International Society on Multiple Criteria Decision Making

MCDM

Contents

Front: Inside the Alhambra, Granada, Spain. © Martin J. Geiger

Letter from the Editor

Dear friends,

I happily present this issue of our societies newsletter.

Again, a busy season with numerous scientific conferences, workshop, and meetings lies ahead. The very own international conference of the society, the 19th to be held, is coming soon in January 2008 under the theme of *MCDM for Sustainable Energy and Transportation Systems*. As this is the major scientific event attracting approaches from a wide area of multiple criteria decision making, I particularly want to draw your attention to the call for papers of this conference in Section 1. Matthias Ehrgott and all members of the local organizing committee are looking forward to welcome you in Auckland, New Zealand.

In conjunction with this conference, the societies awards will be presented. Murat Köksalan has provided us with a call for nominations in Section 2.1, and I would like to ask you to contribute to this important instrument of our society.

Many other workshops and conferences are of relevance for us who are interested in multiple criteria decision making, and Section 4 tries to scratch the surface of this. For some events, such as e. g. the IEEE Symposium on Computational Intelligence in Multiple Criteria Decision Making 2007, see http://www.ieeecis-multidecision.org/, the deadlines for contributions have unfortunately already passed. In any case, I believe that many of you keep track of the presented talks and the published articles by browsing through the internet pages.

What already has been accomplished is given in Section 3. Please see Ulrich Junker's and Werner Kießling's wonderful report on the ECAI-06 Workshop on Advances in Preference Handling, not forgetting that there will be 2007 workshop on advances in preference handling, too. Another interesting event has been the Dagstuhl Seminar on Practical Approaches to Multi-Objective Optimization. A profound report has been written by Kaisa Miettinen, and I firmly believe that this is something you will want to read.

Please let me finish with thanking everybody who contributed to this issue of our newsletter. I also would like to encourage everybody to contribute to future issues, providing information on upcoming events, reports on past activities, or other information being of interest to the community.

Martin Josef Geiger
March 2007

1 19th International Conference on Multiple Criteria Decision Making, January 7–12, 2008, Auckland, New Zealand

MCDM for Sustainable Energy and Transportation Systems

Matthias Ehrgott, The University of Auckland

Call for Papers and Sessions
In the 21st century the world has entered an age of exponentially increasing demand for energy and transportation services in a globalised economy. Climate change and other environmental impacts of human economic activity necessitate the consideration of conflicting goals in decision making processes to develop sustainable systems. The science of multiple criteria decision making has a lot to offer in addressing this need. The International Society on Multiple Criteria Decision Making organises its 19th International Conference under the theme MCDM for Sustainable Energy and Transportation Systems.

Abstracts are now called for and should be submitted by email to mcdm2008@esc.auckland.ac.nz. All areas of MCDM are welcome and papers related to the theme of the conference are especially encouraged.

- Multiple Criteria Decision Aiding

- Multiple Criteria Classification, Ranking, and Sorting

- Multiple Objective Continuous and Combinatorial Optimisation

- Multiple Objective Metaheuristics

- Multiple Criteria Decision Making and Preference Modelling

- Fuzzy Multiple Criteria Decision Making

(Extended) abstracts should be up to two A4 pages in 12pt font or similar. Abstracts must contain the name and affiliation of all authors, plus the email address of the corresponding author for notification of acceptance. Abstracts can be submitted in plain text, LaTeX, or Word formats, but postscript and pdf files are not acceptable. In order to be included in the conference programme at least one author must have registered and paid the appropriate fee.

Abstract submission deadline: 15 September 2007

Notification of acceptance: 15 October 2007

Colleagues interested in organising invited sessions should contact the organising committee at mcdm2008@esc.auckland.ac.nz as soon as possible.

Track on Evolutionary Multiobjective Optimisation
As part of the conference a special track on Evolutionary Multiobjective Optimisation will be organised. Details will appear on the website soon.

Proceedings Volume
Discussions with Springer are underway concerning the publication of a proceedings volume in the "Lecture Notes in Economics and Mathematical Systems". A call for full papers will be published on the conference website.

Registration
Registration will be solely via the conference website and will be available before the end of April. The full registration fee will include a 2-year electronic subscription to the Journal of Multi-Criteria Decision Analysis published by Wiley (see http://www.wiley.com/WileyCDA/WileyTitle/productCd-MCDA.html for more information on the journal) and free membership in the MCDM society.
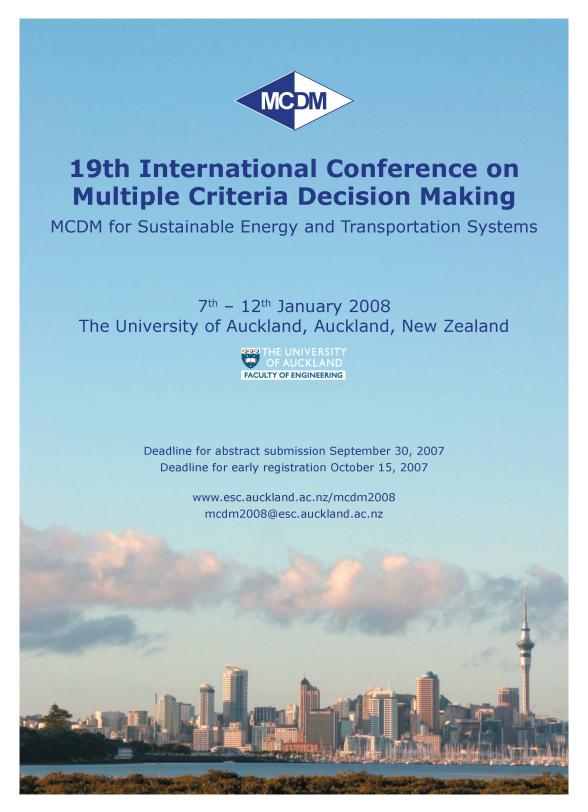
Local Organising Committee
Matthias Ehrgott (Chair), Fernando Beltran, Ivan Kojadinovic, Richard Lusby, Michael O'Sullivan, Andrea Raith, Paul Rouse, Lizhen Shao, Bassy Tam, Cameron Walker, Judith Wang, Hamish Waterer, Oliver Weide, Golbon Zakeri

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Conference website: http://www.esc.auckland.ac.nz/mcdm2008

Conference email address: mcdm2008@esc.auckland.ac.nz

19th International Conference on Multiple Criteria Decision Making

MCDM for Sustainable Energy and Transportation Systems

7th – 12th January 2008
The University of Auckland, Auckland, New Zealand

THE UNIVERSITY OF AUCKLAND
FACULTY OF ENGINEERING

Deadline for abstract submission September 30, 2007
Deadline for early registration October 15, 2007

www.esc.auckland.ac.nz/mcdm2008
mcdm2008@esc.auckland.ac.nz

2 Society News

2.1 Call for Nominations: MCDM Awards

Murat Köksalan, Middle East Technical University

The International Society on Multiple Criteria Decision Making (MCDM) has been presenting awards at each of its meetings since 1992. The next set of awards will be presented at the 19th International Conference on MCDM in Auckland, New Zealand, January 7–12, 2008 (`http://www.esc.auckland.ac.nz/mcdm2008/`). The Society welcomes nominations for the following awards: 1. MCDM Gold Medal, 2. Edgeworth-Pareto Award, and 3. Georg Cantor Award.

Submit nominations to: Professor Murat Köksalan, Industrial Engineering Department, Middle East Technical University, 06531 Ankara, Turkey or (preferably) by e-mail, `koksalan@ie.metu.edu.tr`. Contact him for further information.

To assure full consideration:

1. Make the nominations by September 10, 2007.

2. Indicate the name of the nominee, why he or she is worthy of the award, his/her contributions to the field, and anything else that is relevant to the award.

3. Provide a CV of the nominee.

Awardees are expected to attend the conference and give a talk. More information concerning the awards and past awardees may be found on the web site at `http://project.hkkk.fi/MCDM/intro.html`.

3 Past conferences and workshops

3.1 ECAI-06 Workshop on Advances in Preference Handling, August 28–29, 2006, Riva del Garda, Italy

Ulrich Junker, ILOG, and Werner Kießling, University of Augsburg

Preferences are pervasive in many domains. Although they have traditionally been studied in areas such as economics and social choice, they nowadays find significant interest in computational fields such as artificial intelligence, data bases, and human-computer interaction. One reason is the rise of web services for decision support problems such as music selection, vacation planning, car configuration, and e-commerce, which are all subject of consumer's preferences. Another reason is an increasing amount of options and answers to computational tasks such as data-base querying and web-based search. These new perspectives to preference handling lead to new types of preference models, new problems for applying preference structures, and new kinds of benefits of those models. As these questions are finding interest in different domains, a first multi-disciplinary meeting on preference handling was organized by G. Bosi, R. Brafman, J. Chomicki, and W. Kießling in Dagstuhl in June 2004 and attracted researchers from economics, operations research, artificial intelligence, and data bases. This exciting seminar inspired many cross-fertilizations and was pursued by two workshops on Advances in Preference Handling, held at the 19th International Joint Conference on Artificial Intelligence (IJCAI-05) and at the 17th European Conference on Artificial Intelligence (ECAI-06).

The ECAI 2006 Workshop was held on August 28 and 29 at Riva del Garda in Trentino, Italy, an impressive place enclosed between the Lake Garda and steep Alp mountains. We could win an international and multi-disciplinary program committee which included well-known experts

in preference handling from artificial intelligence, data bases, and operations research. The workshop has received 32 submissions, which confirmed a continued interest in this topic. The program committee had a difficult decision to make as most submissions have been highly relevant to the workshop. Finally, 21 papers have been selected for presentation for the two-day workshop. The papers do not only cover theoretical aspects, but also applications and voting theory. The complete list of papers and the papers themselves can be found online

http://www.mycosima.com/ecai2006-preferences/.

The **application track** covered different problems such as music selection on a mobile phone, natural language processing, robot planning, personalized information systems, mechanism design, and travel planning. M. Wagner (DoCoMo Lab.) presented a prototype for eliciting music preferences via the small screen of a mobile phone. G. Smits (France Télécom) used preferences for disambiguation in natural language processing. D. Shaparau (ITC-IRST) addressed robot planning with goal preferences where robot actions may have non-deterministic effects. G. Koutrika (Univ. of Athens) defined collaborative query personalization, i.e. personalized searches that not only include the user's preferences, but also those of trusted or like-minded people. B. Faltings presented V. Conitzer's (CMU) talk about how to change mechanisms to make them more strategy-proof and to avoid that manipulations are beneficial. This issue occurs in combinatorial auctions when agents do not report their preferences truthfully. P. Viapinni (EPFL) used adaptive suggestions for preference elicitation in travel planning.

The **theoretical track** focused on aggregation of preferences and on optimization under preferences. M. Endres (Univ. of Augsburg) integrated conditional preferences (TCP-nets) into preference data queries and thus gave a good example for a cross-fertilization between approaches developed in different areas. A. Ishizaka discussed preference aggregation within the analytic hierarchy process (AHP) and observed that multiplicative AHPs support compromise solutions, while additive AHPs don't. C. Labreuche (Thales) used explanation techniques to identify inconsistent preference information. M. Öztürk (LAMSADE) aggregated preferences that are supported by positive reasons with preferences that are supported by negative reasons (as exemplified by vetoes). Several authors presented methods for exploring the Pareto-frontier. T. Preisinger (Univ. of Augsburg) presented the BNL++ algorithm for evaluating Pareto preference queries. M. Gavanelli (Univ. of Ferrara) examined how to improve the pruning power of a dominance constraint by using linear relaxation techniques. U. Junker (ILOG) developed an outer branching scheme for Pareto-optimization.

Voting and social choice found a vivid interest on this year's workshop. J. Lang (IRIT) examined voting in combinatorial domains. K. Venable and M. Pini (Univ. of Padova) both discussed the impact of incompleteness and incomparability in preference aggregation on winner determination. P. Fortemps (Faculté Polytechnique de Mons) designed an axiomatic framework to characterize coalition-based egalitarian voting procedures. O. Rodrigues (King's College London) investigated the relationship between belief revision, belief merging, and voting.

These contributions came from different domains such as data-base research, operations research, robot planning, constraint programming, but all discussed aspects of preference handling that have been of common interest to the workshop audience. The workshop had 37 registered participants and has been very well received by the audience. During the main ECAI conference several other people regretted that they could not attend the workshop due to parallel activities. We have reasons to believe that the workshop achieved its goal of stimulating new ideas and insights in preference handling and of leading to a broader understanding of the possible applications of this emerging domain.

Following a suggestion of Alexis Tsoukiàs, the participants decided to found a long-term working group on preference handling. The participants also suggested to co-locate events with conferences from different areas. In 2007, Werner Kießling and Jim Delgrande are organizing the workshop on advances in preference handling at the 33rd International Conference on Very Large

Data Bases. Please consult the following website for forthcoming events on preference handling http://wikix.ilog.fr/wiki/bin/view/PreferenceWS/WebHome.

3.2 Dagstuhl Seminar on Practical Approaches to Multi-Objective Optimization, December 10–15, 2006, Dagstuhl, Germany

Kaisa Miettinen, Helsinki School of Economics

One can say that there are two communities dealing with multiobjective optimization problems: MCDM and EMO (evolutionary multiobjective optimization) communities and they have remained rather isolated from each other during the years: they have their own conferences, journals, etc. This was the starting point and motivation of the First Dagstuhl Seminar on Practical Approaches to Multi-Objective Optimization which was organized in November 2004 (see http://www.dagstuhl.de/de/program/calendar/semhp/?semnr=04461 for the seminar and http://drops.dagstuhl.de/portals/index.php?semnr=04461 for the proceedings). The organizers were Juergen Branke (University of Karlsruhe, Germany), Kalyanmoy Deb (IIT Kanpur, India), Kaisa Miettinen (Helsinki School of Economics, Finland) and Ralph E. Steuer (University of Georgia, USA).

During the First Dagstuhl Seminar, two aspects clearly emerged and were unanimously agreed by all the participants. Firstly, getting both MCDM and EMO researchers and applicationists together in one seminar for five days and in a Dagstuhl environment was beneficial to both groups in terms of understanding each other's approaches better and fostering collaboration. Secondly, all the participants thought that it was a good starting event, but there was an urgent need for the two groups to arrange more such extended meetings to continue the interactions. For these reasons, the Second Dagstuhl Seminar was organized in December 2006.

In the Second Dagstuhl Seminar on Practical Approaches to Multi-Objective Optimization, about 80 researchers were invited, about 40 from the MCDM and 40 from the EMO community and, in all, about 50 researchers were able to attend the seminar. The organizers of the Second Dagstuhl Seminar were the same as in the First Seminar with the exception that Roman Slowinski (Poznan University of Technology, Poland) replaced Ralph E. Steuer.

In connection with the Second Dagstuhl Seminar, we (the organizers) decided to initiate an ambitions project of writing a book covering both MCDM and EMO approaches and their hybridization possibilities. We believe that this book has the potential to become a key reference and inspiration for the growing community dealing with the challenges of multiobjective optimization. To start with, some of the world's best experts from both communities were invited to write chapters for the book, for example, about different approaches in MCDM and EMO and how their benefits can be but together in order to get new hybrid methods. Special attention was paid to interactive methods and methods utilizing preference information because many EMO approaches have lacked these properties until recently. The contents of the chapters were discussed in the seminar in order not to miss any important topics and, also to avoid overlaps. Besides talks devoted to book chapters, the seminar program consisted of talks on recent research trends. In addition, an important part of the seminar was active work in working groups.

The topics of the working groups were: real-world applications of multiobjective optimization, software, quality of Pareto set approximations, MODM - a learning perspective, parallel approaches for multiobjective optimization, and future challenges. Besides the invited chapters, a book chapter will be prepared based on the work of each working group.

The title of the book was decided to be Multiobjective Optimization: Interactive and Evolutionary Approaches and it will be published by Springer in the LNCS Series as a LNCS State-of-the-Art Survey. For further information about the Dagstuhl Seminar and participants, see http://www.dagstuhl.de/de/program/calendar/semhp/?semnr=06501.

On behalf of all the organizers, I would like to thank the participants for active discussions and attendance as well as for a very positive attitude towards the book project.

4   Other upcoming events

4.1   65th meeting of the European Working Group Multiple Criteria Decision Aiding (MCDA65), April 12–14, 2007, Poznan, Poland

Roman Slowinski, Poznan University of Technology

Dear Colleague,

We are pleased to cordially invite you to the 65th meeting of the European Working Group Multiple Criteria Decision Aiding (MCDA65) which will be held on April 12–14, 2007 in Poznan, Poland. The meeting is organized by the Laboratory of Intelligent Decision Support Systems, within the Institute of Computing Science of the Poznan University of Technology, and by the Poznan Branch of the Polish Academy of Sciences.

The main theme of this meeting is Decision with multiple decision makers. All contributions dealing with multiple criteria decision aiding, and in particular those relating to the theme of the meeting, are welcome. Communications can be made in both official languages of the Group: English and French.

Please visit the website of the MCDA65 meeting: http://www.mcda65.org/

4.2   CORS'2007, May 14–16, 2007, London (Ontario), Canada

Belaid Aouni, Laurentian University

The CORS'2007 Conference will take place from May 14 to 16, 2007 at the University of Western Ontario in London, Ontario (Canada). I am organizing a cluster on Multicriteria Decision Aid and Multi-Objective Programming. I would like to invite you to participate in this cluster. The guidelines for submitting abstracts are available online at the conference web page: http://www.cors2007.ca/. Please send me a copy of your abstract or submit it through the conference website. Please do not forget to specify that your abstract is for the Multicriteria Decision Aid Cluster.

The deadline for submitting an abstract is Friday March 16, 2007. Abstract received by that date will receive preference in scheduling. For additional information on the CORS'2007 meeting, please go to the conference web page. Please send me a notice if you plan to participate in this Conference.

My e-mail is: baouni@laurentian.ca.

4.3   2007 Joint Rough Set Symposium (JRS07), May 14–16, 2007, Toronto, Canada

Salvatore Greco (University of Catania), Wojtek Michalowski (Universtity of Ottawa), Roman Slowinski (Poznan University of Technology)

Multiple Criteria Decision Analysis (MCDA) is a research field that provides theoretical basis and methodologies to deal with complex problems involving a plurality of viewpoints and often plurality of the participants. MCDA proved its applicability to many domains, including environmental management and sustainable development, finance and banking, energy planning, clinical decision making and health care. Recent methodological developments associated with the exploration of new research tools, mainly originating from various sub-fields of artificial intelligence, promise to provide new insight into the MCDA. This is combined with an exploration of new domains such as world wide web or ubiquitous decision support. Contributions dealing with these new advances are invited. Topics appropriate for this special session include, but are not limited to, the following area:

1. Rough sets and soft computing approaches to MCDA

2. MCDA using fuzzy integrals

3. Multiple objective programming and normative decision making

4. Decisions with a plurality of decision makers

5. Supporting decisions in complex environments

Conference website: http://www.infobright.com/jrs07/

4.4   DSTIS Conference, July 18–20, 2007, Warsaw, Poland

Andrzej P. Wierzbicki, National Institute of Telecommunications, Poland

Dear MCDM Colleagues,

Since the year 2000, we organize at the National Institute of Telecommunications in Warsaw, Poland an international conference DSTIS (Decision Support for Telecommunications and Information Society). The sixth such conference will take place in Warsaw on July 18-20, 2007, see the page: http://www.itl.waw.pl/konf/dstis/2007/

This year we would like to intensify and broaden our conference; we already moved a little in the direction of diverse aspects of data mining, knowledge acquisition, even knowledge creation, but multiple criteria decision making remains one of fundamental aspects of the themes of the conference. Warsaw is beautiful in July and is full of interesting places to visit.

The next week after the conference, on July 23–27, there is the 23rd IFIP TC7 Conference on System Modelling and Optimization in Cracow, Poland; this is a great opportunity to combine these two conferences and visit also Cracow, a former capital of Poland before Warsaw, full of historical heritage. See http://ifip2007.agh.edu.pl/

As the conference chairman of DSTIS, I would like to invite you to present a paper at the DSTIS conference. You have time to prepare a one page abstract of your paper before May 15. Hope to see you in Warsaw and possibly also in Cracow.

4.5 EURO XXII, July 8–11, 2007, Prague, Czech Republic

The 22nd European Conference on Operational Research EURO XXII will be organized by the Czech Society for Operational Research in cooperation with the University of Economics, Prague. The Conference will be held in the campus of the University of Economics which is situated very close to the Prague historical center.

The organizers invite all researchers, academicians, practitioners, as well as students interested in all branches of operational research, mathematical modelling and economic analyses to participate at the conference and to present their papers. Areas of interest include Multiple Criteria Decision Making and Optimization, Decision Analysis & Decision Support Systems, Fuzzy Sets & Expert Systems, among many others.

Conference website: http://euro2007.vse.cz/

4.6 The 7th International Conference on Optimization: Techniques and Applications (ICOTA7) December 12–15, 2007, Kobe International Conference Center, Japan

The International Conference on Optimization: Techniques and Applications (ICOTA) is an official conference series of POP (The Pacific Optimization Research Activity Group). The goal of ICOTA is to provide an international forum for scientists, researchers, software developers, and practitioners to exchange ideas and approaches, to present research findings and state-of-the-art solutions, to share experiences on potentials and limits, and to open new avenues of research and developments, on all issues and topics related to optimization and its applications.

ICOTA7 will be held at the International Conference Center, Kobe, Japan, during December 12–15, 2007. It aims to address to a large audience that includes both researchers from academia and practitioners from industry. Thus, we welcome papers that deal with theory and/or applications in any optimization related issue.

Examples include:

1. Papers dealing with modeling, design, analysis, theory and numerical methods, and simulation that are related to optimization.

2. Papers addressing practical optimization problems arising in science, social science, engineering, business, industry, and defense.

3. Papers arising from research works on areas such as intelligent information and technology applications, knowledge management, technology of information and communication networks, and sustainable development.

Conference website: http://www.iict.konan-u.ac.jp/ICOTA7/

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/~ewgmcda/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/