International Society on Multiple Criteria Decision Making

E-News • 2009 • Issue 2 (August)

Contents

Front: Sunrise, around 33,000 feet over Papua New Guinea. © Martin J. Geiger

1 Society News

1.1 MCDM Society Directory

Kaisa Miettinen, Francisco Ruiz, and Jyrki Wallenius

Dear Colleagues.

The process of unifying and updating the membership databases is about to finish. Many of the representatives, who the secretary asked to update and revise their countries' data have already returned the updated files. We wish to thank all of you for your collaboration. Ralph Steuer and Craig Piercy have kindly made their original directory available to us. We appreciate their hard work over the years in maintaining the directory. Many thanks Ralph and Craig. A new directory management system has been set up at the new server of the Society. You can access it in http://www.mcdmsociety.org/members. In this page, the following actions are possible:

- If you are already a member of the Society, you can log in and update your data. Please, take into account that having your data current is crucial for many things (voting, receiving the newsletter, ...). In order to log in, you need to use your email address and a password. If you have forgotten your password, you can have it re-sent to your email address. If you have changed your email address without notifying us, please send a message to the secretary at secretary@mcdmsociety.org to have it changed in the database.
- If you wish to become a member, you can apply for membership by clicking "sign-up" and filling in the application form. You will be notified by e-mail about your application.

From now on, we would like to ask all of you to keep your data updated at all times. This will result in a better communication between the Society and its members.

Kaisa Miettinen, president-elect@mcdmsociety.org
Francisco Ruiz, secretart@mcdmsociety.org
Jyrki Wallenius, president@mcdmsociety.org

1.2 New Executive Committee Members

Kaisa Miettinen, University of Jyväskylä, Finland

Dear all,

The members of the International Society on MCDM have elected the following persons as the members of the Executive Committee (term 2009–2013):

- Jim Dyer
- Matthias Ehrgott
- Jose Figueira
- Roman Slowinski

Congratulations!

It is time to warmly thank the old executive committee and the members who are now stepping down (Kathrin Klamroth, Salvatore Greco, Daniel Vanderpoorten and Luis Vargas)!

With best regards, Kaisa

1.3 2009 MCDM Awards

Murat Köksalan, Department of Industrial Engineering, Middle East Technical University, Turkey

International Society on Multiple Criteria Decision Making (MCDM) presented the 2009-awards at the 20th International Conference on MCDM in Chengdu, China.

The **MCDM Gold Medal** is the highest honor that the Society bestows upon a scholar who, over a distinguished career, has devoted much of his talent, time, and energy to advancing the field of MCDM, and who has markedly contributed to the theory, methodology, and practice of MCDM. The Gold Medal was jointly awarded to Professor **Benedetto Matarazzo**, Catania University, Italy and to Professor **Detlof von Winterfeldt**, University of Southern California, California, USA and currently the Director of IIASA, Laxenburg, Austria.

The **MCDM Edgeworth-Pareto Award** is the highest distinction that the Society bestows upon a researcher who, over his career, has established a record of creativity to the extent that the field of MCDM would not exist in its current form without the far-reaching contributions from this distinguished scholar. The award was given to Professor **Gwo-Hshiung Tzeng**, Kainan University and Chiao Tung University, Taiwan.

The **Georg Cantor Award** is the highest form of recognition that the Society bestows upon a researcher who, over a distinguished career, has personified the spirit of independent inquiry and whose many innovative ideas and achievements are decidedly reflected in the theory, methodology, and current practices of MCDM. The award was given to Professor **Yong Shi**, Chinese Academy of Sciences, Beijing, China.

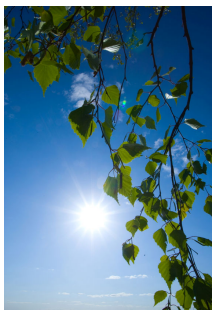
MCDM Conference Chairmanship Award was presented jointly to Professors **Yong Shi** and **Shouyang Wang**, both from the Chinese Academy of Sciences, Beijing, China, for their most gracious hospitality, and for their outstanding leadership and resourcefulness in organizing, managing, and chairing the Twentieth International Conference on Multiple Criteria Decision Making, Chengdu, China.

1.4 21st International Conference on Multiple Criteria Decision Making, Jyväskylä, Finland, June 13–17, 2011

Kaisa Miettinen, University of Jyväskylä, Finland

http://www.jyu.fi/mcdm2011

Welcome to the land of Midsummer Sun and University of Jyväskylä in June when the days are the longest: the sun shines about 21 hours a day with a few hours of twilight in between. This gives conference participants an opportunity to enjoy the unique northern nature and life style during the outing and even after the conference days.


If you wish to be informed of calls for proposals and papers etc., contact us at mcdm2011@mcdmsociety.org. Further information: http://www.jyu.fi/mcdm2011.

I wish you all most welcome to MCDM2011!

Prof. Kaisa Miettinen
Chair of the Conference

1.5 Some History of Multiple Criteria Decision Making, the International Society on Multiple Criteria Decision Making, and Related Activities

Ralph E. Steuer, University of Georgia, Athens, GA, USA
Stanley Zionts, Distinguished Professor Emeritus, State University of New York Buffalo, NY, USA
(with assists from Murat Köksalan, Professor, Middle East Technical University, Ankara, Turkey, and Jyrki Wallenius, Helsinki School of Economics, Helsinki, Finland)

Earliest Roots

The earliest known reference relating to Multiple Criteria Decision Making can be traced to Benjamin Franklin (1706–1790), who allegedly had a simple paper system for deciding important issues. Take a sheet of paper. On one side, write the arguments in favor of a decision; on the other side, write the arguments against. Strike out arguments on each side of the paper that are relatively of equal importance. When all the arguments on one side are struck out, the side which has the remaining arguments is the side of the argument that should be supported. Supposedly Franklin used this in making important decisions.

More Recent Developments

In 1955 Charnes, Cooper, and Ferguson published an article that contained the essence of goal programming, even though the name goal programming was first used in a book published by Charnes and Cooper in 1961.

Numerous researchers were stimulated by Charnes and Cooper's work. Goal programming since has become a mainstay of management science and operations research. Among the early contributors were Bruno Contini and Stan Zionts (both of whom studied with Cooper), who developed a multiple-criteria negotiating model published in 1968.

Intrigued by the multicriteria problem, Zionts continued his work and met Jyrki Wallenius at the European Institute for Advanced Studies in Management in Brussels in 1973. Working together, they drew on Zionts' earlier work (and goal programming) to develop the Zionts-Wallenius interactive method for solving multiple-objective linear programming problems.

Continuing their collaboration, Zionts and Wallenius were joined by Pekka Korhonen, a friend and colleague of Wallenius in the late 1970's. Jointly, they worked on methods and decision support systems for solving interactive multiple objective mathematical programming problems. Many of their students and colleagues continued to do significant research and publish on multiple criteria problems. These include Steven Breslawski, Hae Wang Chung, Dilip Deshpande, Ram Gopal, Tarja Joro, Mark Karwan, Zahid Khairullah, Murat Köksalan, Vahid Lotfi, Srinivas Prasad, R. Ramesh, Jeffrey Teich, Bernardo Villareal, Hannele Wallenius, Jingguo Wang, and Yong-Seok Yoon.

With respect to goal programming, James Ignizio, Sang Moon Lee, and Carlos Romero became major contributors.

Coming from another direction, Ron Howard wrote a paper on sequential decision processes with G.E. Kimball in 1959. We believe he used the term "decision analysis" for the first time during the mid 1960s. A principal co-author of Howard is James E. Matheson. Howard Raiffa was involved in decision analysis early on, and published an important work in 1968.

Ralph Keeney and Howard Raiffa published an important work in 1976. This book was instrumental in establishing the theory of multiattribute value theory (including utility measurement) as a discipline. It became a standard reference and text book for many generations of graduate students in decision analysis and MCDM.

In Europe, Bernard Roy and his colleagues developed ELECTRE, a family of Multi-Criteria Decision Analysis methods in the mid-1960's. The idea is to construct a directed network of preferences. Using the network, the methods construct a set of outranking decisions, or decisions that should be considered as "best". In 1975 Roy founded the EURO Working Group "Multiple Criteria Decision Aiding" which has held two meetings per year since then. Principal collaborators include C.A. Bana e Costa, Denis Bouyssou, Jean-Pierre Brans, Xavier Gandibleux, Eric Jacquet-Lagrèze, Yannis Siskos, Roman Slowinski, Philippe Vincke, and Constantin Zopounidis.

Daniel Kahneman and late Amos Tversky made important contributions in behavioral decision theory, and Kahneman went on to win the Nobel prize in Economics in 2002 for his contributions in this area. It is widely believed that Tversky, had he lived, would have shared the Nobel prize.

Ralph Steuer's professor, John Evans, suggested the topic of developing a multiple criteria simplex method to compute all efficient extreme points. Inspiration was drawn from works of Karlin, Koopmans, and Geoffrion. Steuer's ADBASE computer code for generating efficient points became important.

Milan Zeleny, a student of Po-Lung Yu at the University of Rochester, independently carried out and published similar work to Steuer's. In November 1972, Zeleny, and a colleague J. L. Cochrane, organized an international conference on MCDM in Columbia, South Carolina. Steuer and others including Jim Dyer, took part in the conference. The proceedings of this conference was the first major volume on MCDM and is still heavily cited.

Thomas Saaty introduced the Analytic Hierarchy Process in the 1970s and the Analytic Network Process more recently. His co-authors and colleagues include Ernest Forman and Luis Vargas. Saaty is one of the most successful people in MCDM, having been written up in Fortune magazine.

The Origins of the Special Interest Group on MCDM

After meetings organized by Zionts in Jouy-en-Josas (1975) and Buffalo (1977), Gunter Fandel, Tomas Gal, Jaap Spronk, Ralph Steuer, Andzej Wierzbicki and Stan Zionts, at a meeting in Königswinter, Germany, in 1979 founded the Special Interest Group (SIG) on MCDM. Zionts became the first leader of the group. The conference in Königswinter was considered the third, with Jouy-en-Josas, France and Buffalo, New York the first and the second. All early meetings, beginning with the first, had some funding for participants.

The MCDM conferences continued, with the fourth organized in Delaware in 1980 by J. Morse and the fifth in Mons, Belgium in 1982 by P. Hansen.

The sixth meeting was organized by Yacov Haimes in Cleveland, Ohio in 1984. Part of the tradition of the meetings has been to expose participants to cultural aspects of the host country and region. In addition to the high quality of the academic presentations, participants have the opportunity to interact and build long-lasting relationships. The conference banquets are memorable events.

H. Nakayama and Y. Sawaragi organized the seventh International conference in Kyoto, Japan in 1986. The organizers furnished the banner now used at every conference. A. G. Lockett and G. Islei organized the eighth conference in Manchester, U. K. in 1988.

In 1990 Ambrose Goicoechea organized the ninth International conference in Fairfax, Virginia. There were many international visitors, in particular many Soviets (25) and other Eastern Europeans (14). Elliott Lieberman played a major role in attracting Soviet and eastern participants. Considerable fund raising was necessary to make this possible. Principal players in the fund raising (in addition to Goicoechea) were Jerry Cohon, Rich Soland and Stan Zionts. The social activities included attending a professional baseball game in Baltimore (arranged by Cohon).

Gwo-Hshiung Tzeng and P. L. Yu organized the tenth conference, in 1992, in Taipei, Taiwan, most generously funded by the Taiwanese Government. Many attendees from the east were generously funded. Billionaire Russian oligarch Boris Berezovsky (an early member of the society) was offered a scholarship to attend. Although he did not attend, he personally paid for another Russian's airfare to attend.

The succeeding International conferences starting with the 11th and ending with the most recent (the 19th) were as follows: the Coimbra (Portugal) conference in 1994 organized by J. Climaco, the Hagen (Germany) conference in 1995, organized by G. Fandel and T. Gal, the Cape Town (South Africa) conference in 1997, organized by T. Stewart, the Charlottesville, VA (U. S. A.) conference in 1998, organized by Y. Y. Haimes, the Ankara (Turkey) conference in 2000, organized by M. Köksalan, the Semmering (Austria) conference in 2002, organized by M. Luptacik and R. Vetschera, the Whistler, B. C. (Canada) conference in 2004, organized by W. Wedley, the Chania (Greece) conference in 2006, organized by C. Zopounidis, and the Auckland (New Zealand) conference in 2008 organized by M. Ehrgott. The 20th conference, organized by Y. Shi and S. Wang, will take place in Chengdu (China) in June 2009.

Other Aspects of the Society and Its Meetings

Every meeting bears the mark of the hosts and host countries, making each one unique.

The tradition of awards was started in 1992 at the Taipei conference. Though several people have played a role in starting the awards, Tzeng has always overseen the manufacture and transportation of the plaques to the different conferences.

Zionts started a newsletter for the society in the 1970s, and then Steuer took it over in the mid 1980s. It is now distributed on the internet by Martin Josef Geiger, the current editor.

The society developed bylaws that were accepted at the conference in Charlottesville, Virginia, in 1998.

Other Important International Developments

During the 1970s, Howard Raiffa, a pioneer in decision theory, became the first director of the newly-formed International Institute for Applied Systems Analysis in Laxenburg, Austria, a major east-west think tank. Ralph Keeney joined him there shortly thereafter. Around 1980, Andrzej Wierzbicki became head of the methodology group at IIASA. IIASA's purpose was to enable scientists from both east and west to work on non-political problems of global concern such as forestry, water resources, energy, and population control.

Because of the complexity of the problems, MCDM was embraced as a promising decision tool. Two MCDM conferences were held at IIASA during the early 1980s.

Some eastern participants in MCDM activities include Yuli Dubov, Valerie Irikov, Ignacy Kaliszewski, Oleg Larichev. Alexander Lotov, Vladimir Noghin, Wlodzimierz Ogryczak, Alexey Petrovsky, Vladislav Podinovski, Andrzej Skulimowski, Roman Slowinski, and Tadeusz Trzaskalik.

Because of limited convertible funds contributed by eastern block countries to fund IIASA, there

was a substantial amount of eastern block money available for conferences in the east. There were numerous conferences in Eastern Europe.

Other active people in MCDM include Valerie Belton, Harold Benson, Joao Climaco, Kalyanmoy Deb, Matthias Ehrgott, Simon French, Raimo P. Hämäläinen, Alexander Lotov, Kaisa Miettinen, Masatoshi Sakawa, Serpil Sayin, Jaap Spronk, and Theodor Stewart. Please excuse any omissions.

Though other societies has developed (and we have mentioned specifically the Euro Working Group above), our purpose is to overview the general development of the field and the history of the International Society on Multiple Criteria Decision Making.

Given the rich history of MCDM, we hope that the future of our field continues to be as productive as the past.

1.6 In memoriam: Prof. Dr. Vassil Vassilev, 1946–2009

The Bulgarian MCDM Society

It is our sad duty to announce the sudden and unexpected death of Prof. Dr. Vassil Vassilev. Prof. Vassilev, a member of the Bulgarian MCDM Society, passed away on 4th of February 2009.

This heavy loss is not only of a good colleague and a friend, but also of a prominent scolar in the Bulgarian and international field of Cybernetics and Information Science.

Prof. Dr. Vassil Vassilev was born on 11th of November 1946 in the village of Lopjan, Sofia district. He graduated in 1970 from the Wroclaw Polytechnic University, Poland, with a Master degree in Automation. In 1973 Prof. Dr. Vassilev earned a second Master degree in Applied Mathematics at Wroclaw University, Poland, and in 1976 he defended Doctor's Thesis in Operations Research at Wroclaw University, Poland.

During the period 1970–1972, Prof. Dr. Vassil Vassilev worked as a research associate at the Institute of Engineering Cybernetics of Bulgarian Academy of Sciences; then until 1984 at the Institute of Engineering Cybernetics and Robotics of Bulgarian Academy of Sciences (IECR - BAS). In 1985, he raised to the post of an Associate Professor at IECR - BAS. Later on, until 1993, he was an Associate Professor at the Institute of Informatics of Bulgarian Academy of Sciences.

Since 1994, Prof. Dr. Vassil Vassilev was the head of the Decision Support Systems department as well as the Director of the Institute of Information Technologies (IIT - BAS). In 2006, he earned a full Professorhip position at IIT-BAS.

Prof. Dr. Vassil Vassilev is one of the founders of Engineering Cybernetics and Operations Research in Bulgaria. He conducted rigorous research in the areas of descrete optimization, linear and non-linear continuous optimization, as well as in in the development of decision support systems. The research work resulted in the development of efficient approximate methods algorithms and programs for solving certain classes of discrete problems. This software delivered great practical results and economic value. Prof. Dr. Vassil Vassilev was a prominent participant in the development of the software for the first Bulgarian automatic control systems.

For more than 25 years of research activity, Prof. Dr. Vassil Vassilev was devoted to his work in the area of Multiple Criteria Decision Making (MCDM). His research and tutorial work at

IIT-BAS and some of the biggest universities in Bulgaria has created a scientific school, that has conducted intensive scientific research in the area of MCDM. His team had achieved notable results in linear, nonlinear and discrete Multiple Criteria Decision Making. His unremitting work, the legacy of his teaching, as well as the application of new methods of classification and of the generalized scalarizing problem, earned him international acknowledgement and respect.

Prof. Dr. Vassil Vassilev actively participated in international and local conferences and editorial boards. He also taught a number of lecture courses at the Sofia University "St. Kliment Ohridski", the New Bulgarian University, the Technical University - Sofia, and the Bourgas Free University. He successfully tutored 9 Ph D students as well as 35 post-graduate students. The professional success of his students is also a testament what an outstanding teacher Prof. Dr. Vassil Vassilev was.

Prof. Dr. Vassil Vassilev authored more than 180 articles in international and Bulgarian journals and in the proceedings of international and local conferences, 4 patents and more than 200 quotations in international publications. Prof. Dr. Vassil Vassilev was the founding force behind the creation of the journal "Cybernetics and Information Technologies" and proved to be the most active member of its Editorial Board.

Our departed colleague Prof. Dr. Vassil Vassilev, with his devoted work and profound scientific knowledge, developed IIT - BAS to a nationally and internationally recognized institution in the field of Information Technologies. He will be remembered as a kind, gentle and generous person, an inspirational leader, a respected colleague and a reliable friend. He will be greatly missed by all of us, who were fortunate enough to have worked with and known him.

His untimely death leaves us with a large profound space.

2 Upcoming Events and Call for Papers

2.1 10th MCDA Summer School, Ecole Centrale Paris, France, June 27–July 7, 2010

Vincent Mousseau, Ecole Centrale Paris, France

http://www.gi.ecp.fr/mcda-ss/

Multiple Criteria Decision Analysis

Complex decision problem often requires to explicitly consider several points of view. The classical approaches in the field of operations research consider only a single objective function to be optimized; hence, such single criterion models one aspect of the decision problem, or aggregates relevant aspects into a single criterion (such aggregation being usually rather simplistic). Many multidimensional approaches have been proposed as extensions of the classical ones. A first was the so called Multicriteria Decision Making (MCDM), developed by the so-called American School. More recently, the European School has created a new type of approach to these problems, called Multicriteria Decision Aid (MCDA). Many real life applications have successfully validated the feasibility of this approach. MCDM/MCDA is today an important research fields in Operation Research.
MCDA/MCDM deals with different classes of decision problems (choice, classification, sorting, ranking), taking explicitly into consideration several points of view (multiple attributes or criteria, i.e. attributes with ordered domain), in order to support Decision Makers (DMs) to find a consistent solution of the problem at hand. Modern tools in preference modeling have been successfully applied in the framework of MCDA. The scientific aspects and the practical applications have attracted numerous researchers and practitioners towards MCDA world, stimulating both theoretical and methodological developments, as well as real life applications and specific software implementation.

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 analyse and discuss several applications of MCDA to complex evaluation situations.

Target audience

The ideal number of participants is about 40 and, in any case, less than 50. 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;

Lectures and Case Studies

40h lectures will be provided by senior professors internationally recognised by the MCDA community for their excellence in the field. Among the possible lecturers, let us mention: Denis Bouyssou, Ralph Keeney, Don Kleinmutz, Murat Köksalan, Roman Slowinski, Ahti Salo, Alexis Tsoukias, Jyrky Wallenius, ...

Language

The official language of the School is English. No simultaneous translation will be provided.

Welcoming institution

LGI (Industrial Engineering Laboratory), Ecole Centrale Paris, France

Supporting institutions

- International MCDM Society,
- Euro Working Group "Multiple Criteria Decision Aid"

Multicriteria Summer School Scientific Committee

Jose Figueira, Martin Josef Geiger, Vincent Mousseau, Roman Slowinski, Theodor Stewart, Benedetto Matarazzo

Local Scientific Committee

Denis Bouyssou, Vincent Mousseau (Chair), Meltem Özturk, Alexis Tsoukiàs

Organizing Committee

Olivier Cailloux, Stéphane Deparis, Sylvie Guillemain, Vincent Mousseau, Corinne Olliver, Anne Prévot, Jun Zheng

Participation, fee and registration

The early registration fee (including lectures, accomodation, lunches and social program) is 400 € for two weeks. Due to the limitated size of the summer school audience, participants are asked to register as soon as possible, or even to announce their intention to participate.

2.2 Post MCDM 2009 conference proceedings in Lecture Notes in Economics and Mathematical Systems

Edited by: Yong Shi, Shouyang Wang, Gang Kou and Wallenius Jyrki

Theme: New State of MCDM in 21st Century

As part of tradition at MCDM Conferences, contributors to the main conference sessions at MCDM 2009 are encouraged to submit a full-length paper to either a post conference proceedings that will be published in 2010 by Springer's the Lecture Notes in Economics and Mathematical Systems in the specified format. Such papers will be peer-reviewed for their qualification of publication.
Electronic submission (in MS Word or LaTex format, up to 10 pages) to mcdm2009chengdu@gmail.com with title "Submission to LNEMS" is strongly preferred.

Topics of Interest

Papers from all areas of MCDM, in particular those addressing the conference theme, are welcome. The topics include, but are not limited to...

– Foundations of MCDM
– MCDM algorithms and methods
– MCDM application on pattern recognition and trend analysis
– MCDM Applications in government, health or public affairs
– MCDM based data mining approaches
– MCDM in electronic commerce, web and intrusion detection
– MCDM software
– MCDM Theory and practice of fictitious economy
– Multi-objective integer or linear programming
– Multiple attribute utility theory
– Multiple criteria classification, ranking, and sorting
– Multiple criteria decision aiding
– Multiple criteria in finance, marketing, operations or human resource management
– Multiple objective continuous and combinatorial optimization
– Multiple objective metaheuristics
– Analytic hierarchy process or analytic network process
– ARTIFICIAL Intelligence and MCDM
– Asset liability management
– Bioinformatics and MCDM
– Complexity, efficiency, and scalability issues in MCDM
– Conflict resolution, negotiation, and group decision support
– Data envelopment analysis
– Data mining and knowledge management
– Decision support systems
– Dynamic programming
– Environmental analysis and MCDM
– Fuzzy multiple criteria decision making
– Fuzzy Systems and MCDM
– Game theory and MCDM
– Goal programming
– Group decision making
– Habitual Domain Analysis
– Intelligent decision support systems
– Issues of MCDM measurement
– Outranking techniques
– Preference modelling
– Regional economy development
– Resource allocation
– Risk and uncertainty
– Risk management by MCDM
– Social and behavioral studies of MCDM processes
– Statistics and probability in MCDM

Important Dates

Electronic submission of papers: Nov 30, 2009
Notification of acceptance: Feb 20, 2010
Final formatted paper and copyright form to Springer: March 10, 2010

2.3 IEEE TEC Special Issue on Preference Based Evolutionary Multiobjective Optimization

Kalyanmoy Deb, Department of Business Technology, Helsinki School of Economics, Finland
Murat Köksalan, Department of Industrial Engineering, Middle East Technical University, Turkey

AIMS & SCOPE
Multiobjective optimization involves finding and deciding on a number trade-off optimal so-

lutions. Evolutionary multiobjective optimization (EMO), started in early nineties, is now a fast-growing field of research and application in evolutionary computation. Many different algorithms have been developed to address computationally complex problems. Many of these algorithms attempt to find an approximation of the efficient frontier. In particular, bi-criteria problems have been exploited extensively. Typically, the size of the efficient frontier increases substantially with the number of objectives and it becomes harder to generate all efficient solutions. This then makes a strong case for using preference-based methodologies within an EMO algorithm to handle a large number of objectives. On the other hand, Multiple Criterion Decision Making (MCDM) research is active for the past 50 years. Incorporating decision makerŠs (DM) preferences into the solution process has been the main activities in MCDM research. There are methods that try to fit a value function that represents the DMŠs preferences. There are other methods that progressively obtain preference information from the DM to converge towards preferred solutions. These methods have been successfully applied in many multiple criteria decision-making environments.

Unfortunately, there have been relatively few studies that incorporate the DMŠs preferences into EMO algorithms yet. We believe that such approaches have important benefits. Focusing on the desired parts of the efficient frontier will ease the computational effort and provide meaningful solutions for the DM. It will be possible to get closer to the efficient solutions when the search space is narrowed down. Problems having more than two criteria will be more manageable as well. Increase in such studies will further increase the cooperation between researchers from computer science and MCDM, and make it possible to take advantage of developments in both fields over the years. We believe that this special issue will be an important step in this direction and will remain as a well-cited reference for future researchers in both EMO and MCDM fields.

This special issue invites papers on all aspects of theory, computation, and application related topics on preference-based multi-objective optimization involving evolutionary algorithms, MCDM and other methodologies.

AUTHORS & THEMES

High quality and original papers incorporating any type of preference information in any multiobjective problem-solving task are invited. Papers involving techniques borrowed from two or more broad methodologies with a clear demonstration of advantages of the collaboration efforts are encouraged. Themes of the submitted articles should use preference information in the following (but not limited to) multiobjective optimization techniques:

– Mathematical and numerical multiobjective optimization
– Evolutionary and other non-classical multiobjective optimization
– Multiple criterion decision making and analysis
– Hybrid multiobjective optimization involving above
– Interactive multiobjective optimization methods
– Innovative application studies involving preference usage
– Multiobjective optimization involving continuous variables, discrete variables, mixed-integer variables, constraints, permutations, meta-models, stochasticities, uncertainties, multiple levels, and others
– Problems involving a large number of objectives

IMPORTANT DATES

The tentative schedule is as follows:

September 15, 2009: Submissions deadline.
November 30, 2009: Notification of the first review.
January 11, 2010: Revisions due.
March 12, 2010: Final notice of acceptance/reject
April 16, 2010: Final manuscript.
The expected publication year of the special issue will be 2010.

Guest Editors

Prof. Kalyanmoy Deb, Dept. of Business Technology, Helsinki School of Economics, Finland, kalyanmoy.deb@hse.fi, and Indian Institute of Technology Kanpur, India, deb@iitk.ac.in
and
Prof. Murat Köksalan, Department of Industrial Engineering, Middle East Technical University, Turkey, koksalan@ie.metu.edu.tr

2.4 Multi-Objective Programming and Goal Programming MOPGP'10, Sousse, Tunisia, May 24–26, 2010

Francisco Ruiz, University of Málaga, Spain

MOPGP is an international conference series devoted to multi-objective programming and goal programming. It disseminates recent theoretical and methodological developments, algorithmic developments, survey results and significant technical applications in the field of MOP and GP.

Target topics (but not limited to):

– Planning and scheduling
– Logistic and routing problems
– Time tabling
– Cutting problem
– Knapsack problem
– Portfolio optimization
– Set covering / clustering / packing
– Datamining
– Health and environment
– Bioinformatics
– Business applications (Finance, management, marketing).

Important dates:

Deadline for submission: January 31st, 2010.
Notification of acceptance: March 1st, 2010.
Early registration: April 10th, 2010.

For submission, further information and registration details, please visit the conference website at http://mopgp10.logiq-isgis.org/

2.5 The Second International Conference on Information, Process, and Knowledge Management eKNOW 2010, February 10–15, 2010, St. Maarten, Netherlands Antilles

http://www.iaria.org/conferences2010/eKNOW10.html

Sponsored by IARIA, http://www.iaria.org

Extended versions of selected papers will be published in IARIA Journals: http://www.iariajournals.org

Please note the Poster Forum and Work in Progress options.

The topics suggested by the conference can be discussed in term of concepts, state of the art, research, standards, implementations, running experiments, applications, and industrial case studies. Authors are invited to submit complete unpublished papers, which are not under review in any other conference or journal in the following, but not limited to, topic areas.

All tracks are open to both research and industry contributions, in terms of Regular papers, Posters, Work in progress, Technical/marketing/business presentations, Demos, Tutorials, and Panels.

Before submission, please check and conform with the Editorial rules: http://www.iaria.org/editorialrules.html

eKNOW 2010 Tracks (tracks' topics and submission details: see CfP on the site)

Knowledge fundamentals

Knowledge acquisition, processing, and management; Linguistic knowledge representation; Knowledge modeling and virtualization; Types of knowledge: structural, behavioral, relationships, etc.; Knowledge representation: visual-picture, connectionist model, semi-structured [a la workflow], structured/formal; Knowledge acquisition status: potential new knowledge, guessed semantics, confirmed semantics, auditing confirmed semantics, etc.; Knowledge update: probable insertion, validated insertion, auditing the insertion periodically based on new knowledge, etc.

Knowledge identification and discovery

Mining for knowledge; Knowledge identification: semantic-ID, etc.; Knowledge discovery: how to express knowledge requests?, how to find knowledge?, etc.; Knowledge refinement: after many acquisitions, former knowledge can change semantically or structurally, etc.; Knowledge clustering

Knowledge management systems

Knowledge data systems; Industrial systems; Context-aware and self-management systems; Imprecision/Uncertainty/Incompleteness in databases; Cognitive science and knowledge agent-based systems; Databases and mobility in databases; Zero-knowledge systems; Expert systems; Tutoring systems; Digital libraries

Knowledge semantics processing and ontology

Dynamic knowledge ontology; Collaborative knowledge ontology; Knowledge matching; Contextual reasoning; Tools for knowledge ontology; Context-based information extraction; Knowledge trading systems; Knowledge exchange portals; Cognitive sytems and knowledge processing; Human aspects in knowledge processing

Process analysis and modeling

Analysis and development of business architectures; Data mining and information retrieval for business processes; Business process modelling; Business process composition; Analysis and management lifecycle; Reasoning on business processes; Optimization of business processes; Adaptive business processes; Business process reengineering; Integration of processes; Process discovery; Business process quality; Resource allocation

Process management

Criteria for measurement of business process models; Monitoring business processes; Business process visualization; Management of business process integration; On-demand business transformation; Performance measurement; Conformance and risk management; Prediction; Business transformation; Packaged industry applications; Industry solutions

Information management

Informational mining/retrieval/classification; Geographic and spatial data Infrastructures; Information technologies; Information management systems; Information ethics and legal evaluations; Optimization and information technology; Organizational information systems

Decision support systems

Multi-criteria decision theory; Artificial intelligence; Adaptive design for decision support systems; Support technologies: knowledge-driven, data-driven, model-driven, and geographically-driven systems; Support methods: artificial neural networks, fuzzy logic, and genetic/evolutionary algorithms; Modeling, interfaces, and performance; Applications using decision support systems

IARIA Publicity Board

Committee members: http://www.iaria.org/conferences2010/ComeKNOW10.html

2.6 3rd Global Conference on Power Control and Optimization (PCO'2010), 2–4 February 2010, Gold Coast, Australia

Pandian Vasant, Malaysia

http://www.engedu2.net

It is our great pleasure to announce the third Global Conference on Power Control and Optimization PCO 2010, which will be held in Courtyard Surfers Paradise Resort, Gold Coast, Australia, from 2–4 February 2010.

Scope of the conference is contemporary and original research and educational development in the area of electrical power engineering, control systems and methods of optimization.

Prospective authors from universities or institutes and industries are invited to submit the full paper by email before the deadline. All papers will be peer reviewed by independent specialists.

Conference proceeding will be published online by AIP. Selected papers will be published in Elsevier, Springer, Inderscience, Professional Engineering, and other Journals.

Proposal for holding special sessions, tutorial and workshop are invited from prospective authors, industrial bodies and academicians should be addressed to the conference secretariat.

3 Past Conferences, Workshops, and Other News

3.1 2009 Dagstuhl Seminar on Hybrid and Robust Approaches to Multiobjective Optimization January 2009, Dagstuhl, Germany

Kaisa Miettinen, University of Jyväskylä, Finland

Since the year 2004, seminars related to multiobjective optimization have been organized in Dagstuhl, Germany, roughly every two years. In January 2009, in the third of these seminars entitled "Hybrid and Robust Approaches to Multiobjective Optimization" 53 researchers, all actively working in multiobjective optimization, spent a fruitful week in the Dagstuhl castle. The organizers of this seminar were Kalyanmoy Deb (Helsinki School of Economics, Finland and IIT Kanpur, India), Salvatore Greco (University of Catania, Italy), Kaisa Miettinen (University of Jyväskylä, Finland) and Eckart Zitzler (ETH Zürich, Switzerland). The website of the seminar is http://www.dagstuhl.de/09041.

From the very beginning, the main idea of this seminar series has been to bring together people from two contemporary fields related to multiobjective optimization: Evolutionary Multiobjective Optimization (EMO) and Multiple Criteria Decision Making (MCDM) and to discuss critical research and application issues for bringing the entire field further and for fostering future collaboration. The previous seminar (organized in December 2006) was mostly devoted to the preparations of a book Multiobjective Optimization: Interactive and Evolutionary Approaches (edited by J. Branke, K. Deb, K. Miettinen and R. Slowinski), which was published by Springer-Verlag in the fall 2008. The purpose of the 2009 seminar was to discuss two fundamental research topics related to multiobjective optimization: interactive methods requiring optimization and decision making aspects to be integrated for a practical implementation and robust multiobjective methodologies dealing with uncertainties in problem parameters, objectives, constraints and algorithms. In the program of the seminar, a lot of emphasis was devoted to working group discussions and only few individual presentations had been invited. In this way, the open and free environment and facilities of Dagstuhl could be well utilized. For the first part of the week, the participants could select one of the four working groups for discussing and exchanging ideas:

1. EMO in Robust Multiobjective Optimization (EMO+RMO): This working group focused on topics related to evolutionary multiobjective optimization and robust/reliability oriented methods. Related topics on evolutionary single-objective optimization and aspects of robustness consideration within an evolutionary framework were also discussed.

2. MCDM in Robust Multiobjective Optimization (MCDM+RMO): This working group focused on topics related to multiple criteria optimization and decision-making, taking into account the principles of robust/reliable recommendations. The group discussed the meaning and the ways of implementation of the concepts of robustness and reliability in the context of multiple criteria decision analysis and that of single- or multi-objective optimization, with a particular attention to interactive methods of evolutionary multiobjective optimization.

3. EMO in Interactive Multiobjective Optimization (EMO+IMO): This working group focused on topics related to evolutionary multiobjective optimization and interactive methods involving MCDM techniques, decision makers, mathematical programming methods and others. Any hybrid methods involving EMO, including local searches, were of interest to this group.

4. MCDM in Robust and Interactive Multiobjective Optimization (MCDM+RIMO): This working group focused on considering robustness and related issues in the context of interactive multiple criteria decision making and interactive multiobjective optimization, in different stages of the decision process.

The working groups (and their subgroups) had several meetings during the first two days of the seminar and on the third day, brief summaries of the discussions of each working group were presented. Then, two new working groups were formed for the rest of the week to enable crossbreeding of ideas.

1. EMO, MCDM and Robust Multiobjective Optimization
2. EMO, MCDM and Interactive Multiobjective Optimization

The first group was divided into two subgroups: robustness in MCDM/EMO with a particular focus on scheduling and routing and robustness in EMO. On the other hand, the second groups were divided into three subgroups: interaction styles and preference models in transfer from MCDM to EMO, many objectives in interactive methods and multiobjective trajectory optimization. After several meetings, discussions of each subgroup were summarized at the end of the seminar.

During the week, six invited talks were given by Masahiro Inuiguchi (on fuzzy/ possibilistic programming approaches in relations with MCDM, RMO, EMO, and IMO), Joshua Knowles (on the meaning of robustness in EMO), Roman Slowinski (on a new robust interactive EMO using dominance based rough set approach), Jürgen Branke (on EMO for searching robust and reliable solutions), Margaret Wiecek (on efficient sets of multiobjective complex systems) and Silvia Poles (on multiobjective robust design optimization and polynomial chaos). The electronic proceedings of the seminar (containing brief summaries of the first four working groups and some papers related to the invited talks given) can be found at http://drops.dagstuhl.de/portals/index.php?semnr=09041.

The seminar provided a friendly atmosphere to discuss research interests and ideas for robust and interactive methods for multiobjective optimization. Everyone expressed their willingness to come again for another Dagstuhl seminar. During the discussions, several future collaborative research ideas were planned involving researchers from both EMO and MCDM fields e. g. in the form of journal papers and a lot of enthusiasm was in the air.

Informal activities were also in the program. Some merits and weaknesses of EMO and MCDM practices were discussed and insights of their working principles were considered. In addition, Pekka Korhonen and Jyrki Wallenius presented an unofficial history of MCDM and Carlos Fonseca, Carlos Coello and Hisao Ishibuchi did the same for EMO. To compensate the many hours spent indoors, most of the participants did some hiking.
Many thanks to all the participants for active involvement!

The wine and cheese party (sponsored by ESTECO) inspired some participants to write the following song on the Dagstuhl seminar.

MCDM song
By the Dagstuhl people (Music: “YMCA” by the Village People)

ROBUST, that's the question to us
I said, ROBUST, we were thinking too much
I said, ROBUST, here in Dagstuhl we met
thus there is no need to regret
ROBUST, with some EMO inside
I said, ROBUST, and everything's bright
I said, ROBUST, science will always win
there's no need to be unhappy
*****
It's fun to grow with the MCDM
It's fun to grow with the MCDM
They have everything for you guys to enjoy
You can hang out with all the guys
*****
It's fun to grow with the MCDM
It's fun to grow with the MCDM
They have everything for you guys to enjoy
You can hang out with all the guys
Dagstuhl there's a place you can go
I said, Dagstuhl, when you publish a lot
You can stay there, and I'm sure you will find
many ways to have a good time
Dagstuhl, I was once in your town
I said, Dagstuhl, we walked uphill and down
I said, Dagstuhl, take a walk up the street
I asked when will we again meet
*****
It's fun to grow with the MCDM
It's fun to grow with the MCDM
You can get yourself clean, you can have a good meal
You can do whatever you feel
ROBUST, are you listening to me?
I said, ROBUST, what do you want to be?
I said, EMO, you can make real your dreams
But you've got to know this one thing
No man does it all by himself
I said, EMO put your pride on the shelf
And just go there, to the MCDM
We can help you all today
*****
It's fun to grow with the MCDM
It's fun to grow with the MCDM
You can give a nice talk, you can write with a chalk
You can say whatever you think
*****
It's fun to grow with the MCDM
It's fun to grow with the MCDM
You can give a nice talk, you can write with a chalk
You can say whatever you think
*****
It's fun to grow with the MCDM
It's fun to grow with the MCDM
You can give a nice talk, you can write with a chalk
You can say whatever you think
Kalyan, you did a pretty good job
I said, Salvo, we will stay on the top
I said, Kaisa, please invite us once more
Ecki, see you soon here again
*****
Let's stay in touch with the MCDM
Let's stay in touch with the MCDM
La-la-laa

3.2 20th International Conference on Multiple Criteria Decision Making, Chengdu, China

Yong Shi, Shouyang Wang, Yi Peng, and Gang Kou

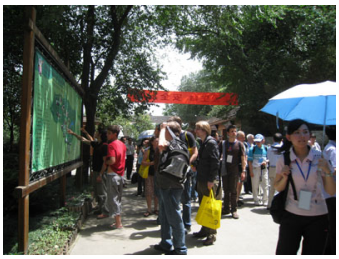
MCDM 2009, the Twentieth International Conference on Multiple Criteria Decision Making has emerged as the global forum dedicated to the sharing of original research results and practical

development experiences among researchers and application developers from different multiple criteria decision making related areas such as multiple criteria decision aiding, multiple criteria classification, ranking, and sorting, multiple objective continuous and combinatorial optimization, multiple objective metaheuristics, multiple criteria decision making and preference modeling, fuzzy multiple criteria decision making.
The theme for MCDM 2009 is "New State of MCDM in 21st Century". The conference seeks solutions to challenging problems facing the development of multiple criteria decision making, and shapes future directions of research by promoting high quality, novel and daring research findings. With the MCDM conference, these new challenges and tools can easily be shared with the multiple criteria decision making community.



The workshop program day included 9 workshops which focus on different topics on new research challenges and initiatives of MCDM. We have received more than 350 submissions for all workshops combined, out of which 121 were accepted. This includes 72 regular papers and 49 short papers. On June 21, There were fourTutorial Sessions presented by:

- Ralph Steuer (University of Georgia, USA) and Kalyanmoy Deb (Indian Institute of Technology Kanpur, India/Helsinki School of Economics, Finland): "Evolutionary Multi-Criterion Optimization (EMO): Principles, Methodologies, and Applications to Portfolio Optimization"
- Murat Köksalan (Middle East Technical University, Turkey) and Jyrki Wallenius, Helsinki School of Economics, Finland): "An Introduction to MCDM and Interactive Solution Approaches"
- Kaisa Miettinen (University of Jyvaskyla, Finland): "Nonlinear Multiobjective Optimization and Pareto Frontier Visualization Techniques"
- Ji-fa Gu (Chinese Academy of Sciences, China) and Gwo-Hshiung Tzeng (Chiao Tung University/Kainan University, Taiwan): "MCDM Applications and New MCDM Books"



The main conference program included 12 sessions and 233 presentations from 31 different courtiers and regions.
During the main conference days, June 22-23, five keynote speakers delivered their interesting MCDM lectures:

- Yacov Haimes (the University of Virginia, USA): "Harmonizing the Omnipresence of MCDM in Technology, Society, and Policy"
- Po-Lung Yu (Chiao Tung University, Taiwan/University of Kansas, USA): "Dynamic MCDM in Changeable Spaces: from Habitual Domains to Innovation Dynamics?"

- Stan Zionts (State University of New York at Buffalo, USA): "From Golf Caddy to Graduate Student to Ski Instructor the Slow Way: An Academic Career with Lots of International Experience – It's Downhill All the Way Some War Stories and Lessons Learned along the Way"
- Milan Zeleny (Fordh University, USA): "MCDM at 37: In Search of New Paradigms..."
- James Dyer (the University of Texas at Austin, USA): "Geoffrion's Interactive Approach to Multi-Criterion Optimization: A Retrospective"

The MCDM Award Committee has given Edgeworth-Pareto Award to Gwo-Hshiung Tzeng, Georg Cantor Award to Yong Shi, and MCDM Gold Medal to Benedetto Matarazzo and Detlof von Winterfeldt. They were invited to give award speeches on June 24.

We would like to thank all workshop organizers and the program committee for the excellent work on maintaining the conference's standing for high-quality papers. We also express our gratitude to staff and graduates of the Research Center on Fictitious Economy & Data Science, Chinese Academy of Sciences and University of Electronic Science and Technology of China for their hard work in support of MCDM 2009. We would like to thank the Local Organizing Committee for their persistent and enthusiastic works towards the success of MCDM 2009. We owe special thanks to our sponsors, University of Science and Technology of China, Sun Yat-Sen University, the Chinese University of Hong Kong, Korea Advanced Institute of Science & Technology, Graduate University of Chinese Academy of Sciences, Southwest Jiaotong University, National Science Foundation of China, Chinese Society of Management Modernization, the Research Center on Fictitious Economy & Data Science, Chinese Academy of Sciences, the Academy of Mathematics and Systems Science, Chinese Academy of Sciences, University of Nebraska at Omaha, University of Electronic Science and Technology of China, and Springer Publishing.

MCDM 2009 is jointly organized by the Research Center on Fictitious Economy & Data Science, Chinese Academy Sciences and the Academy of Mathematics and Systems Science, Chinese Academy of Sciences, University of Nebraska at Omaha and hosted by University of Electronic Science and Technology of China.

3.3 The Decision Deck Project

Raymond Bisdorff, University of Luxembourg, Luxemburg & Decision Deck Consortium, Paris, France

http://www.decision-deck.org/

The Decision Deck project is developing an open-source generic Multiple Criteria Decision Aid (MCDA) software platform composed of modular components. Its purpose is to provide effective tools for decision-aid consultants, for researchers in the field of MCDA, and for operations research teachers.

Purpose and achievement

The DECISION DECK[1] project aims at collaboratively developing Open Source software tools implementing Multiple Criteria Decision Aid (MCDA). Its purpose is to provide effective tools for three types of users:

- *practitioners* who use MCDA tools to support actual decision makers involved in real world decision problems;
- *teachers* who present MCDA methods in courses, for didactic purposes;
- *researchers* who want to test and compare methods or to develop new ones.

From a practical point of view, the DECISION DECK project works on developing multiple software resources that are able to interact. Consequently, several complementary efforts focusing on different aspects contribute to the project's various goals.

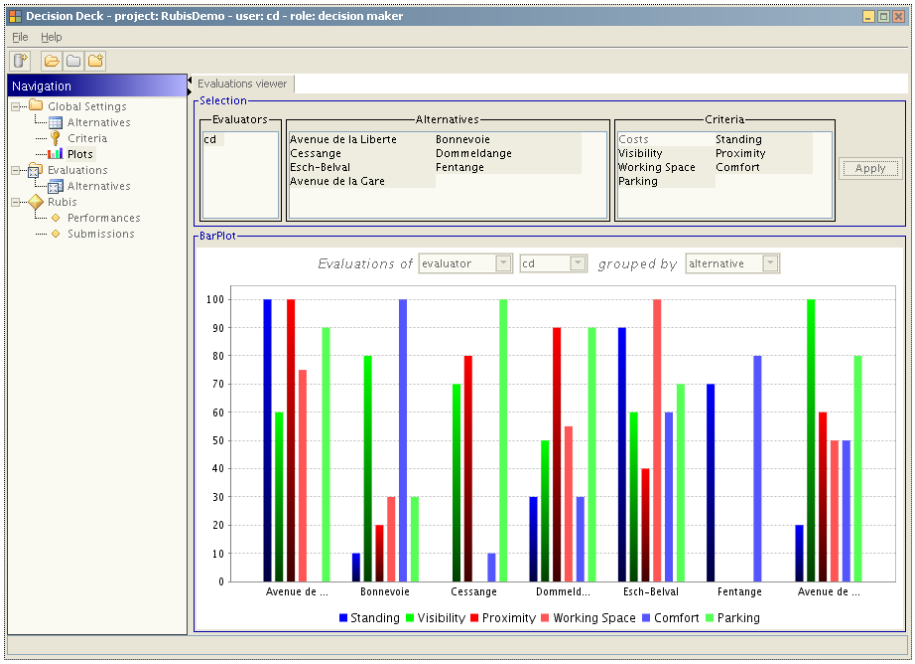


Figure 1: *One of the interesting features offered by the Decision Deck software is the common availability of visualization resources as illustrated in the picture above. The snapshot, taken from a D2 java client session with the* RUBIS *plugin, shows the performances of the alternatives on a subset of criteria in a column chart style*

The project continues and expands the series of activities that have been mainly pursued by the DECISION DECK Community since 2006 in the MATHRO laboratory of the Faculty of Engineering of Mons, the LAMSADE laboratory of the University Paris-Dauphine, the ILIAS laboratory of the University of Luxembourg and the software company KARMIC SOFTWARE RESEARCH. At present date following resources are available:

1. D2: a rich open source Java client offering several MCDA methods (see Figure 1), like
   - IRIS (outranking based sorting of alternatives into ordered classes),
   - RUBIS and VIP (outranking and additive aggregation model based methodologies for the choice decision problem),
   - UTA-GMS/GRIP (ranking alternatives with a set of value functions).
2. XMCDA: a standardized XML encoding recommendation to represent objects and data structures issued from the field of MCDA (see Figure 2). Its main objective is to allow different MCDA algorithms to interact and be easily callable;

[1]Extract from the DECISION DECK project's manifesto (see http://www.decision-deck.org)

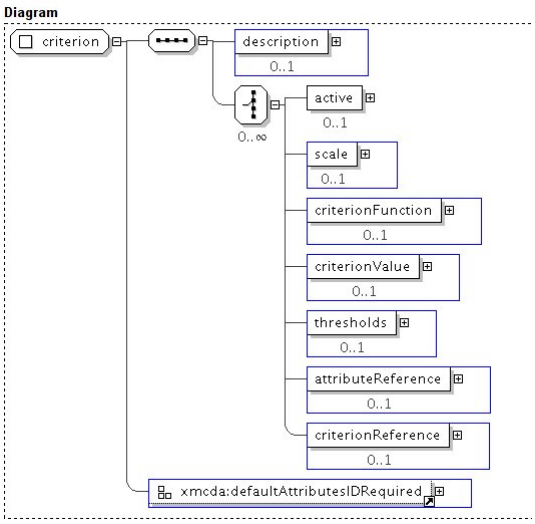


Figure 2: *Extract from the XMCDA-2.0 schema with standard xmcda types such as scale, thresholds, criterion function a.o. for encoding the individual criterion data*

3. XMCDA web services: distributed open source computational MCDA resources, like the RUBIS solver written in Python and the KAPPALAB (Choquet integral based MAVT) R library;

4. D3: an open source rich internet application for XMCDA web services management;

5. diviz: an open source Java client and server for XMCDA web services composition, work flow management and deployment (see Figure 3).

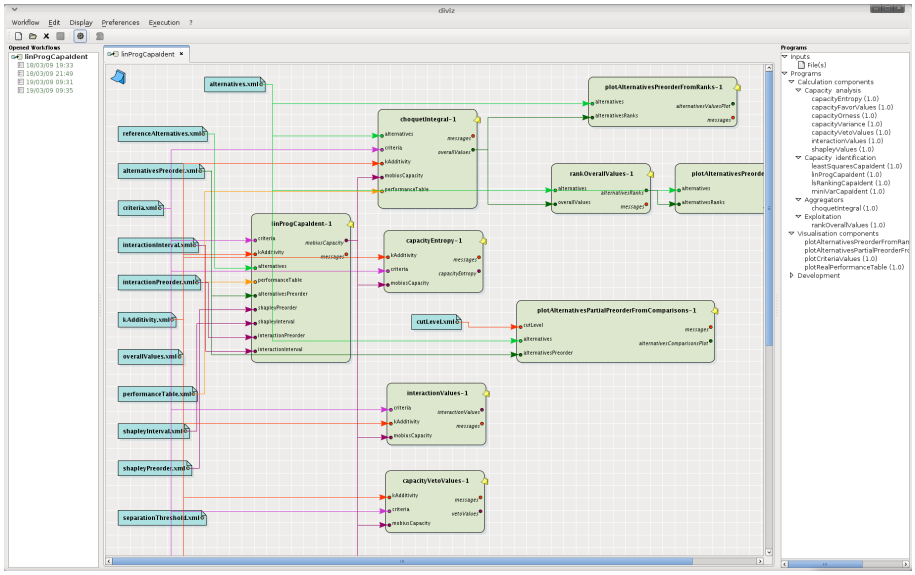


Figure 3: *A snapshot of the diviz manager for XMCDA-2.0 web services composition*

Valuable features and ongoing work

One of the most valuable features of the Decision Deck software is the effective consideration of specific roles such as decision maker, evaluator, coordinator or facilitator in a given decision analysis project. For instance, evaluators from different distant places may communicate their evaluations via their local D2 clients to the common decision analysis project under the supervision of the project coordinator, whereas the decision maker may input his personal preferences via method-specific criteria tuning facilities offered in his local client (see Figure 1).

The major actual task of the Decision Deck project concerns the development and maintenance of XMCDA-2.0, an XML modeling language standard which describes in a generic way the inputs and the outputs of MCDA methods, as well as the different steps of a decision analysis work flow. The purpose of XMCDA-2.0 (see Figure 2) is on the one hand, to allow an easy integration of MCDA web services, such as the RUBIS Python server mentioned above and, on the other hand, to facilitate communications and data exchanges between core components of the software platform. The forthcoming diviz java client and server for MCDA work flow composition and execution both rely essentially on this XMCDA-2.0 standard.

In order to coordinate the various activities of the Decision Deck project a French non profit association named DECISION DECK CONSORTIUM has been recently created which is going to steer and manage the project along the lines of the preceding ideas (see the DECISION DECK manifesto at http://www.decision-deck.org/). Its main task is to organize regular Decision Deck workshops. The next one is going to take place in Brest (France) on September 17–18, 2009 (see http://conferences.telecom-bretagne.eu/ddws5/).

Related links and contact information

- http://www.decision-deck.org/
- http://www.decision-deck.org/xmcda/
- http://decision-deck.sourceforge.net/
- http://sourceforge.net/projects/decision-deck/
- http://www.decision-deck.org/diviz/
- http://www4.fe.uc.pt/lmcdias/iris.htm
- http://ernst-schroeder.uni.lu/ (RUBIS resources)
- http://www4.fe.uc.pt/lmcdias/english/vipa.htm (VIP related)
- http://conferences.telecom-bretagne.eu/ddws5/ (5th Decision Deck workshop related)

The DECISION DECK CONSORTIUM is an open association and persons interested in the DECISION DECK project and willing to join are welcome. For further information please contact:
Raymond Bisdorff
University of Luxembourg
Url: http://charles-sanders-peirce.uni.lu/bisdorff/
E-mail: raymond.bisdorff@uni.lu

3.4 INFORMS Impact Prize for Thomas L. Saaty

INFORMS Recognizes Saaty with Impact Prize

Creator of Analytic Hierarchy Process for Decision Makers

HANOVER, MD, USA, October 20, 2008 – The Institute for Operations Research and the Management Sciences (INFORMS) today announced that Professor Thomas L. Saaty of the University of Pittsburgh, the theoretician who invented the Analytic Hierarchy Process (AHP), a breakthrough decision-making system, is the 2008 recipient of the INFORMS Impact Prize.

"AHP has revolutionized how we resolve complex decision problems," the INFORMS award committee wrote in its presentation.

The INFORMS Impact Prize, awarded once every two years, recognizes contributions that have had a broad practical impact on operations research and related fields like the decision sciences. The contribution can be an idea or technique that is widely used.

The Analytic Hierarchy Process (AHP) is used extensively in business and government, counting among its fans the Joint Chiefs of Staff, the U.S. Navy and Air Force, and, in business, Johnson & Johnson and eBay, according to Decision Lens, an AHP-based software company where Saaty serves as a member of its Board of Advisors.

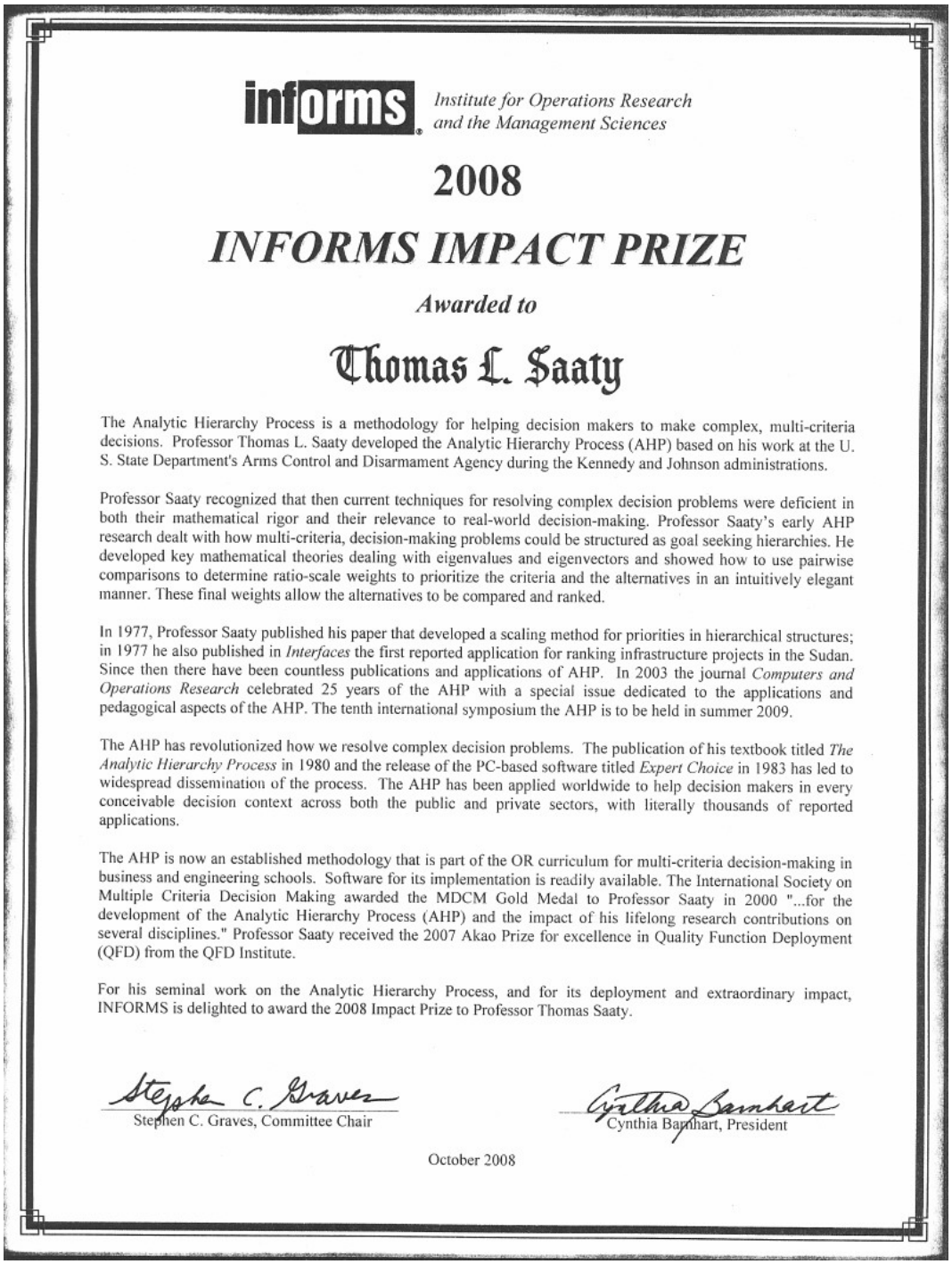
The Analytic Hierarchy Process is a methodology for helping decision makers to make complex, multi-criteria decisions.

Professor Thomas Saaty developed AHP based on his work at the U. S. State Department's Arms Control and Disarmament Agency during the Kennedy and Johnson administrations. He recognized that then-current techniques for resolving complex decision problems were deficient in both mathematical rigor and relevance to real-world decision-making. His early AHP research dealt with how multi-criteria, decision-making problems could be structured as goal seeking hierarchies.

For AHP, he developed key mathematical theories that paired comparisons with ratio-scale weights to prioritize decision criteria and alternatives. In AHP-based decisions, final weights allow alternatives to be compared and ranked.

In 1977, Professor Saaty published his paper that developed a scaling method for priorities in hierarchical structures; in 1977 he also published in Interfaces, an INFORMS journal, the first reported application for ranking infrastructure projects. Since then there have been numerous applications of AHP. The publication of his textbook titled The Analytic Hierarchy Process in 1980 and the release of the PC-based software titled Expert Choice in 1983 has led to widespread dissemination of the process.

The INFORMS Impact Prize was presented earlier this month at the INFORMS annual meeting in Washington, DC. Over 4,000 academics and professionals attended the annual conference.



informs *Institute for Operations Research and the Management Sciences*

2008

INFORMS IMPACT PRIZE

Awarded to

Thomas L. Saaty

The Analytic Hierarchy Process is a methodology for helping decision makers to make complex, multi-criteria decisions. Professor Thomas L. Saaty developed the Analytic Hierarchy Process (AHP) based on his work at the U. S. State Department's Arms Control and Disarmament Agency during the Kennedy and Johnson administrations.

Professor Saaty recognized that then current techniques for resolving complex decision problems were deficient in both their mathematical rigor and their relevance to real-world decision-making. Professor Saaty's early AHP research dealt with how multi-criteria, decision-making problems could be structured as goal seeking hierarchies. He developed key mathematical theories dealing with eigenvalues and eigenvectors and showed how to use pairwise comparisons to determine ratio-scale weights to prioritize the criteria and the alternatives in an intuitively elegant manner. These final weights allow the alternatives to be compared and ranked.

In 1977, Professor Saaty published his paper that developed a scaling method for priorities in hierarchical structures; in 1977 he also published in *Interfaces* the first reported application for ranking infrastructure projects in the Sudan. Since then there have been countless publications and applications of AHP. In 2003 the journal *Computers and Operations Research* celebrated 25 years of the AHP with a special issue dedicated to the applications and pedagogical aspects of the AHP. The tenth international symposium the AHP is to be held in summer 2009.

The AHP has revolutionized how we resolve complex decision problems. The publication of his textbook titled *The Analytic Hierarchy Process* in 1980 and the release of the PC-based software titled *Expert Choice* in 1983 has led to widespread dissemination of the process. The AHP has been applied worldwide to help decision makers in every conceivable decision context across both the public and private sectors, with literally thousands of reported applications.

The AHP is now an established methodology that is part of the OR curriculum for multi-criteria decision-making in business and engineering schools. Software for its implementation is readily available. The International Society on Multiple Criteria Decision Making awarded the MDCM Gold Medal to Professor Saaty in 2000 "...for the development of the Analytic Hierarchy Process (AHP) and the impact of his lifelong research contributions on several disciplines." Professor Saaty received the 2007 Akao Prize for excellence in Quality Function Deployment (QFD) from the QFD Institute.

For his seminal work on the Analytic Hierarchy Process, and for its deployment and extraordinary impact, INFORMS is delighted to award the 2008 Impact Prize to Professor Thomas Saaty.

Stephen C. Graves, Committee Chair

Cynthia Barnhart, President

October 2008

3.5 Gold Medal and National Award by the Hellenic Operational Research Society (HELORS) for Constantin Zopounidis

Prof. Constantin Zopounidis (Technical University of Crete, Greece) was awarded the Gold Medal and National Award by the Hellenic Operational Research Society (HELORS) for his contributions in operational research and multicriteria analysis. The ceremony took place on May 28th, 2009, during the opening of the 21st Conference of HELORS, which was held in Athens, Greece. The Gold Medal and National Award is given by HELORS to Greek researchers who have contributed significantly to the theory and practice of operational research. Past recipients include, among others, D. Bertsekas, D. Bertsimas, S. Makridakis, P.M. Pardalos, V. Paschos, and Y. Siskos.

4 New Books

4.1 Handbook of Multicriteria Analysis

Editors: Constantin Zopounidis[1], Panos M. Pardalos[2]
[1] Technical University of Crete, Dept. of Production Engineering and Management, University Campus, 73100 Chania, Greece
[2] University of Florida, Dept. of Industrial and Systems Engineerin, Center for Applied Optimization, 303 Weil Hall, P.O. Box 116595, Gainesville, FL 32611-6595, USA

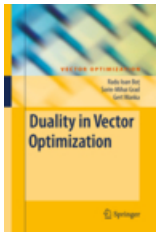
Multicriteria analysis is a rapidly growing field in operations research and management science, with numerous practical applications in a wide range of fields. This edited volume presents all the recent advances in this field, including multicriteria optimization, multiattribute utility

theory, outranking methods, and disaggregation techniques. Special emphasis is also given to applications in several fields, such as environmental management, finance, marketing, and e-commerce. All topics are discussed in a expository yet scholarly way, emphasizing the current state-of-the-art research as well as the key references in the field. All chapters in this edited volume are written by leading scholars of multicriteria analysis. The volume is expected to be published by November 2009, in the series "Applied Optimization" of Springer Publishers.

4.2 Duality in Vector Optimization

Bot, Radu Ioan, Grad, Sorin-Mihai, and Gert Wanka

Volume 3 of the book series *Vector Optimization*, Springer Verlag, ISBN 978-3-642-02885-4.



http://www.springer.com/math/applications/book/978-3-642-02885-4

This book presents fundamentals and comprehensive results regarding duality for scalar, vector and set-valued optimization problems in a general setting. After a preliminary chapter dedicated to convex analysis and minimality notions of sets with respect to partial orderings induced by convex cones a chapter on scalar conjugate duality follows. Then investigations on vector duality based on scalar conjugacy are made. Weak, strong and converse duality statements are delivered and connections to classical results from the literature are emphasized. One chapter is exclusively consecrated to the scalar and vector Wolfe and Mond-Weir duality schemes. The monograph is closed with extensive considerations concerning conjugate duality for set-valued optimization problems.

5 Sources of Information

- Homepage of the International Society on Multiple Criteria Decision Making. Website: http://www.mcdmsociety.org
- Kaisa Miettinen's website has several interesting links with Operational Research and Multi-Criteria websites (scientific societies, journals, conferences, etc.). Website: http://users.jyu.fi/~miettine/lista.html
- The website of the EURO Working Group on Multicriteria Decision Aiding has lots of useful information on multi-criteria. Website: http://www.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/
- Information on the Analytic Hierarchy Process (AHP) and the related International Symposia Series: http://www.isahp.org/

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