his most gracious hospitality, and for his outstanding leadership and resourcefulness in organizing, managing, and chairing the Nineteenth International Conference on Multiple Criteria Decision Making, Auckland, New Zealand.



Theo Stewart, Matthias Ehrgott, Murat Köksalan

### 1.3 19th International Conference on Multiple Criteria Decision Making, 7th to 12th of January 2008, The University of Auckland, New Zealand

*Matthias Ehrgott, The University of Auckland, New Zealand*

In its 33 year history the International Conference on Multiple Criteria Decision Making venues first followed a zigzagging itinerary between Europe and North America before venturing to cities in other continents (Kyoto, Taipei, and Cape Town). Finally, in its 19th edition the conference reached “the most beautiful end of the world” (as New Zealand is often promoted by the travel industry). Also known as the city of sails, Auckland boasts the tallest building in the southern hemisphere and 50 volcanoes among its attractions. As conference chairmen I am honoured that Auckland has been selected as only the second venue for the conference in the southern hemisphere.



The delegates of MCDM 2008 at Mudbrick Vineyard



Prof. Michael Davies, Dean of the School of Engineering, welcomed the delegates on behalf of the university, noting that this was the first major event in the university's 125th anniversary year. Following the opening sessions, the delegates were plunged into an experience of indigenous Maori culture during a powhiri (welcoming ceremony). We gathered outside Waipapa marae (sacred meeting place) and were welcomed with a haka (dance) and songs onto the grounds by representatives of the local tribe, ngati whatua. Theo Stewart, as society president, responded to the Maori speeches with the words "Tena koutou katoa, he mihi nui, he mihi aroha, he mihi mahana ki a koutou katoa" (Greetings everyone, greetings to you all). Tradition also demands that the visitors sing a song in Maori. It was later mentioned that the visitors did better than the locals. The welcome was completed by a hongi, the pressing of noses between visitors and local people. After morning tea in the whare kai (eating house) everyone was ready for the first parallel sessions.



Prof. Michael Davies



Prof. Gwo-Hshiung Tzeng lectures on fuzzy MCDM

The conference programme consisted of 125 talks in 39 parallel sessions and five plenary talks. Attendees came from over 40 countries in six continents. The spectrum of topics was wide, encompassing multiobjective optimization, decision support systems, auctions and games, fuzzy systems, applications in various fields, and problem structuring methods. Many colleagues reported on research related to the conference theme of "MCDM for sustainable energy and transportation systems". We could learn about renewable energy, management of natural resources, and sustainable development. Eight of the talks were presented in two sessions of a special track on Multiobjective Evolutionary Algorithms, a novelty at this MCDM conference. The EMO track was organised by Boris Naujoks of the University of Dortmund, Germany.



Prof. Anna Nagurney

On Tuesday morning Prof. Anna Nagurney of the University of Massachusetts, Amherst, delivered her invited plenary lecture "Multicriteria Decision-Making for the Environment: Sustainability and Vulnerability Analysis of Critical Infrastructure Systems from Transportation

Networks to Electric Power Supply Chains”. In her talk, Anna demonstrated how multicriteria decision-making can be utilized as a powerful framework for evaluating the sustainability of the critical infrastructure networks that underpin our societies and economies. She showed how environmentally conscious decision-makers can achieve the same environmental standards/results acting independently as would be achieved from certain governmentally imposed environmental standards.

Traditionally, half a day during the conference is reserved for an excursion. On Wednesday afternoon delegates were invited to a Maori cultural performance at Auckland Museum. Browsing the extensive and internationally renowned collections on Maori culture and the peoples of the South Pacific, quite a few visitors had to rush to make it to the ferry departure for the conference banquet (the boat had already started to pull out as a former president of the MCDM society jumped on). The banquet took place at Mudbrick Vineyard Restaurant on Waiheke Island in Auckland’s Hauraki Gulf. A thirty minute ferry ride lets everyone forget the hectic city and relax in a calm atmosphere. New Zealand cuisine (not limited to lamb!) and the restaurant’s own wines were served. During the banquet the winners of the MCDM awards were announced.



MCDM award winners Kalyanmoy Deb, Valerie Belton, and Theodor Stewart

The 2008 MCDM award winners are

- MCDM Gold Medal: Prof. Theodor J. Stewart, University of Cape Town
- Edgeworth-Pareto Award: Prof. Kalyanmoy Deb, Indian Institute of Technology Kanpur
- Georg Cantor Award: Prof. Valerie Belton, University of Strathclyde

The award winners had the arduous task of giving plenary talks the following morning. It was well worth attending to listen to Theo Stewart’s thoughts on MCDM as a field bridging the gap between hard and soft sciences in his talk “MCDA - Integrating social and mathematical sciences”. Valerie Belton’s talk “MCDA: The importance of integration” emphasised the potential for MCDA to provide an integrating framework as well as the need for integration within the field and externally. Kalyanmoy Deb gave an overview of the rapidly growing field of EMO and its place in MCDM in his talk “Evolution’s niche in multiple criteria Optimization and decision making”.





Prof. Jim Petrie



Lively discussions during breaks

On Friday Jim Petrie of the Universities of Sydney and Cape Town presented an invited plenary lecture on “Multi criteria decision making within energy networks for electricity production in emerging markets” where he spoke about the need to consider multiple objectives, stakeholder diversity, system dynamics and key uncertainties in any structured decision making approach related to development of sustainable energy networks for electricity production.

No conference in New Zealand can be complete without a BBQ. This was served by SPIES, the South pacific Indigenous Engineering Students at lunchtime on Friday. On Friday afternoon the delegates embarked on their long journeys back home after a week of inspiring interaction with colleagues and friends. Once again, the conference showed the truly international nature of the MCDM society that is at the heart of this community. We are all looking forward to meeting again in Chengdu in June 2009.

As the chairman of the conference I cannot end this report without thanking all those colleagues and PhD students who put in many hours of work to make the conference happen: Elizabeth Chandy, Sushani Jayasinghe, Dishani Jayasuriya, Ivan Kojadinovic, Richard Lusby, Andrea Raith, Lizhen Shao, Judith Wang, Hamish Waterer, Oliver Weide, and Kim Williams.

Text and pictures: Matthias Ehrgott, The University of Auckland

#### 1.4 Virtual Web Server of the Society: Call for Volunteers

The Society is planning to start using a virtual server for the web services. Volunteers are needed to set up the system. Those who are interested and able to take part are invited to contact Jyrki Wallenius ([jyrki.wallenius@hse.fi](mailto:jyrki.wallenius@hse.fi)) or Kaisa Miettinen ([kaisa.miettinen@jyu.fi](mailto:kaisa.miettinen@jyu.fi)) by end of May 2008.

## 2 Upcoming Events and Call for Papers

### 2.1 Management Decision: Special Issue on “Common Sense and other Decision Influences”



Edited by: Erwin Rausch

Management Decision is planning a special issue on Common Sense and Other Influences. Eight to ten papers will be accepted for this special issue. All papers will be double-blind reviewed, after a preliminary screening by the guest editor. The call solicits both papers and reviewers.

Topics on which papers could be submitted include, but are not limited to:

- Definition of Common Sense
- History of research on common sense
- Models of common sense
- Values and cultural influences in common sense
- Common sense and ethical behaviour
- Common sense influences on decisions
- Evaluating quality of common sense
- Development of common sense
- Common sense and decision traps
- Common sense, rational and critical thinking
- Misconceptions about common sense and decisions
- Attitudes, experiences and learning influences on common sense
- Interaction and group influences on common sense
- Organizational “Systems” and other external environmental factors impacting common sense
- Criteria for determining quality of decisions
- Intuitive and deductive reasonings role in common sense

*Management Decision* is a peer reviewed academic journal published by Emerald Group Publishing, and has been in publication for over 45 years. Its emphasis is to publish research and reflection on theory, practice, techniques and context of decisions taken in and about business and business research. The journal was recently accepted onto the Social Science Citation Index and is expecting its first impact factor in 2008.

#### Submissions

The journal website is located at: <http://www.emeraldinsight.com/md.htm>. Please read through the author guidelines on this site before submitting your paper. Papers should be

between 3,000 and 6,000 words in length. A title of not more than twelve words should be provided.

Articles should be submitted no later than June 1st 2008 to ScholarOnes Manuscript Central at: <http://www.emeraldinsight.com/info/journals/md/notes.jsp>

For inquiries, please contact Erwin Rausch at [didacticra@aol.com](mailto:didacticra@aol.com)

## **2.2 8th “Modeling and Optimization: Theory and Applications” Conference, August 18–20, 2008, University of Guelph, Ontario, Canada**

*Alexander Engau, University of Waterloo, Canada*

Dear Friends and Colleagues,

It is my great pleasure to invite you for participation in this year’s “Modeling and Optimization: Theory and Applications” conference (MOPTA 08), to be held at Guelph, Ontario, Canada on August 18–20.

This annual MITACS conference brings together researchers and practitioners from both discrete and continuous optimization who do not usually get the chance to interact in the framework of a medium-scale event (please see the conference web site at

<http://www.mathstat.uoguelph.ca/mopta/> or the text below for further details).

If you are interested in organizing an invited session or presenting your research as poster or invited talk within our stream in Multicriteria Programming and Optimization, we encourage you to submit an abstract (in PDF format) by June 6, 2008 via the conference web page at

<http://www.mathstat.uoguelph.ca/mopta/abstracts.php>

At the time of submission, please use the space provided for comments to request inclusion into one of our invited sessions. To facilitate this process, you may also contact me directly to send you an official invitation. Unfortunately, we will not be able to combine this invitation with any kind of financial support.

We are excited about a strong presence from the multicriteria optimization community at this year’s event and very much hope you can join us in Guelph. Also personally, I am looking forward to seeing you at MOPTA 08!

Best Wishes,

Alexander Engau

[aengau@uwaterloo.ca](mailto:aengau@uwaterloo.ca)

### **CALL FOR SUBMISSIONS:**

The 8th Annual MOPTA Conference Modeling and Optimization: Theory and Applications  
2008

August 18–20, 2008, University of Guelph, Guelph, Ontario, Canada

<http://www.mathstat.uoguelph.ca/mopta>

The 8th annual MOPTA Conference (MOPTA 08) will be held at the campus of the University of Guelph. It will be hosted by the Department of Mathematics and Statistics in the College of Physical Engineering and Science and is co-sponsored by the Fields Institute, MITACS, and the University of Waterloo. This year’s event will include special sessions and a banquet celebration in honour of the 60th birthday of Henry Wolkowicz.

### **Scope**

The conference attracts a diverse group of people from both discrete and continuous optimization. We aim to bring together researchers from the theoretical and applied communities who do not usually get the chance to interact in the framework of a medium-scale event.

### **Plenary speakers**

- Florian Jarre, Mathematical Institute, University of Dusseldorf
- Don Jones, General Motors
- Joaquim Judice, Dept. Mathematics, University of Coimbra



- Jean Lasserre, LAAS-CNRS
- Panos Pardalos, Dept. Industrial & Systems Engineering, University of Florida
- Georgia Perakis, Sloan School of Management, MIT
- Yves Smeers, Dept. Mathematical Engineering, Catholic University of Louvain

### Participation

This is an invitation for organized sessions as well as contributed talks and posters.

Participants interested in organizing an invited session should contact the chair of the organizing committee (Miguel Anjos, [manjos@uoguelph.ca](mailto:manjos@uoguelph.ca)).

Authors wishing to present their research in the form of a contributed talk or poster are encouraged to submit their abstract (in PDF format) by June 6, 2008 via the conference web page at <http://www.mathstat.uoguelph.ca/mopta/abstracts.php>

Notification of acceptance/rejection will be sent shortly after the submission deadline of June 6, 2008.

The up-to-date program and registration information are available at <http://www.mathstat.uoguelph.ca/mopta/registration.php>

We are looking forward to welcoming you at MOPTA 08!

On behalf of the Organizing Committee

Monica Cojocaru, [mcojocar@uoguelph.ca](mailto:mcojocar@uoguelph.ca) (Chair, U. Guelph) Miguel Anjos, [manjos@uoguelph.ca](mailto:manjos@uoguelph.ca) (Chair program committee, U. Waterloo)

## 3 Research Team Presentation

### 3.1 CoDE (Computer & Decision Engineering), Université Libre de Bruxelles, Belgium

*Yves De Smet, Université Libre de Bruxelles, Belgium*

<http://code.ulb.ac.be>

The Computer & Decision Engineering (CoDE) department has officially started the 1st May 2006. It results from the association of three laboratories of the Engineering Faculty of the Université Libre de Bruxelles: IRIDIA, I&R and SMG. The aim of this department is to join the expertise of the three laboratories to realize innovative research and particularly in the area of “business intelligence”.

CoDE is currently composed of 9 Professors, 8 senior researchers, 31 PhD students and 6 scientific and industrial collaborators.

IRIDIA is the Artificial Intelligence research laboratory of the Université Libre de Bruxelles. It is deeply involved in theoretical and applied research in computational intelligence. The major domains of competence are: swarm intelligence, metaheuristics to solve combinatorial and continuous space optimization problems, the foundational study of biological networks and business applications. The research program in swarm intelligence is centered on the design of algorithms or distributed problem-solving mechanisms using the collective behavior of social insect colonies as main source of inspiration. In particular, members of IRIDIA have proposed innovative algorithms to solve different types of optimization problems and to control swarms of robots. The metaheuristic unit is internationally known for the ant colony optimization metaheuristic and is a leading team in various stochastic local search methodologies such as iterated local search and evolutionary computation. Members of the unit are also interested in multi-objective optimization with a focus on two main aspects:

1. The development of stochastic local search algorithms for multi-objective combinatorial optimization problems such as those based on the Pareto local search and the two-phase framework.

2. The sound evaluation and comparison of the results of multi-objective optimizers through outperformance relations, attainment functions, statistical tests and graphical means; another related issue here is the analysis of multi-objective optimizers through experimental design techniques.

Another point of research is related to biological networks. The main interest is the study of neural networks, immune networks, and chemical reaction systems and in the identification of what are their common features and mechanisms. Members of the unit are also interested in exploiting the results of these studies for the conception of adaptive distributed engineering artifacts. Finally, IRIDIA develops practical business intelligence applications such as data mining and object oriented solutions for companies and administrations.

The laboratory of computer science and networks (I&R) is taking part in numerous research projects, be it for the university or as part of national or international projects. These cover many fields of computer science, from spatio-temporal data modelling to semantic web, from software engineering to wireless network routing, from bioinformatics to data visualization. In the field of modeling, the department conceived, with the collaboration of the database laboratory of the École Polytechnique Fédérale de Lausanne, the MADS model for the representation of spatio-temporal data. Spatio-temporal databases make a historically significant and innovative field of study, as important scientific advances are necessary to develop the new generation of car navigation support and GPS-type geolocalised services. The LOBSTER project studies the benefits in this discipline of semantic web, a set of methods that provide a formal representation of the knowledge and the creation of intelligent agents capable of logical reasoning. Semantic Web is also the subject of several bioinformatics projects, such as INMOBIO which uses them to improve our comprehension of metabolic chains, primary means of investigation for the discovery of new medications. On the other hand, the BIOMAZE project has developed the state of the art concerning the visualization of those extremely complex metabolic chains. Finally in the study of software engineering, the new VARIBRU project aims at developing solutions to support the creation of an unique software that will easily adapt to different users, contexts or environments. These techniques shall be applied during the entire life cycle of the software, from the very beginning of its development till the very moment of its use.

The “Service de Mathématiques de la Gestion” (SMG) is the operational research laboratory of the Engineering Faculty. Research activities of the SMG are mainly devoted to Decision Engineering, with a particular emphasis on Multicriteria Decision Aid.

Historically, members of the unit have been at the origin of the PROMETHEE & GAIA methods. New research themes are conducted in this direction. From a methodological point of view, an extension of PROMETHEE to sorting problems, called FlowSort, is currently under study. Additionally, new software developments are considered in a “first spin off” project that has started in September 2007.

Members of the SMG are stimulating the application of general multicriteria tools to various application fields. One may cite for instance the development and analysis of multicriteria auctions (combinatorial multicriteria auctions, lexicographic auctions) or the integration of multicriteria methods to geographical information systems. Another major research interest covers multicriteria relational clustering. The aim here is to develop new algorithms that allow the detection of group structures and relations between these groups in a multicriteria context. Finally, the topic of performance evaluation of telecommunication systems is addressed by means of queueing theory and matrix analytic methods.

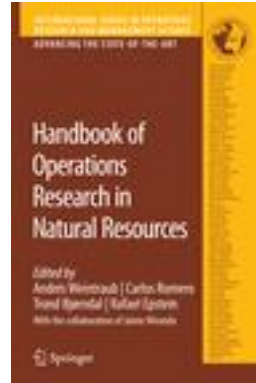
From a practical point of view, researchers of the SMG are regularly involved in industrial projects. For instance, they have successfully collaborated with Elia (which is the company in charge of electricity transmission in Belgium) to elaborate a model for the replacement of low and high voltage equipments. Another project has been conducted with the federal police to evaluate the crime gravity in Belgium.

The common goal of IRIDIA, I&R and SMG is to develop new research synergies in cross disciplinary fields.

## 4 New Books

### 4.1 Handbook of Operations Research in Natural Resources

*Carlos Romero, Technical University of Madrid, Spain*



*Handbook of Operations Research in Natural Resources* by Andres Weintraub, Carlos Romero, Trond Bjordal, Rafael Epstein (Eds.), in International Series in Operations Research and Management Science, Springer, New York, 614 pp. ISBN 978-0-387-71814-9.

<http://www.springer.com/business/operations+research/book/978-0-387-71814-9>

#### Preface

Operations Research/Management Science (OR/MS) approaches have helped people for the last 40 years or so, to understand the complex functioning of the systems based upon natural resources, as well as to manage this type of systems in an efficient way. The areas usually viewed within the natural resources field are: agriculture, fisheries, forestry, mining and water resources.

Even though, the above areas are usually viewed as separate fields of study, there are clear links and relations between them. In fact, all of them share the common problem of allocating scarcity along time in an optimal manner. The scale of time or length of the planning horizon is very different. Thus, we have almost a continuous renewal in the case of the fisheries, periodic cycles in the case of agriculture and forestry (ranging from some few months in the case of a horticultural crop to more than a century for some forest species), and enormous periods of time much beyond the human perception in the case of mining resources. But in all the cases, the key matter is to obtain an efficient use of the resource along its planning horizon.

Another element of connection among the different natural resources is due to the interaction between the use of the resource, and the environmental impact caused by its extraction or harvest. This type of interaction implies additional complexities in the underlying decision-making process, making the use of OR/MS tools specially relevant.

The above views are corroborated by the massive use of quantitative approaches in the management of natural resources. It can be said that this broad field was one of the first where the OR/MS discipline was successfully applied.

The papers presented correspond to invitations made to the specialists we considered the most distinguished in each area, and we are extremely satisfied with the positive response we obtained from them. In defining the subject matters, we tried to cover comprehensively the most relevant topics in each area, from the application point of view, as well as consideration of the operations research techniques involved. In particular, we wished to highlight the successes of the OR approach to deal with problems, which involves a conceptual view of problems, modelling of complex realities, and development of algorithms for problems increasingly difficult to solve. Issues of large scale, uncertainty, multiple objectives appear increasingly in these decision processes. Also, we view the integration in multidisciplinary approaches, where specialists in the specific areas need to interact with operations research specialist, and the need to incorporate information technologies for implementations is also present.

The set of papers compiled in this volume attempts to provide readers with significant OR/MS contributions in each one of the applied areas previously defined. In this way, we hope to



encourage the use of quantitative techniques in order to manage the use of the different natural resources efficiently from an economic as well as an environmental point of view.

The papers are divided by area of application: agriculture, fisheries, forestry and mining.

## 4.2 Multiobjective Problem Solving from Nature: from concepts to applications

*Joshua Knowles, The University of Manchester, United Kingdom*



*Multiobjective Problem Solving from Nature: from concepts to applications* by Joshua Knowles, David Corne and Kalyanmoy Deb (Eds.) Springer, Natural Computing Series 412 p. 178 illus., Hardcover ISBN: 978-3-540-72963-1

<http://www.springer.com/west/home/computer/artificial?SGWID=4-147-22-173745027-0>

**Abstract:** Evolutionary multiobjective optimization (EMO) is a burgeoning discipline within computational intelligence, with a wide and growing appeal. This book considers how EMO can be used across the whole problem-solving domain, in areas that range all the way from co-evolutionary learning to constrained optimization. There is a conceptual focus to the book, with each contribution explaining the benefits of a multiobjective approach in the problem area considered. Many compelling examples of EMO at work are given. For example, it is shown to accelerate single-objective optimization, to address dynamic optimization tasks, to be fundamental in rule mining, and to uncover novel engineering-design principles. In the final part of the book, the scalability of EMO methods is addressed, with chapters that lead the way in the handling of many objectives and decision variables.

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## 5 Sources of Information

- Homepage of the International Society on Multiple Criteria Decision Making. Website: <http://www.terry.uga.edu/mcdm/>
- Kaisa Miettinen's website has several interesting links with Operational Research and Multi-Criteria websites (scientific societies, journals, conferences, etc.). Website: <http://www.mit.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.inescc.pt/~ewgmcd/index.html>
- 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/>

### Imprint

Martin Josef Geiger  
Lehrstuhl für Industriebetriebslehre (510A)  
Universität Hohenheim  
D-70593 Stuttgart  
Germany

☎: +49 711 45923462

FAX: +49 711 45923232

✉: [mjgeiger@uni-hohenheim.de](mailto:mjgeiger@uni-hohenheim.de)

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