International Society on Multiple Criteria Decision Making

MCDM

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Contents

Front: Miyajima, Japan © Martin Geiger

Letter from the president

Dear Members of the International Society on Multiple Criteria Decision Making,

You are reading the second newsletter of the Society which the new editorial team has prepared. As you can see, new types of contents have been included. I hope that you'll find this newsletter interesting and useful. As always, your input, feedback and suggestions are most welcome! Let me repeat my earlier invitation: if any member of our Society is interested in joining the editorial team with a specific area of responsibility, please, do not hesitate to contact me at president (at) mcdmsociety.org.

Two main activities of the Society are approaching. The 22nd International Conference on Multiple Criteria Decision Making will take place in Malaga, Spain, on June 17-21, 2013. Calls for sessions and abstracts will be published later this year so, please, follow the conference website http://www.uma.es/mcdm2013/. I look forward to seeing as many of you as possible attending this conference. In Malaga, the decision will be made of where the 23rd International Conference will be organized in 2015. A call for proposals will be published at the beginning of the next year. So, if you are interested in hosting MCDM2015, please, do not hesitate to contact me for further information.

In particular, doctoral students should pay attention to the fact that Hamburg will host the 11th Summer School on MCDM on July 22 - August 2, 2013. Summer schools are organized only every three years, so this is an excellent opportunity for doctoral students and master students who are finishing their degrees to widen understanding of various areas of MCDM and MCDA including theory, methods and applications.

Every year we attend many conferences and other scientific events around the world where MCDM is being applied and studied but the existence of our Society is not necessarily known. I turn to you asking you to spread information of our Society. We warmly welcome new members (as you know, this does not involve any membership fee). To help advertising our Society, I open a **call for proposals** as an A5-sized single-paged leaflet briefly introducing our Society. This leaflet could be distributed in appropriate events. The Executive Committee of our Society will consider the proposals and decide which of them can be a starting point as a final leaflet to be prepared. The deadline for sending your proposal to me is end of year 2012.

Remember that the officers of our Society can easily be contacted at the following email addresses:

president (at) mcdmsociety.org,

president-elect (at) mcdmsociety.org,

secretary (at) mcdmsociety.org,

mcdm-award@mcdmsociety.org and

newsletter (at) mcdmsociety.org.

I hope you have had a good summer e.g. attending many conferences and I wish you all a fruitful autumn 2012! (Those of you in the southern hemisphere, please, convert the seasons :)

Kaisa Miettinen

President of the International Society on MCDM

President (at) mcdmsociety.org

Professor and Vice-rector

University of Jyvaskyla, Finland

P.S. It is important that you are active and **keep your contact information up to date** at http://mcdmsociety.org/members/ by typing in your email address and password. If you have forgotten your password, please, click the "Forgot your password" link, type in your email address and you'll receive instructions by email. If you face any problems in updating your data, e.g. your email address has changed, please, contact the Secretary at secretary (at) mcdmsociety.org.

1   Society news

1.1   The 22nd International Conference on Multiple Criteria Decision Making, June 17-21, 2013, Málaga, Spain

¡Hola, amigos!

Dear colleagues and friends. The preparations for the 22nd International Conference on Multiple Criteria Decision Making, MCDM2013, which will be held in Málaga (Spain) from June 17 to June 21, 2013, are going on as scheduled. Some important events related to the conference will take place in the following months. Most importantly:

- The call for invited sessions will be issued on October 1st.
- The first call for abstracts will be issued on November 1st.

Therefore, let me suggest you to check our webpage http://www.uma.es/mcdm2013 regularly for all the details. Besides, you can also follow the updates in our Facebook group MCDM2013 (www.facebook.com/groups/mcdm2013), and via twitter, following our account @MCDM2013, or the hash tag #MCDM2013. All the announcements will also be made through the electronic discussion list of the Society, which I invite you to join if you have not done it yet. Let me remind you that being a member of the International Society on MCDM does not directly imply to subscribe to the discussion list. This must be done separately (go to http://www.mcdmsociety.org/discussion.html for further details).

The MCDM2013 online electronic system will be available soon in our webpage. At that moment, you will be able to sign up into the system. By doing so, you will gain access to all future actions (abstract submission, registration, etc.), and you will also receive actualized information about the MCDM2013 Conference in your email.

I am proud to announce that the organizing committee of the MCDM2013 conference has already invited three colleagues to deliver the plenary talks, and they have accepted. Our plenary speakers will be:

- Monday 17. Ralph L. Keeney. Duke University. Durham (NC). USA.
- Tuesday 18. Dylan F. Jones. University of Portsmouth. UK.
- Thursday 20. Carlos Bana e Costa. Technical University of Lisbon. Portugal.

I wish to thank them for having accepted our invitation. I am sure that they will greatly contribute to the scientific success of the conference.

We will be delighted to welcome you in Málaga in June 2013 for the MCDM2013 Conference. We will do our best to host a memorable conference for all the colleagues who decide to visit us. ¡Nos vemos en Málaga!

Francisco Ruiz

General Chair.

About Málaga

Málaga is located in Spain's southern region called Andalucía, and it is bathed by the Mediterranean Sea. With a population of over 600,000, its whole metropolitan area gathers nearly 900,000 inhabitants. Its strategic geographical situation, 150 kilometers east from the Strait of Gibraltar, has attracted the main Mediterranean cultures throughout the centuries. Founded by the Phoenicians in the VIII century B.C., Carthaginians, Romans, Byzantines, Visigoths and Arabs lived and left their legacies in our city before it joined the Spanish crown by the end of the XV century.

The weather in Málaga during the month of June is very pleasant, with average temperatures ranging from 17° C minimum and 27° C maximum, and with a very low probability of rain. The International Málaga-Costa del Sol airport offers direct links with over 60 destinations worldwide, and many more via Madrid or Barcelona. On the other hand, the modern high speed train service provides fast and convenient links with the main cities of Spain. An outstanding road infrastructure and the harbor, with a continuously growing cruise traffic, complete the connections network of the city.

The venue

The venue of the conference will be the Faculty of Economy and Business Administration of the University of Málaga. It is located next to the city centre, within walking distance from the main hotels of the conference. The Faculty is equipped with enough rooms to hold the parallel sessions and a larger auditorium for the plenary sessions. Lunches and coffee breaks will be served in the main hall.

Committees

The local organizing committee will be formed by my colleagues J. M. Cabello, M. Luque, O. D. Marcenaro, F. Pineda, B. Rodríguez, A. B. Ruiz, and R. Saborido.

The Program Committee is co-chaired by Profs. Rafael Caballero (University of Málaga, Spain) and Carlos Romero (Technical University of Madrid, Spain), and formed by Enrique Alba (University of Málaga, Spain), Carlos Coello (CINVESTAV-IPN, Mexico), Kalyanmoy Deb (IIT Kanpur, India), Jim Dyer (The University of Texas at Austin, USA), Matthias Ehrgott (The University of Auckland, New Zealand), José Rui Figueira (Technical University of Lisbon, Portugal), Salvatore Greco (University of Catania, Italy), Birsen Karpak (Youngstown State University, USA), Murat Köksalan (Middle East Technical University, Turkey), Pekka Korhonen (Aalto University, Finland), Mariano Luque (University of Málaga, Spain), Kaisa Miettinen (University of Jyväskylä, Finland), Roman Słowinski (Technical University of Poznan, Poland), Jaap Spronk (Erasmus University of Rotterdam, The Netherlands), Ralph Steuer (University of Georgia, USA), Theo Stewart (University of Cape Town, South Africa), Jyrki Wallenius (Aalto University, Finland) and Stanley Zionts (State University of New York, USA).

Social Program

The social program will provide the participants with an overview of our traditions, culture and gastronomy. We are planning to welcome you with a typical "moraga" (tasting our varied fish offer) by the seaside, and to carry out a visit around the main monumental part of the city and have a drink at a traditional cellar on Wednesday evening. The gala dinner will be held outdoors. We also expect to show you some Flamenco dancing performance.

Last but not least, don't forget that Málaga is the birthplace of the worldwide famous painter Pablo Picasso. During your stay, you can plan to visit the Picasso Museum, and Picasso's birth place, or some of the other museums that you can find in our city, like the Carmen Thyssen Museum or the Automobile Museum.

Contact

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Facebook group. MCDM2013 (www.facebook.com/groups/mcdm2013)
Twitter: @MCDM2013

1.2   MCDA/M Summer School 2013, Hamburg, Germany

11th MCDA/M Summer School 2013
Helmut-Schmidt-Universität,
Hamburg, Germany
July 22nd – August 2nd, 2013

The Summer School on MCDA/M is a joint event of the International Society on Multiple Criteria Decision Making and the EURO Working Group on Multicriteria Decision Aiding. It follows a tradition which now spans back 30 years.

Goals of the Summer School

The aim of the school is to give to doctoral students/young researchers a state-of-the-art presentation of multiple criteria methods, applications and software. Multicriteria decision aid (MCDA) is a rapidly evolving domain which scientific developments are altogether based on fundamental sciences as mathematics, computer science, operation research, engineering, etc. and on social sciences and management science as sociology, management, political sciences. Interdisciplinarity needs a special involvement and will to insure full collaboration. The field of application is continuously expanding and social demands are numerous. The specific objectives of the school are:

- to exchange knowledge to provide an efficient approach of real life decision problems;
- to present recent developments in MCDA methods and practices;
- to present software developments;
- to analyze and discuss several applications of MCDA to complex evaluation situations.

Besides, we want to stipulate a network of young researchers in MCDA.

Target audience

The ideal number of participants is about 40. The summer school will host: young researchers who wish to achieve a thesis on the subject or to carry on a personal work which uses Multicriteria decision aid or to in-depth their knowledge in this discipline in order to complete their training, professionals (staff members in Government and Industry, managers, consultants) who wish to familiarize with the tools on Multicriteria decision aid in view to use them in the frame of their work; It is very important that both categories described be present in order to favor the exchanges between people who are used to deal with decision problems in very different manners.

Language

The official language of the School is English.

Scientific program

The scientific program of the summer school is, each day, organized into two morning and two afternoon sessions (=40 sessions in total). It comprises three parts.

(i) The main part consists of invited lectures on the topics of MCDA/M, i.e. the classical version of the summer school as it always was in the past. Lectures on "Problem Structuring", "Preference Modeling", "Multi Attribute Value/Utility Theory", "Outranking Approaches", "Robust Ordinal Regression", "Multi Objective Optimization", "Interactive Methods", "Multi Objective Combinatorial Optimization", "Multi Objective Evolutionary Algorithms", "Fuzzy Approaches", among others, will be given.

(ii) Besides, computer lab sessions and working groups on case studies are included in the scientific program.

(iii) As a new element, a student stream will be organized, which will give the participating students the opportunity to present their research topics and results to the others and the invited lecturers.

Dates

The MCDA/M Summer School is a two-week event, taking place from July 22nd to August 2nd, 2013. While the official scientific program starts on Monday, 22nd of July, an informal get-together will be organized the evening before (i.e. 21st of July, 2013).

Registration

Registration to the summer school will open in September 2012.

Please notice: The MCDA/M Summer School 2013 is a non-profit event. The aim of the organizers at the Helmut-Schmidt-Universität, Hamburg, is to provide an excellent scientific environment at low costs. This implies that all registration fees collected will go back to the participants in some form (teaching material, lecturers, lunches, social program, etc.).

Summer School homepage

http://logistik.hsu-hh.de/MCDAM-2013

1.3   Call for nominations: MCDM Awards

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 22nd International Conference on MCDM in Málaga, Spain, June 17-21, 2013. The Society has three awards: **1. MCDM Gold Medal, 2. Edgeworth-Pareto Award, and 3. Georg Cantor Award**, and nominations are welcome to the awards generally. The awards committee will make a decision on how many (1-3) and who are awarded.

Submit nominations to: Professor Pekka Korhonen, Department of Business Technology, Aalto University, School of Economics, P.O. Box 21220, 00076 Aalto, Finland (preferably by e-mail), mcdm-award@mcdmsociety.org. Contact him for further information.

To assure full consideration:

1. Make the nominations by February 28, 2013.
2. Indicate the name of the nominee, why (s)he is worthy of the award, his/her contributions to the MCDM field, and anything else that is relevant to the award.
3. Provide the CV of the nominee or the link to it.

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 of the Society.

The Members of the Award Committee:

Pekka Korhonen (chairman)
Murat Köksalan
Benedetto Matarazzo
Kaisa Miettinen (ex officio)
Hirotaka Nakayama
Carlos Romero
Jaap Spronk
Francisco Ruiz (ex officio)
Detlof von Winterfeldt

1.4   Call for applications: Wiley Practice Prize

John Wiley & Sons Limited, as publishers of the Journal of Multi-Criteria Decision Analysis, are once more sponsoring a prize for the best paper describing a real-life application of multiple criteria decision making presented at the 22nd International Conference on Multiple Criteria Decision Making to be held in Málaga, Spain from June 17 to June 21, 2013. The prize is US $1000, while the winning paper and approved finalist papers will be published in the journal. Conference delegates wishing to have their papers considered for the prize should submit full

papers by 31 January, 2013 directly to Theo Stewart (Editor in Chief of the journal) at theodor.stewart@uct.ac.za, with a copy to the conference organizers at mcdm2013@uma.es. This submission implies that the paper has not been submitted for publication to any journal. The adjudication process will then be as follows:

- A committee will perform a preliminary screening of submissions to select finalists. (It is expected that at most 4 finalists will be selected). The finalists will be informed by 30th April, 2013.

- The finalists will at this point be required to upload their papers formally on to the JMCDA on-line submission system. (Instructions will be given at that time). The papers will then be subject to a full review according to the standard procedures of the journal.

- Finalist papers which have been submitted to the journal will be assembled into a special practice prize session at the conference, where their status as finalists will be advertised.

The final decision of the practice prize jury will be announced by 30th September 2013. The jury will take into consideration both the presentation at the conference and the referees' reports from the journal.

The prize winning paper is ensured publication in the journal, although minor revisions may be requested. Decisions on the others will be subject to reviewers' comments, and may require revisions. The intention is to group all of these papers into a single issue of the journal. Please note that submitting a full paper to the Wiley Practice Prize competition does not replace submitting an abstract to the Conference.

1.5   Call for applications: MCDM Doctoral Dissertation Award

At the 22nd International Conference on Multiple Criteria Decision Making, the International Society on Multiple Criteria Decision Making will honor **the MCDM Doctoral Dissertation Award** to a young scholar who has recently obtained a doctoral degree and completed an excellent doctoral dissertation in the Multiple Criteria Decision Making (MCDM) and/or related research fields.

Once applications are received, the MCDM Doctoral Dissertation Award Committee will evaluate the applications, identify finalists and provide recommendations to the MCDM Executive Committee for the final decision. The award will be announced at the 22nd International Conference on Multiple Criteria Decision Making, University of Málaga, Spain, June 17-21, 2013. The finalists are expected to give a short talk at the conference and the final decision will be made after the talks.

Application Process:

Deadline for applications: February 28, 2013. Please send the zip file of the application packet to Yong Shi, the chair of the MCDM Doctoral Dissertation Award Committee at yshi@unomaha.edu and yshi@gucas.ac.cn

Eligibility: All applicants, whose dissertation is in the MCDM and/or related fields and graduated with a doctoral degree in 2010, 2011, 2012 or 2013.

The application packet should include the following documents (all of which must be written in English, except the diploma or acceptance form):

- Cover letter.
- Detailed resume.
- Scanned copy of the original diploma of Doctoral Degree /Scanned copy of dissertation acceptance form signed by all committee members for recent graduates who do not have the diploma.

- Electronic copy of the Doctoral Dissertation Report of the corresponding supervisor.

- Extended Abstract of the Doctoral Dissertation in English, limit of four single-spaced pages.

- Copy of related publications/patents based on the Doctoral Dissertation, if any. In this case, the report of the supervisor must include a paragraph stating that the publication(s) derive directly from the dissertation.

- Supporting letters of three references, at least two from persons who were not Dissertation Advisors or did serve on the Dissertation Committee.

MCDM Doctoral Dissertation Award Committee:

- Yong Shi (Chair), Chinese Academy of Sciences, China /University of Nebraska at Omaha, USA
- Andrzej Jaszkiewicz, 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

1.6   Find a research collaborator through the MCDM Newsletter

We are pleased to inform the members of the Society about a new section, "**Find a research collaborator"** in the MCDM Newsletter.

What is "Find a research collaborator"?

Find a research collaborator will be a new section in the MCDM Newsletter. The main idea behind this section is to enhance research collaboration between members of the Society. This section consists of problem definitions with a brief background and contact information from the presenter. The members who are willing to collaborate and have the necessary skills may make contact directly with the presenter. In addition, this section may also help members to establish joint projects.

What you need to do?

The research problem presenters may send one's research problem, with a brief background and contact information not exceeding one page to karthiksindhya@hotmail.com. A full description of the problem may be linked to the presenter's web page. Please note that this is an open invitation for entries which we accept throughout the year. We accumulate the entries and publish them in the subsequent the MCDM Newsletters.

What we want to achieve?

We want to enhance the research collaboration between different research groups, e.g. EMO and rest of MCDM. In addition, we also want to enhance research collaboration between young researchers, research groups and inter-continental research collaboration. Subsequently, we expect to have new entries to the MCDM 2013 conference.

2 Presentation of the INFORMS Decision Analysis Society

(Prepared by James S. Dyer & Jeffrey M. Keisler)

Introduction

We are delighted that Johannes Siebert has asked us to provide this article introducing the INFORMS Decision Analysis Society (DAS) to the MCDM community. This is in part a follow up to an article about the European Working Group in Multicriteria Decision Analysis in the DAS newsletter last year that raised DAS awareness of MCDA activities. Our activities in DAS should be of interest to some in MCDM, and dialogue between our communities is valuable as there are obvious overlaps among our research interests. Within the MCDM community, awareness of DAS ranges from minimal to high levels of activity in both communities. With that in mind, our goal is to facilitate MCDM members in following DAS activities, joining in dialogue with DAS, and getting involved if they are so inclined.

The rest of this article gives the authors' informal characterization of decision analysis around which the DAS is organized, followed by a description of the society and its activities, ending with pointers for the reader who wishes to learn more.
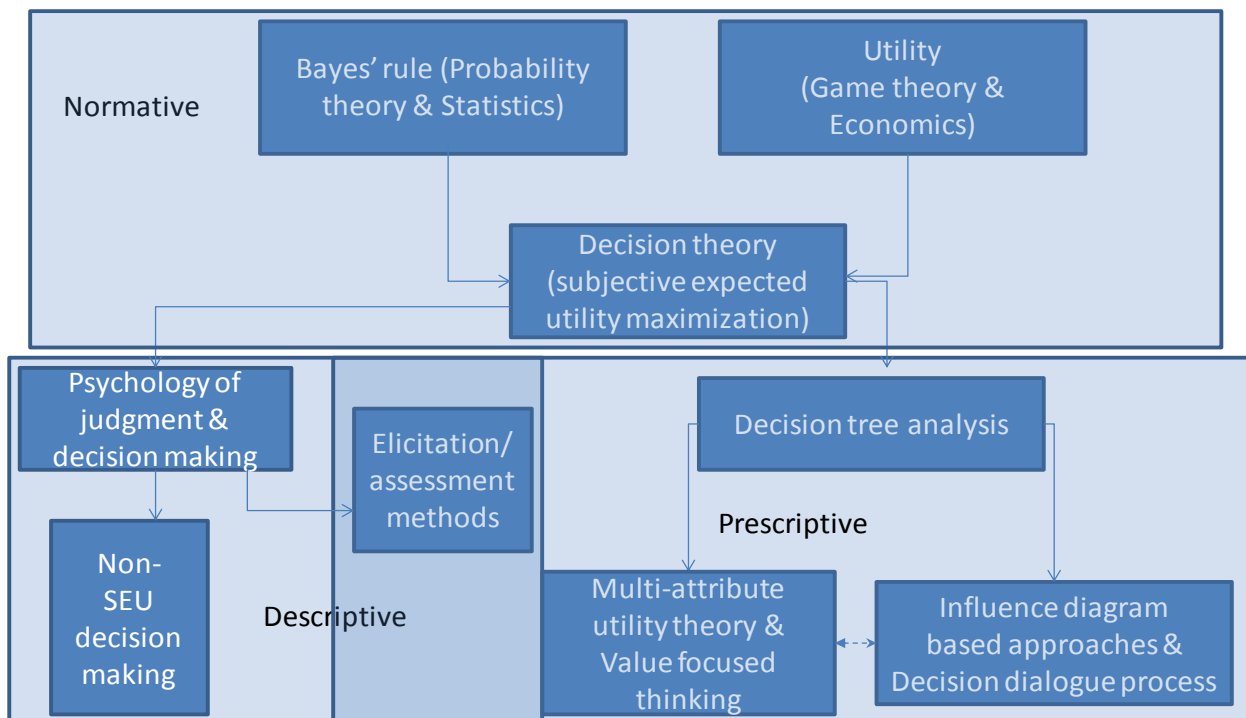
The Field of Decision Analysis

The term "decision analysis" can be used more narrowly or more broadly, and this can be a source of confusion when our societies interact. For example, there are substantial differences between the editorial statements about Decision Analysis in the INFORMS Journals and the editorial statement for the Journal of Multicriteria Decision Analysis. For clarity, we discuss the terminology around decision analysis as DAS members would typically understand it.

According to the editorial statement for the Decision Analysis area of the journal Operations Research: "Decision analysis methods have traditionally addressed modeling uncertainty (Bayesian inference, subjective probability elicitation, combining expert opinions, scoring rules for eliciting and evaluating probability assessments, sensitivity analysis, information value); structuring preferences (utility and risk attitude, utility assessment, stochastic dominance, structuring objectives and attributes, multiattribute utility and value); and representing and solving decision problems (decision trees, influence diagrams, Bayesian networks, alternative generation, value trees, fault trees, dynamic programming). Decision analysis methods also draw on related fields such as the psychology of judgment and choice (heuristics and biases, prospect theory) or methods for dealing with multiple stakeholders (cooperative and noncooperative game theory, negotiation)." The objective of much of this work is to assist individual decision makers in choosing among alternatives with uncertain outcomes.

The roots of decision analysis can be traced back to the early work on subjective probabilities and utility theory in economics which were developed from axiomatic statements regarding rational behavior. Utility theory is a fundamental concept in both decision analysis and game theory. Utility, which means "usefulness" was a prevalent concept in economics going back at least to the 1800s. With the invention of game theory, Von Neumann & Morgenstern (1944) formalized the concept of utility. With their axioms, a utility function assigns a numerical score to each possible outcome, and the ordering of the expected utilities of lottery over outcomes is consistent

with the order of preferences over these lotteries. Utilities may be simply assigned to a small number of discrete outcomes. More commonly, outcomes are measured in terms of a real variable, such as wealth, and utility is a real-valued function of a real variable. Decision theory (Luce & Raiffa, 1957) combines the use of utilities with probability theory so that, with given actions and probabilities of state variables, the probability of each outcome can be identified. It is then possible to calculate the expected utility of each possible action or sequence of actions and identify the best course in the face of uncertainty. The best course of action is by definition the one that maximizes subjective expected utility (SEU). With additional assumptions, e.g., about whether risk aversion is non-increasing in wealth, there will often be a unique utility function over all possible lotteries of outcomes that is consistent with preferences over a small number reference lotteries. In other words, the utility function can be assessed with a few specific questions and used for general problems.

The axioms of decision theory are often identified with rational behavior. What is sometimes referred to as normative decision theory is concerned with understanding the implications of these axioms and what it means to aspire to act consistently with them. This normative theory underlies decision analysis, which is viewed as prescriptive in that it aims to guide decision makers toward desirable action in real-life situations. Arising in response to normative and prescriptive views is the descriptive view. Descriptive decision theory acknowledges that human action is far from rational, and thus the axioms of decision theory do not form an adequate model of human behavior. Activities of descriptive decision theorists include performing experiments to see whether alternative rules might better describe human decision making, using mathematical modeling to understand implications of such alternative rules (e.g., non-SEU models). Another important contribution of descriptive decision theory is using what is known about human judgment to create improved assessment or elicitation methods for obtaining inputs for decision analytic model that are more robust against the biases and traps to which people are vulnerable. Figure 1 illustrates the connection between normative, prescriptive and descriptive views, all three of which are represented within DAS.

Classical decision analysis (Raiffa, 1968) provides methods to identify utility functions, as well as methods to elicit consistent judgments about the probabilities of outcomes conditional on actions taken. The use of decision trees then facilitates identification of the most desirable course of action in any given situation that can be described in terms of decisions and probabilistic events. Ron Howard is often credited with suggesting that the field should be called decision analysis rather than decision theory, to emphasize it's practical use for solving real-world problems. His early work with several colleagues provides many original developments that have become standard tools and methods in the field, as summarized in Readings in Decision Analysis, Ronald A. Howard, James E. Matheson, and Katherine L. Miller Decision Analysis Group, Stanford Research Institute, Menlo Park, 1976. The structured use of this suite of tools within an organizational decision process is sometimes referred to as the Decision Dialogue Process. Since that time decision analysis applications have flourished (see Keefer et al,2004).

Multi-attribute utility theory (or MAUT, Keeney & Raiffa, 1976) extends this basic decision theoretic concept to situations where the outcome is best characterized with multiple state variables, which provides a natural link between the interests of the members of the Decision Analysis Society and the members of the MCDM Society. Multi-attribute utility functions (MAUFs) are real valued functions of outcome measures. MAUFs must represent tradeoffs the decision maker is willing to make across dimensions of outcomes, and correctly account for interactions among these dimensions so that expected utility, as in the single-attribute case, leads to an ordering on lotteries over outcomes that is consistent with the decision maker's preferences. MAUFs are compositions of simpler utility functions of subsets of the outcome measures. Important cases are where the MAUF is the linear weighted sum of a set of single attribute utility functions, and where the relationship between the outcome measures and utility may be represented with a hierarchical set of functions. Associated with MAUT are efficient methods for identifying the utility function. These methods include the methods associated with single attribute utility functions, as well as checking about tradeoffs, independence of variables, and additional assumptions that may limit the form of the preference model. As with single attribute utility, decision analysis modeling can combine utilities from MAUFs with probability judgments to identify the most desirable course of action in a risky choice problem.

Multi-attribute value theory (MAVT) focuses on value functions rather than utility functions, which is a fairly technical point meaning that the functions are constructed tradeoffs to capture tradeoffs, but do not use reference lotteries involving uncertainty. Often, but not always, MAVT uses linear additive value models. These are consistent with MAUT in the special case where all of the utility functions are linear (which is often appropriate, e.g., for public decisions that have relatively small effects along different dimensions of national welfare).

MCDM often includes sophisticated optimization methods for choosing the values of decision variables. Multi-criteria decision analysis (MCDA) is a set of modeling frameworks and processes consistent with MCDM that are focused on structuring of decision problems and assessment of stakeholder tradeoffs. It commonly uses linear additive value models. Many, but not all, MCDA approaches are consistent with linear MAVT (sometimes this requires additional assumptions), and most are focused on selection under certainty so that decision trees are not used.

Figure 2 illustrates the relationships between the various approaches to value and utility functions and their uses.
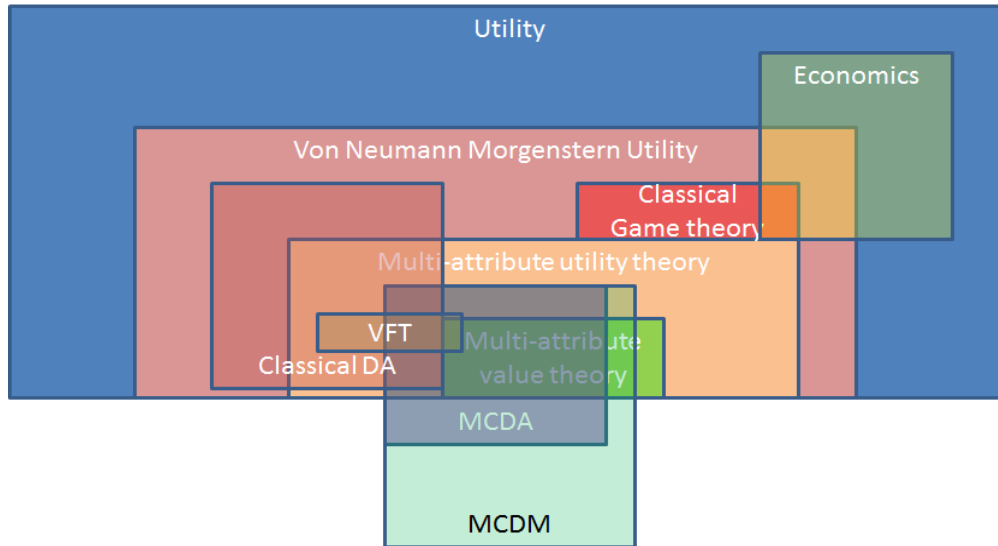
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The Decision Analysis Society

(The following material is adapted from our website, http://www.informs.org/Community/DAS)

The Decision Analysis Society promotes the development and use of logical methods for improving decision-making in public and private enterprise. Such methods include models for decision-making under conditions of uncertainty or multiple objectives; techniques of risk analysis and risk assessment; experimental and descriptive studies of decision-making behavior; economic analysis of competitive and strategic decisions; techniques for facilitating decision-making by groups; and computer modeling software and expert systems for decision support. Our

members include practitioners, educators, and researchers with backgrounds in engineering, business, economics, statistics, psychology, and other social and applied sciences.

The Decision Analysis Society is a subdivision of INFORMS, the Institute for Operations Research and the Management Sciences. INFORMS is the world's largest organization of operations researchers and management scientists, with over 12,000 members. The Decision Analysis Society is among the largest of INFORMS' subdivisions, with more than 1000 members.

The Decision Analysis Society was founded in 1980 as the ORSA Special Interest Group on Decision Analysis, becoming the INFORMS Section on Decision Analysis upon the merger of ORSA with TIMS. In February 1996, the Section on Decision Analysis became the Decision Analysis Society.

The field of decision analysis also includes a number of practitioners and consultants, some of whom belong to the Society but may also belong to affiliated groups that generally have a more applied focus. These would include the Society of Decision Professionals http://www.decisionprofessionals.com/ and the Decision Analysis Affinity Group http://www.daag.net/

Journals and Newsletter

The primary journals associated with the Decision Analysis Society are *Management Science, Operations Research*, and *Decision Analysis. Management Science* has a Department Editor for Decision Analysis responsible for the review of related papers to the journal assisted by a staff of Associate Editors. *Operations Research* has an Area Editor for Decision Analysis with a similar responsibility. The editorial statements for both of these editors may be found on the websites of the respective journals. Interfaces is another INFORMS journal that publishes applications of management science and operations research, including decision analysis.

The members of the Decision Analysis Society receive an online subscription to the affiliated journal *Decision Analysis. Decision Analysis* is a quarterly journal dedicated to advancing the theory, application, and teaching of all aspects of decision analysis. In 2012, it ranked #38 out of 166 Management journals according to the ISI Impact Factor. The primary focus of the journal is to develop and study operational decision-making methods, drawing on all aspects of decision theory and decision analysis, with the ultimate objective of providing practical guidance for decision makers. As such, the journal aims to bridge the theory and practice of decision analysis, facilitating communication and the exchange of knowledge among decision analysts in academia, business, industry, and government. More information, including the editorial statement for the journal and a list of current and recent publications may be found at the journal web site http://www.informs.org/Pubs/DA

In addition, the Decision Analysis Society publishes its newsletter Decision Analysis Today three times per year (typically April, August & December), and this contains information that would be relevant to scholars and practitioners interested in many facets of decision making. Current and past editions of the newsletter can be found at http://www.informs.org/Community/DAS/Newsletter/Archive

Awards

Like many other societies, the Decision Analysis Society recognizes outstanding contributions to the field with four awards given annually.

Frank P. Ramsey Medal. The Frank P. Ramsey Medal is the highest award of the DAS and recognizes distinguished contributions to the field of decision analysis.

Decision Analysis Publication Award. The Publication Award is given annually to the best decision analysis article or book published in the second preceding calendar year (i.e. publications appearing in 2010 are considered for 2012 award).

DAS Practice Award. The Practice Award is given annually to the best decision analysis application, as judged by a panel of Society members.

DAS Student Paper Award. The Student Paper Award is given annually to the best decision analysis paper by a student author.

Decision Analysis at INFORMS Conferences

INFORMS holds a large annual conference in October or November. At this conference, DAS runs a cluster of sponsored sessions (approximately 30 this year). There are also contributed sessions. Sessions are 90 minutes and usually feature three or four presentations. To participate in or organize sponsored sessions in the DAS cluster, it is best to contact the co-chairs organizing the cluster.

There are decision analysis sessions planned for each of the major upcoming INFORMS conferences. General information about the conferences (registration details, etc.) may be found by following the links for the conference. Information for this year's conference is below. DAS also aims to have a presence at other conferences where INFORMS is a co-sponsor.

> **2012 INFORMS Annual Meeting**
>
> **October 14-17, 2012**
>
> **Phoenix Convention Center**
>
> **Phoenix, AZ**
>
> **http://meetings2.informs.org/phoenix2012/**

Conclusion

We invite members of the MCDM community to learn more about the INFORMS Decision Analysis Society and to engage within our decision analysis community. For more information, please check the following:

Decision Analysis Society Home Page http://www.informs.org/Community/DAS

Decision Analysis Journal http://www.informs.org/Pubs/DA

The DAS has LinkedIn and Facebook communities. Each can be found easily by searching for "Decision Analysis Society" on the site.

In addition, the DAS has a listserv open to DAS members only. The registration form is at http://list.informs.org/mailman/listinfo/decision-analysis-society

Join the Decision Analysis Society: DAS members are strongly encouraged but not required to be members in INFORMS. Dues are $30 for regular INFORMS members, and minimal for student and retired members who are also members of INFORMS. Fees are slightly higher for non-INFORMS members. Instructions on joining are available at: http://www.informs.org/Community/DAS/How-To-Join

We look forward to getting to know our colleagues in MCDM.

James S. Dyer and *Jeffrey M. Keisler*

Jim is The Fondren Foundation Centennial Chair in Business in the Department of Information, Risk, and Operations Management, McCombs School of Business, University of Texas. He is a former president of the DAS and a winner of the DAS Frank P. Ramsey Medal. He is also a member of the MCDM Executive Committee and a former winner of the MCDM Edgeworth-Pareto Award.

Jeff is Professor in the Department of Management Science and Information Systems, College of Management, University of Massachusetts Boston. He is President-Elect of the DAS.

3   The importance of words: An anecdote by Simon French

Words have meanings to stakeholders, often very different meanings to the ones that you might think of at first. I remember a decision workshop in which we were evaluating the impacts of a set of policies. We had structured a criteria tree without too much difficulty, which, in a way had surprised me. The group included some members of a government agency and several representatives of different stakeholder groups. In particular, one woman -- call her 'Jane' -- was a very strong character and, in the vernacular, a 'tree-hugger'. I don't use that term pejoratively, but rather as a shorthand description. My guess is that you will all have a mental picture of her perspective and values from that, far better than I could describe in a much longer paragraph. I had expected her to balk at the structuring of values into a tree. But, no, she seemed happy with it.

Then we started scoring quantitatively. Immediately, I could see Jane timed out. I tried to involve her in the assessments of criteria scores of each of the potential policies. But she would not take part. The others in the group quickly took to ranking and then scoring the policies on 0-100 scales, but she took no part and was clearly discomforted by the process. You could see her tension on her face. I decided that she probably objected to quantification of 'intangibles'. Like a good facilitator, I tried all the neutral ways of drawing her into the deliberations, but to no avail, explaining the basis of multi-criteria value analysis again and again in different ways. Eventually I feel back onto a direct question: "What's wrong, Jane? Why are you not taking part in the scoring?" "Because it is '**SCORING**'," she said with emphasis. And went on to explain that footballers tried to score; tennis players tried to score; sportsmen and women tried to score. Scoring was good: it is what you tried to achieve. You could not 'score' environmental impacts and many of the other criteria. Environmental impacts were bad. So I stopped talking about scoring criteria, and the rest of the group did too. We **assessed** the impacts on the criteria. And Jane did too. She volunteered quantitative assessments of the policies on the criteria. She entered fully into the debates.

As I said, words have different meanings for stakeholders and for Jane scoring has quite different connotations for her than for the rest of the group.

Since then I have taken much more care to negotiate with the group the words we use. I explain processes and ask how they would like to describe them. More importantly, though, I have learnt another lesson. **Don't prejudge people**. Sure, Jane was a 'tree-hugger', but, as she showed, that did not mean she would reject multi-attribute value analysis when intangibles were included nor, that she might object to the simplification of complex issues. Far from it: when we stopped

'**scoring**' and started '**assessing**', she entered into the deliberations enthusiastically. People are individuals. As a facilitator, you need to let them show you their character, their values and their perspective. Pigeon-holing them into caricatures is not a good thing. I did it then and to tell this anecdote I did it above, but I no longer let myself do it in decision workshops.

Simon French

Simon is Director of the Risk Initiative and Statistical Consultancy Unit at the University of Warwick. He is known for his work on risk and decision analysis. This began with his early work on decision theory which saw several papers on the mathematical foundations of rational decision making and the publication of his text on Decision Theory. That strand of work still continues in the background: e.g. his joint book, co-authored with David Rios Insua, *Statistical Decision Theory* (Edward Arnold, London, 2000). However, his work generally has become more applied, looking at ways of supporting real decision makers facing major strategic issues. Moreover it has broadened to the fields of risk analysis and management. He has collaborations with psychologists to help understand how people behave and how they can be supported in complex tasks and decisions. A related strand of work concerns risk communication, particularly between decision makers and stakeholders. The recent book *Decision Behaviour, Analysis, Support* (Cambridge University Press, 2009) with co-authors Nadia Papamichail and John Maule surveys all these aspects of decision analysis and support.

In applications Simon has worked with many regulators and organisations in the public sector: the Department of Health, the UK Food Standards Industry, the European Space Agency, the Health Protection Agency, and many parts of the nuclear industry at national and European levels. He took part in the International Chernobyl Project. In all his work the emphasis is on multi-disciplinary approaches to solving real problems and the innovative use of technology in supporting decision making. Much of his consultancy is as a facilitator of decision conferences, using small group meetings with IT support to drive forward strategic decision making in organisations. He has a particular interest in supporting emergency management processes. Currently, Simon's research is working on major decisions and the roles of stakeholder involvement and public participation in these' particularly how expert judgement may be drawn into public deliberations.

4 Upcoming Events and Call for Papers

4.1 *EMO 2013, Sheffield UK, 19-22 March 2013*

EMO 2013 — Call for Papers — Sheffield UK

The 7th International Conference on Evolutionary Multi-Criterion Optimization — 19-22 March 2013

EMO 2013, Sheffield UK, 19-22 March 2013
Submission deadline: 14 September 2012
www.shef.ac.uk/emo2013

About EMO 2013

EMO 2013 aims to build on the success of the 2011 meeting in Ouro Preto, Brazil, in bringing together the evolutionary multi-criterion optimization (**EMO**) and multiple criteria decision making (**MCDM**) communities, and will also stimulate a new focus on the application of EMO and MCDM research to help solve real problems in government, business and industry.

Submissions are invited to our three tracks:
- Core EMO track
- MCDM track
- Real-world applications track **New for 2013!**

To encourage opportunities for technical interactions within and outside conference sessions, the conference will run in single track format at **The Edge**, Sheffield - a self-contained facility set within a cluster of beautiful walkways and greenery.

EMO 2013 will present a full programme of social activities, including champagne reception and banquet at **Chatsworth House** in the Peak District National Park - one of the most historic houses in Britain and home to one of the most significant art collections in Europe.

Core EMO track
IPC Chair: Carlos Fonseca, University of Coimbra

In the core EMO track, full papers are invited on novel aspects of evolutionary multi-criterion optimization theory and methodology. Topics may include: new aggregation-based, dominance-based, indicator-based algorithms; knowledge mining of the problem landscape; handling problem features such as many objectives, uncertainty, time-variance, and expensive evaluations; interactive preference articulation and exploitation methods; theoretical analyses; new developments in collaborative and parallel approaches; new paradigms for multi-objective search and new developments in EMO-related paradigms; new tools for empirical analyses; hybrid EMO-MCDM methods.

MCDM track
Chair: Salvatore Greco, University of Catania

Full papers are invited for the integrated MCDM track on new developments in the multiple criteria decision making community that might be blended with EMO themes. Original research, tutorial and survey papers are welcome in this track.

Real-world applications track
Chair: Jane Shaw, Unilever

Papers are invited from within and outside the academy on real-world problems in government, business, industry and interdisciplinary sciences, whose solutions have benefited from the recent application of EMO/MCDM methods, and papers addressing the issues that decision makers have in trusting formal approaches over their own experience and intuitions.

Organizers
General chairs: Robin Purshouse & Peter Fleming, University of Sheffield, and Carlos Fonseca, University of Coimbra
Steering committee: Carlos Coello Coello, David Corne, Kalyanmoy Deb, Peter Fleming, Carlos Fonseca, Hisao Ishibuchi, Joshua Knowles, Kaisa Miettinen, David Schaffer, Lothar Thiele, Eckart Zitzler.

Publication — Springer — Lecture Notes in Computer Science — LNCS LNAI LNBI

All accepted works will be published as full papers in Springer-Verlag's Lecture Notes in Computer Science (LNCS) series. Papers must follow the LNCS style and may be **up to 15** pages in length.

Important dates
Submission deadline:	14 September 2012
Notification of acceptance:	4 November 2012
Camera-ready submission:	2 December 2012
EMO 2013 conference:	19-22 March 2013

Contact EMO 2013
Email: emo2013@shef.ac.uk
Twitter: @emo2013_uk

EMO 2013 Sponsors — The University Of Sheffield. — MARIE CURIE ACTIONS

4.2   International Journal of Multicriteria Decision Making (IJMCDM)

International Journal of
Multicriteria Decision Making (IJMCDM)

Website: www.inderscience.com

ISSN (Online): 2040-1078

ISSN (Print): 2040-106X

Special Issue on: '*Multi-criteria Decision Aid and Artificial Intelligence*'

Guest Editors

Aida Valls and **Antonio Moreno**, Universitat Rovira i Virgili, Tarragona, Spain

The objective of this special issue is to publish recent advances and applications related to the combination of methods from MCDA (Multi-Criteria Decision Aid) and AI (Artificial Intelligence). MCDA and AI have evolved significantly over the past two decades, as two separate fields. Nevertheless, there are similarities between them, especially in the areas of learning, decision and prediction from data. The development of hybrid models and methods can take advantages from both approaches.

Although we strongly encourage authors who presented work in these areas at the 75th Meeting of the European Working Group on MCDA (held in Tarragona from 12 to 14 April 2012) to submit their manuscripts, this Call for Papers is also open to the entire community of academics and practitioners and we welcome all suitable submissions on the topics below.

Subject Coverage

The main topics for this special issue include but are not limited to (both theoretical and applied papers are accepted):

- Intelligent decision support systems
- Recommender systems using MCDA techniques
- Uncertainty models in decision making (e.g. probabilistic, fuzzy, rough sets)
- Representation and management of linguistic information
- Decisions in the Semantic Web
- AI techniques for user profile representation and exploitation
- Preference learning: machine learning and statistical learning
- AI methods revised to include the user's preferences (e.g. clustering or classification)
- Knowledge-based MCDA
- Aggregation operators and information fusion
- Group decision making (e.g. social choice, consensus measures)
- Optimisation methods in AI

Notes for Prospective Authors

All papers are refereed through a double blind process. A guide for authors, sample copies and other relevant information for submitting papers are available at www.inderscience.com/papers

Submitted papers should not have been previously published nor be currently under consideration for publication elsewhere.

Important Dates

The deadline for submission is: 30th October 2012

Editors and Notes

Authors may submit a single manuscript online by registering at http://www.inderscience.com/ospeers/authorregister.php, following the onscreen instructions. Details for preparing the manuscript can be found at www.inderscience.com/guidelines. The average size for the paper is around 15-20 pages.

5 New Books/Publications

This section presents a list of papers published in 2011, 2012 or to appear. This list is by no means exhaustive. If you want your recent publications to appear in the next newsletter, please send an email with the complete citation of your work to lucie.galand@dauphine.fr.

5.1 Books and book chapters

R. R. Venkata: **Decision Making in Manufacturing Environment Using Graph Theory and Fuzzy Multiple Attribute Decision Making Methods**, *Springer Series in Advanced Manufacturing*, Volume 2, Springer-Verlag London, UK, Hardcover, 2013

M. Köksalan, J. Wallenius, and S. Zionts: **Multiple Criteria Decision Making: From Early History to the 21st Century**, *World Scientific*, Singapore, 2011.

5.2 Journal papers

N. Argyris, J. R. Figueira, A. Morton: **A new approach for solving Multi-Objective Binary Optimisation problems, with an application to the Knapsack Problem**, *Journal of Global Optimization*, 49: 213-235, 2011.

E. Balibek, M. Köksalan: **A Visual Interactive Approach for Scenario Based Stochastic Multi-Objective Problems and an Application**, *Journal of Operational Research Society,* to appear.

V.E. Berezkin, G.K. Kamenev: **Convergence Analysis of Two-Phase Methods for Approximating the Edgeworth–Pareto Hull in Nonlinear Multicriteria Optimization Problems**, *Computational Mathematics and Mathematical Physics*, 52(6), 846–854, 2012.

J. Bragge, P. Korhonen, H. Wallenius, J. Wallenius: **Scholarly Communities of Research in Multiple Criteria Decision Making: A Bibliometric Research Profiling Study**, *International Journal of Information Technology and Decision Making*, 11(2), 401-426, 2012.

N.B. Brusnikina, A.V. Lotov: **Visualization of the Moving Pareto Frontier in DSS**, *Scientific and Technical Information Processing*, 38(5), 322-331, 2011.

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O. Cailloux, P. Meyer, V. Mousseau: **Eliciting Electre Tri category limits for a group of decision makers**, *European Journal of Operational Research*, 223(1), 133-140, 2012.

A. Dehnokhalaji, P. Korhonen, M. Köksalan, N. Nasrabadi, J. Wallenius: **Convex Cone-Based Partial Order for Multiple Criteria Alternatives**, *Decision Support Systems*, 51, 256-261, 2011.

S. Deparis, V. Mousseau, M. Ozturk, C. Pallier, C. Huron: **How Conflict Induces the Expression of Incomplete Preferences**, *European Journal of Operational Research*, 221(3), 593-602, 2012.

N. Devlin, J. Sussex: **Incorporating multiple criteria in HTA**. *Methods and processes*, OHE Report, 2011.

S. Dietz, A. Morton: **Strategic appraisal of environmental risks: a contrast between the UK′s Stern Review on the Economics of Climate Change and its Committee on Radioactive Waste Management**, *Risk Analysis*, 31:129-142, 2011.

P. Eskelinen, K. Miettinen: **Trade-off Analysis Approach for Interactive Nonlinear Multiobjective Optimization**, *OR Spectrum*, to appear.

A. Fitzgerald, C. de Coster, S. McMillan, R. Naden, F. Armstrong, A. Barber, L. Cunning, B. Conner-Spady, G. Hawker, D. Lacaille, C. Lane, D. Mosher, J. Rankin, D. Sholter, T. Noseworthy: **Relative urgency for referral from primary care to rheumatologists: The priority referral score**, *Arthritis Care & Research* 63, 231-39, 2011.

O. Golan, P. Hansen: **Which health technologies should be funded? A prioritization framework based explicitly on value for money**, *Israel Journal of Health Policy Research*, in press.

O. Golan, P. Hansen, G. Kaplan, O. Tal: **Health technology prioritization: Which criteria for prioritizing new technologies and what are their relative weights?**, *Health Policy* 102, 126-35, 2011.

L.F.A.M. Gomes, L.A.D. Rangel, M.R. Leal Filho: **Treatment of uncertainty through the interval smart / swing weighting method: a case study**, *Pesquisa Operacional*, 31(3), 467-485, 2011.

L.FA.M. Gomes, V.A. Moreno JR., B. Woitowicz, S.F. Lucas: **A multicriteria approach to selecting Business Intelligence tools**, *RESI: Electronic Journal of Information Systems(e-journal)*, 10(2), 1-28, 2011.

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N. Görmez, M. Köksalan, S. Salman: **Locating Disaster Response Facilities in Istanbul**, *Journal of Operational Research Society*, 62, 1239–1252, 2011.

S. Greco, M. Kadzinski, V. Mousseau, R. Slowinski: **Robust ordinal regression for multiple criteria group decision: UTAGMS-GROUP and UTADISGMS-GROUP**, *Decision Support Systems*, 52(3), 549-561, 2012.

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M. Hartikainen, K. Miettinen, M.M. Wiecek: **PAINT: Pareto Front Interpolation for Nonlinear Multiobjective Optimization**, *Computational Optimization and Applications*, 52(3), 845-867, 2012.

I. Huang, J. Keisler, I. Linkov: **Multi-criteria decision analysis in environmental sciences: Ten years of applications and trends**, *Science of the Total Environment* 409:3578-94, 2011.

G.K. Kamenev, A.V. Lotov, T.S. Mayskaya: **Construction of Suboptimal Coverings of the Multidimensional Unit Sphere**, *Doklady Mathematics*, 85(3), 425–427, 2012.

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C. Karvetski, J. Lambert, I. Linkov: **Integration of Decision Analysis and Scenario Planning: Application to Coastal Engineering and Climate Change**, *IEEE Transactions on Systems, Man, and Cybernetics--Part A: Systems and Human*, 41:63 -73, 2011.

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B. Lokman, M. Köksalan: **Finding all Nondominated Points of Multi-objective Integer Programs**, *Journal of Global Optimization*, to appear.

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S. Ruuska, K. Miettinen, M.M. Wiecek: **Connections between Single-level and Bilevel Multiobjective Optimization**, *Journal of Optimization Theory and Applications*, 153(1), 60-74, 2012.

K. Sindhya, K. Miettinen, K. Deb: **A Hybrid Framework for Evolutionary Multi-Objective Optimization**, *IEEE Transactions on Evolutionary Computation*, to appear.

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M. Sparrevik, D.N. Barton, M. Bates, I. Linkov: **The Use of Stochastic Multi-criteria Decision Analysis to Support Sustainable Management of Contaminated Sediments**, *Environmental Science and Technology* 46: 1326−1334, 2012.

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D. Tezcaner, M. Köksalan: **An Interactive Algorithm for Multi-objective Route Planning**, *J Optim Theory Appl,* 150, 379–394, 2011.

S.L. Tilahun, H.C. Ong: **Fuzzy preference of multiple decision makers in solving multiobjective optimization problems using genetic algorithm**, *Maejo International Journal of Science and Technology*,6(02), 224-237, 2012.

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C. Tofallis: **An automatic-democratic approach to weight setting for the new human development index**, *J Population Economics*, to appear.

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Remediation at Different Spatial Scales, *Integrated Environmental Assessment and Management* 7:393-395, 2011.

5.3   Conference proceedings

O. Cailloux, V. Mousseau: **Parameterize a territorial risk evaluation scale using multiple experts knowledge through risk assessment examples**, *ESREL*, Conference of the European Safety and Reliability Association, 2331-2340, 2011.

C. Delort, O. Spanjaard, P. Weng, **Committee Selection with a Weight Constraint Based on a Pairwise Dominance Relation**, *2nd International Conference on Algorithmic Decision Theory*, Lecture Notes in Artificial Intelligence, 6992, 28--41, 2011.

A. Leroy, V. Mousseau, M. Pirlot: **Learning the parameters of a multiple criteria sorting method based on a majority rule**, *2nd International Conference on Algorithmic Decision Theory*, 219-233, 2011.

E. Machuca, L. Mandow: **Multiobjective route planning with precalculated heuristics**, *Proc. of the 15th Portuguese Conference on Artificial Intelligence*, 98–107, 2011.

E. Machuca, L. Mandow, J. Pérez De La Cruz, A. Iovanella : **Heuristic multiobjective search for hazmat transportation problems**, *Proceedings of the 14th international conference on Advances in Artificial Intelligence*, Lecture Notes in Computer Science, 8023, 243–252, 2011.

B. Mayag, O. Cailloux, V. Mousseau: **MCDA tools and Risk Analysis: the Decision Deck Project**, *ESREL*, Conference of the European Safety and Reliability Association, 2324-2330, 2011.

S. Ruuska, K. Miettinen: **Constructing Evolutionary Algorithms for Bilevel Multiobjective Optimization**, *Proceedings of the 2012 IEEE World Congress on Computational Intelligence*, IEEE Press, 374-380, 2012.

J. Zheng, O. Cailloux, V. Mousseau: **Constrained Multicriteria Sorting Method Applied to Portfolio Selection**, *2nd International Conference on Algorithmic Decision Theory*, 219-233, 2011.

5.4   Research Reports
S. Greco, J. Knowles, K. Miettinen, E. Zitzler (eds): **Learning in Multiobjective Optimization**, Dagstuhl Seminar 12041, Dagstuhl Reports 2(1), Schloss Dagstuhl, Germany. 2012.

6 Past Conference, Workshops, and other News

6.1 75th meeting of the European Working Group on MCDA

University Rovira i Virgili, in Tarragona (Catalonia, Spain), hosted the 75th meeting of the European Working Group "Multiple Criteria Decision Aiding" (MCDA), from April 12th to 14th, 2012. The meeting was organized by Dr. Aida Valls, with the help of the research group ITAKA (Intelligent Technologies for Advanced Knowledge Acquisition).

The topic of the meeting was "MCDA and Artificial Intelligence: connections and challenges". In particular, techniques for learning and managing preferences, the treatment of uncertainty or methods for decision making in group have been studied separately in the Operational Research and Soft Computing or AI. However, the relation between these two fields of research has been recently recognized in different forum and publications. So, the aim of the meeting was to discuss about the relations and differences between the approaches to decision making in these two research fields. The meeting had about 60 participants mainly from European countries, but also from Canada, Tunis and Morocco.

The meeting was supported by the Catalan Association for Artificial Intelligence (ACIA) and the EURO association, as well as for the Department of Computer Engineering and Mathematics, the Engineering School, the University Rovira i Virgili (URV) and Diputació de Tarragona.

The opening ceremony had some words by Dr. Aida Valls, general chair of the MCDA75 meeting, Prof. Josep Domingo-Ferrer, head of the Department on Computer Engineering and Mathematics, and Prof. Roman Slowinski, co-coordinador of the EWG-MCDA.

The activities started with the "Young Researchers Session" that presented an exhibition of 9 posters. Some URV students of the Master on Intelligent Systems and Information Security prepared 3 posters aimed to illustrate different connections between MCDA and AI. They were devoted to: "*MCDA and electronic commerce*", "*Decision making software tools*" and "*Ontologies in decision making*". The rest of the posters were submitted from students from different countries, covering quite different application topics and methods.

A debate was organized on Thursday with three invited speakers: *Prof. Jose Luis García-Lapresta*, from University of Valladolid (Spain), expert in social choice using linguistic information, *Prof. Vicenç Torra*, from the Research Institute on Artificial Intelligence (Bellaterra, Catalonia), expert in aggregation operators mainly with fuzzy data, and *Prof. Salvatore Greco*,

University of Catania (Sicily, Italy), expert in MCDA methods, mainly for learning from examples. Two questions were proposed to the speakers and to the audience: (1) "*Advantages and drawbacks of expressing preferences in a linguistic scale*" and (2) "*Are the multi-criteria decision aid methods scalable to large sets of data?*". A very participatory discussion was done on the topics proposed, focusing mainly on the problems of the different types of evaluation scales: cardinal, ordinal and even linguistic versus numerical.

The submitted papers were organized in 5 sessions: *Knowledge-based systems and decision making, Software for MCDA, Preferences, Applications, and Decision making methods*. We had 18 oral presentations and 14 papers submitted for discussion. The abstracts were printed in the proceedings and are available on the web page of the meeting (see below). The authors of these contributions are invited to a special session organized in the 9th International Conference on Modeling Decision for Artificial Intelligence (MDAI). In addition, submitted papers will undergo a two-fold blind review to be selected for publication in a special issue of the International Journal of Multicriteria Decision Making **(**IJMCDM**),** published by Inderscience.

More information about the meeting can be found at:

http://deim.urv.cat/~itaka/CMS4

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Aida Valls

6.2   14th IPMU (Information Processing and Management of Uncertainty) conference in Catania

The 14th IPMU (Information Processing and Management of Uncertainty) conference, organized by Bernadette Bouchon-Meunier (Université Pierre et Marie Curie, France), Giulianella Coletti (University of Perugia, Italy), Mario Fedrizzi (University of Trento, Italy), Salvatore Greco (University of Catania, Italy), Benedetto Matarazzo (University of Catania, Italy) and Ronal R. Yager (Iowa College, USA), has been held from 9 to 13 July 2012 at the University of Catania (Italy). It put together around 300 researchers from all the five continents.

The conference participants have enjoyed the brilliant plenaries of the invited speakers Kalyanmoy Deb (Uncertainty Handling Using Evolutionary Multi-objective Optimization), Antonio Di Nola (Lukasiewicz logic and MV-algebras for a mathematical theory of fuzzy sets), Christophe Marsala (Fuzzy Machine Learning in Dynamical Environments), Roman Słowiński (Dominance-based Rough Set Approach to Reasoning about Vague Data) and Tomohiro Takagi (Web marketing and analogical reasoning).

Around 260 presentations were given in the following sessions: Fuzzy Machine Learning and On-line Modeling, Computing with Words and Decision Making, Fuzzy Measures and Integrals, Imprecise probabilities, Intelligent Databases and Information Systems, 40th Anniversary of the Measures of Fuzziness, Uncertainty in Profiling Systems and Applications, Sensing and Data Mining for Teaching and Learning, Theory and applications of intuitionistic fuzzy sets, Fuzzy Numbers and their Applications, Information Processing and Management of Uncertainty in

Knowledge-Based Systems, Aggregations functions, Belief function theory: basics and/or applications, Game theory, Fuzzy uncertainty in economics and business, New trends in De Finetti's approach, Coopetition, Rough Sets and Complex Data Analysis: Theory and Applications, Fuzzy Implications: Theory and Applications, Basic Issues in Rough Sets, Linguistic Summarization and Description of Data, Soft Computing in Computer Vision, Probabilistic Graphical Models with Imprecision: Theory and Applications, Handling Uncertainty with Copulas, Approximate Aspects of Data Mining and Database Analytics, Philosophical and Methodological Aspects of Soft Computing, Information Fusion Systems, Fuzzy Relations, Uncertainty in Privacy and Security, Uncertainty in the Spirit of Pietro Benvenuti and, obviously, Multicriteria Decision Making.

All the works have been published by Springer in a book of the series "Communications in Computer and Information Science" that will be available in September.

On Thursday afternoon the participants had the pleasure to join a tour in Syracuse where they had the opportunity to visit numerous wonderful places as The Greek Theatre, The Ear of Dionysius, The Duomo Square, The Cathedral and The Maniace Castle and many others. After the excursion, the social dinner has been hold in "Villa Arlecchino" in Syracuse from which the conference participants could enjoy of an impressive view.

During the social dinner the winners of three awards: the Kampé de Fèriet Award, The Genil Award and three Eusflat Grants have been announced. The Kampé de Fèriet Award has been assigned to Michio Sugeno in view of his eminent research contributions to the handling of uncertainty through fuzzy measures and fuzzy integrals, and fuzzy control using fuzzy systems. The Genil (Granada Excellence Network of Innovation Laboratories) Award, consisting of the possibility to the winner to collaborate for one month with one of the research groups that participates in GENIL has been assigned to Nuria Bertomeu Castello who presented a paper titled "Finding optimal presentation sequences for a conversational Recommender System". The three Eusflat Grants, consisting of three grants of 300 Euro each to support students for attending the IPMU 2012 Conference, were assigned from the Eusflat Society to the following young researchers: Marco Cerami (On finitely valued Fuzzy Description Logics: The Lukasiewicz case), Mohammad Ghasemi Hamed (Possibilistic K-nearest neighbor regression using tolerance intervals) and Rosa Maria Rodriguez (Group Decision Making with Comparative Linguistic Terms).

The closing session on Friday ended the 14th IPMU conference looking forward to participate to the next edition which will be held in Montpellier (France) in 2014.

Salvatore Greco and *Salvatore Corrente*

7 Research Team Presentation: Computational Intelligence Research Group at Osaka Prefecture University

Professor Hisao Ishibuchi

1. Research Group

About 25 years ago, I happened to find a job at Osaka Prefecture University as a research associate in a research group on "Fuzzy Systems" headed by Prof. Hideo Tanaka: 2010 Fuzzy Systems Pioneer Award Recipient from IEEE Computational Intelligence Society. When I started to work with Prof. Tanaka at Osaka Prefecture University in 1987, I did not know anything about fuzzy systems. In the late 1980s, we had a big fuzzy boom in Japan just after I joined his research group. At that time, it seemed to me that fuzzy systems were used in everything in Japan from washing machines and vacuum cleaners to air conditioners and video cameras. It was an exciting experience for a young researcher to study fuzzy systems in the midst of the fuzzy boom in Japan. I also studied interval analysis since it is closely related to fuzzy systems. My first journal paper related to multiobjective optimization was on an optimization problem of an objective function with interval coefficients [1] where a solution set was defined by reformulating it as a two-objective problem.

Almost the same time, I experienced a rapid increase in the popularity of "Neural Networks". I started to study neural networks together with a few students in the late 1980s. I wrote a number of papers on fuzzy rule-based systems and fuzzy neural networks. In the early 1990s, another rapidly growing research area "Evolutionary Computation" also looked very interesting for me. Evolutionary computation was included in my research areas. When I was young, I enjoyed studying the three major research areas of computational intelligence as well as some other related topics such as rough sets, simulated annealing, tabu search, reinforcement learning, games and multiobjective optimization.

In the 1990s, I wrote a number of papers related to multiobjective optimization such as evolutionary multiobjective scheduling [2], evolutionary multiobjective fuzzy system design [3] and multiobjective genetic local search [4]. All of these studies have high novelty. For example, Ref.[3] and Ref.[4] are well-recognized as the first journal papers on evolutionary multiobjective design of fuzzy rule-based systems and hybridization of multiobjective genetic algorithms and local search. These research topics have been actively studied in my own research group on "Computational Intelligence" started in 1999 as a full professor with a few students. Current research topics in my research group include evolutionary multiobjective fuzzy system design [5, 7, 10], multiobjective memetic algorithms [6], evolutionary multiobjective and many-objective optimization [8, 9], parallel genetics-based machine learning and evolutionary games.

My research group has been small. Usually we have an associate professor, a Ph. D student and a few MS students. However, we have published a large number of research papers from such a small research group (e.g., see http://scholar.google.com/citations?hl=en&user=vx9EZN4AAAAJ)

2. Current Members

   The current members of my research group are as follows: Dr. Hisao ISHIBUCHI (Professor), Dr. Yusuke NOJIMA (Assistant Professor) and Naoya AKEDO, Koichiro HOSHINO, Naoshi TADOKORO, Akihito UEDA and Masakazu YAMANE (MS Students). Dr. Nojima and these students are working hard on the above-mentioned research topics. They are also kindly helping me with my work for societies and conferences such as IEEE CIS Vice-President for Technical Activities (2010-2013), Technical Co-Chair of FUZZ-IEEE 2012 and SEAL 2012, Technical Chair of IEEE CEC 2013, Program Co-Chair of FUZZ-IEEE 2013 and CEC 2014.

3. Ten important publications related to MCDM

1. H. Ishibuchi and H. Tanaka, "Multiobjective programming in optimization of the interval objective function," *European J. of Operational Research*, vol. 48, no. 2, pp. 219-225, September 1990.
2. T. Murata, H. Ishibuchi, and H. Tanaka, "Multi-objective genetic algorithm and its applications to flowshop scheduling," *Computer and Industrial Engineering*, vol. 30, no. 4, pp. 957-968, October 1996.
3. H. Ishibuchi, T. Murata, and I. B. Turksen, "Single-objective and two-objective genetic algorithms for selecting linguistic rules for pattern classification problems," *Fuzzy Sets and Systems*, vol. 89, no. 2, pp. 135-150, July 1997.
4. H. Ishibuchi and T. Murata, "A multi-objective genetic local search algorithm and its application to flowshop scheduling," *IEEE Trans. on Systems, Man, and Cybernetics - Part C: Applications and Reviews*, vol. 28, no. 3, pp. 392-403, August 1998.
5. H. Ishibuchi, T. Nakashima, and T. Murata, "Three-objective genetics-based machine learning for linguistic rule extraction," *Information Sciences*, vol. 136, no. 1-4, pp. 109-133, August 2001.
6. H. Ishibuchi, T. Yoshida, and T. Murata, "Balance between genetic search and local search in memetic algorithms for multiobjective permutation flowshop scheduling," *IEEE Trans. on Evolutionary Computation*, vol. 7, no. 2, pp. 204-223, April 2003.
7. H. Ishibuchi and Y. Nojima, "Analysis of interpretability-accuracy tradeoff of fuzzy systems by multiobjective fuzzy genetics-based machine learning," *International Journal of Approximate Reasoning*, vol. 44, no. 1, pp. 4-31, January 2007.
8. H. Ishibuchi, N. Tsukamoto, and Y. Nojima, "Evolutionary many-objective optimization: A short review," *Proc. of 2008 IEEE Congress on Evolutionary Computation*, pp. 2424-2431, Hong Kong, June 1-6, 2008.
9. H. Ishibuchi, N. Tsukamoto, and Y. Nojima, "Diversity improvement by non-geometric binary crossover in evolutionary multiobjective optimization," *IEEE Trans. on Evolutionary Computation*, vol. 14., no. 6, pp. 985-998, December 2010.
10. M. Fazzolari, R. Alcala, Y. Nojima, H. Ishibuchi and F. Herrera, "A review of the application of multi-objective evolutionary fuzzy systems: Current status and further directions," *IEEE Trans. on Fuzzy Systems* (in Press).

5. Group Photos

Research group members in a small seminar room

A Large Room of Dr. Nojima and Students

6. Contact information
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We are working on publishing the newsletter of the International Society on Multiple Criteria Decision Making two times a year. Contributions can be sent at any time to the editor (please see the address provided above).