

MULTIPLE CRITERIA DECISION MAKING (MCDM) 2019 WAS IN TURKEY A SECOND TIME

The 25th MCDM meeting was held in Istanbul, Turkey at Istanbul Technical University, June 16 - June 21, 2019. It has been nearly twenty years since the last international conference on MCDM was held in Turkey in Ankara in 2000.

The MCDM 2019 organizing committee is aware of the carbon footprint caused by the participants for their attendance to MCDM 2019, and to partially compensate for this they made donations on behalf of all participants to the TEMA Foundation - The Turkish Foundation for combatting Soil Erosion, for Reforestation, and the Protection of Natural Habitats (www.tema.org.tr). They also prepared environmentally friendly conference bags.

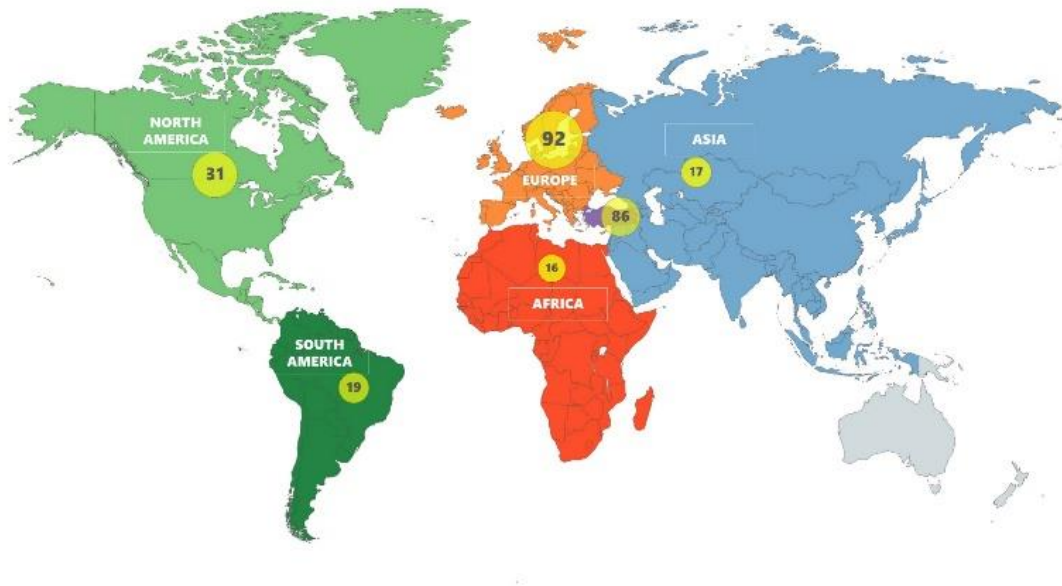


Environmentally friendly conference bag

There were 261 participants from 5 continents and 39 countries at the conference. Among all of the participants, 82 were students, 19 were from industries, and 6 were accompanying persons. The majority was from Turkey (86) followed by the United States (23), the United Kingdom and Germany (12) and Brazil and Algeria each had 11 participants. There would have been even more participants from Turkey since there are so many MCDM researchers there, but universities don't pay registration fees if an international conference is in Turkey!

I found this conference very successful academically, socially and organizationally. It was amazing how excellent the organization was! I was even more astonished when I found out what kind of obstacles they faced during the process. For example, they even had to consider an alternative meeting place when most of the participants had already reserved their hotels around the current venue because their school was going to be demolished. Even as recently as July 13, 2019 I found out that Ilker Topcu, the conference organizer, was transferring some office collections to his home since the

building was going to be demolished soon. How lucky we were that it did not happen before June 21st! Yet, conference organizers were always smiling overcoming obstacles to prepare an impeccable conference for us.



Number of participants from different continents



261 participants from 5 different continents



Conference chair, co-chairs, and organizing committee chair. From left to right, Y. İlker Topcu (Istanbul Technical University), Özgür Kabak (Istanbul Technical University), Şule Önsel Ekici (Dogus University, Dean of Engineering), and Özay Özaydın (Dogus University).

One of the unique features of this conference was that it has been organized by five universities in Turkey; Istanbul Technical University (Host), Dogus University, Koc University, Sabanci University and Beykent University.

Conference organizers managed to follow the traditions of the International Society on MCDM and made the conference affordable to all and provided support to those who were short of funding. Besides the organizers, the International Society on MCDM also offered a budget for providing discounted fees to 26 participants, and Creative Decisions Foundation (CDF) supported 22 participants by awarding grants that covered their whole conference fee. The support of the MCDM society and CDF facilitated so many students and young scholars' participation in the conference. Ilker Topcu, conference general chair, presented a plaque of appreciation for both organizations for their support to the participants.



Murat Köksalan, President, [International Society on MCDM](#), receives the plaque from Ilker Topcu (on the left), Murat Köksalan (on the right)



Rozann W. Saaty, President and Executive Director, [Creative Decision Foundation](#), shows the plaque she received from MCDM 2019 organizing committee



Tom Saaty (1926-2017) was there in spirit. The Creative Decisions Foundation was established in 1996 by Thomas L. Saaty and his wife Rozann Whitaker Saaty to promote the cause of rational decision making and spread awareness of the Analytic Hierarchy Process (AHP) theory of decision making created by Dr. Saaty.

SCIENTIFIC PROGRAM

The conference consisted of 222 presentations and in 62 sessions. Since it is quite challenging to summarize all of them, I will summarize the AHP/ANP related sessions since that is what our audience is interested in. There were 12 sessions in AHP/ANP stream, 3 special sessions, 2 tutorial sessions, 1 invited parallel session, and 6 contributed parallel sessions.

The three special sessions were: AHP in Practice as a “Decision Conference” in Turkey - sponsored by ARAMA; AHP/ANP Applications in Production and Manufacturing – sponsored by BORCELİK; AHP/ANP Applications in Industry 4.0 - sponsored by ÇİMTAŞ.

The one invited session was on Theory and Applications of ANP; the six contributed sessions were Consistency Issues in AHP, AHP/ANP Applications in Academia and Education, AHP/ANP Applications in Urban and Regional Development, Practical Applications of AHP/ANP, AHP/ANP Applications in Aviation and Business Applications of AHP/ANP. I usually attend presentations in different areas of MCDM, not only AHP/ANP related to sessions in order to fertilize different ideas from different areas of MCDM, yet this time there were so many very interesting presentations on AHP/ANP I had to confine myself to the AHP/ANP presentations; I even missed some CDF awardees presentations. I was especially saddened that I missed AHP in Practice as a “Decision Conference” in Turkey - sponsored by ARAMA, since I knew from my past experience that this decision conference was solving practical problems together with the decision makers and I am very much interested in this.

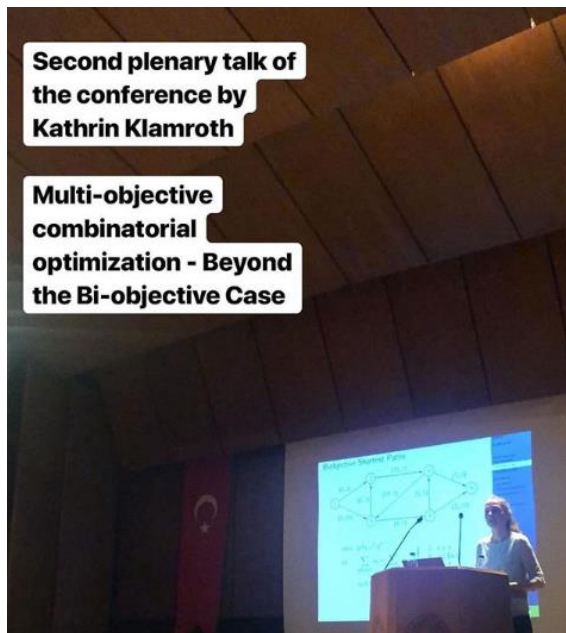
Invited Plenary Talks

The 4 plenary talks were delivered by;

- Pinar Keskinocak, Georgia Institute of Technology, USA: “Quantitative models for decision-support in healthcare applications”
- Kathrin Klamroth, University of Wuppertal, Germany: “Multi-Objective Combinatorial Optimization – Beyond the Bi-objective Case”
- Tuomas Sandholm, Carnegie Mellon, USA: “New Results for Solving Imperfect-Information Games”
- Luis Vargas, University of Pittsburgh, USA: “Voting with Intensity of Preferences”

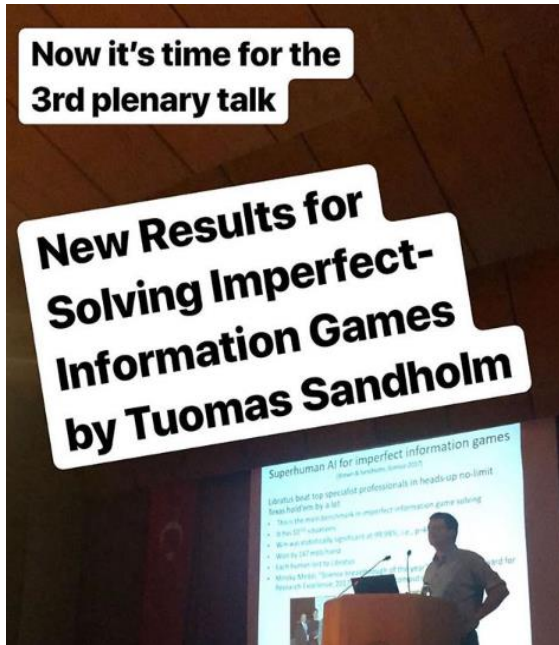


Keskinocak asserts that health systems focus on a broad set of activities including prevention, screening, diagnosis, and treatment. Most health systems face multiple objectives and limited resources while striving to provide high quality care and promote health and well-being. Data-driven quantitative models, embedded into decision-support systems, have significant potential for improving patient and population outcomes, efficiency, and effectiveness in healthcare. In this presentation, she discussed a few applications from organ transplant, vaccination, screening, and workforce allocation decisions.

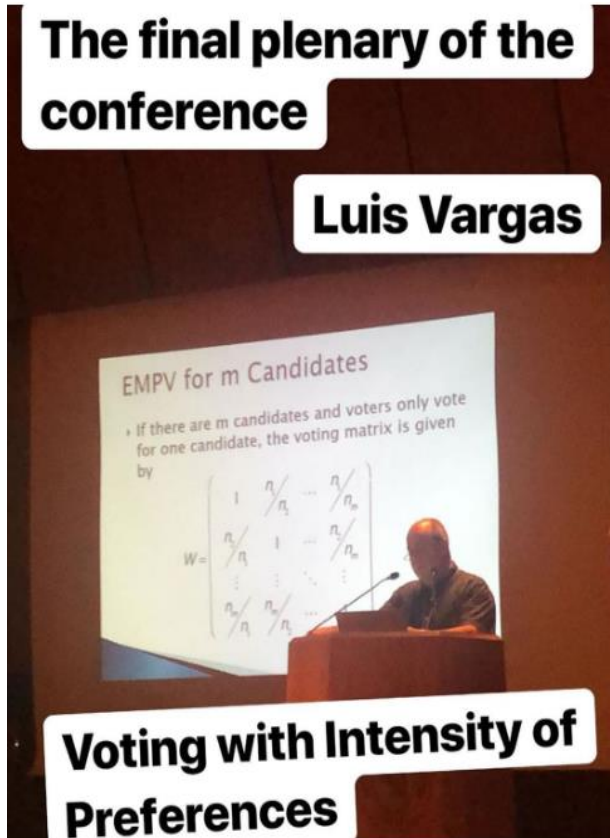


Klamroth stated that multi-objective combinatorial optimization (MOCO) is a quickly growing field that is highly relevant for a multitude of application areas and at the same time highly challenging due to its inherent complexity. Typical examples of MOCO problems include multi-objective knapsack and assignment problems, the multi-objective Travelling Salesman Problem, and network problems like multi-objective minimum spanning tree, shortest path, and minimum cost flow problems. Starting with a review of recent developments in the field of MOCO, she analyzed the main drivers of the complexity of MOCO problems and identified cases where MOCO

problems are actually easy. She discussed general solution concepts such as generic scalarization based algorithms, branch and bound methods, and upper and lower bound sets.



Sandholm contends that most real-world settings are imperfect-information games. They present challenges beyond those in perfect-information games. He discussed some of the more recent work on imperfect-information games. Topics include a unified framework for abstracting games with bounds on solution quality, a sound depth-limited search framework, the fastest equilibrium-finding algorithms, deep learning as an alternative to abstraction, a general framework for online convex optimization for sequential decision processes and extensive-form games, the first scalable algorithm for trembling-hand equilibrium refinements, and trembling-hand refinement of Stackelberg equilibria.



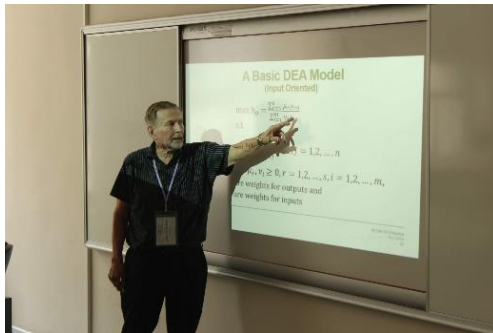
Last but not least was the talk from Vargas. He explained the method he developed based on the idea of pairwise voting to rank projects or candidates and incorporate them into the ranking process. This focused on how strongly the referees/voters feel about the comparisons they make. Voting is a modified form of ranking and all the votes are equally important. However, there are situations in which the votes are not just ordinal, but each voter expresses an intensity of preference for the different candidates, e.g., ranking projects for funding. Vargas showed that this method yields the same results as ordinal voting in large populations when the intensity of preferences becomes extreme. Voting with intensity of preferences does not violate democracy, but softens the stand of voters and allows for consideration of the diversity of issues involved in voting.

Tutorials

The 3 tutorial sessions consisted of 2 tutorials delivered by Orrin Cooper and Pekka J. Korhonen.



Orrin Cooper, University of Memphis, USA: “Improve Your Decisions by Learning and Experiencing the ANP Best Practices.” Special session sponsored by Creative Decision Foundation, a tribute to Thomas L. Saaty, and it was a great opportunity to learn ANP.



Pekka J Korhonen, Aalto University, Finland: “MOLP vs. DEA – Relatives or Friends”

Doctoral Dissertation Award Session

The doctoral dissertation award session took place on June 19th at Mustafa Kemal Conference Hall. The finalists this year were:

- Andreia Guerreiro, University of Coimbra, Portugal
- Fritz Bökler, Osnabrück University, Germany
- Mohammad Ghaderi, Pompeu Fabra University, Spain (*via Skype*)

As announced during the conference banquet, the doctoral dissertation award was given to Fritz Bökler.

Business Meeting

The business meeting was held on June 20th at Mustafa Kemal Conference Hall. Murat Köksalan chaired the meeting.



The highlight of the business meeting was the announcement of the next conference location. The MCDM2021 conference will take place in Portsmouth, UK (tentatively) from June 27 - July 2, and it will be chaired by Alessio Ishizaka and co-chaired by Banu Lokman.

Society Awardees

During the conference banquet, International Society on MCDM awardees and the MCDM doctoral dissertation awardee were announced. The awardees were:

- The MCDM Gold Medals:
 - Margareth Wiecek, Clemson University, USA
 - Michalis Doumpos, Technical University of Crete, Greece
- The MCDM Edgeworth-Pareto Award:
 - Ahti Salo, System Analysis Laboratory, Finland
- The Georg Cantor Award
 - Kathrin Klamroth, University of Wuppertal, Germany
- The MCDM Doctoral Dissertation Award
 - Fritz Bökler, Osnabrück University, Germany

Society awardees gave their talks on June 21th at ITU Management Faculty building.

Publications

Selected abstracts that were presented at the conference were invited to be considered as chapters in the book titled “Multiple Criteria Decision Making Beyond the Information Age: Selected works from MCDM 2019 Istanbul” within the Springer’s Book Series “Contributions to Management Science”. Participants also have the opportunity to submit

their manuscripts in the special issues of *Journal of Enterprise Information Management*, *Journal of Global Optimization*, *International Journal of the Analytic Hierarchy Process*, *Journal of Multi-Criteria Decision Analysis*, *Annals of Operations Research*, and *Optimization and Engineering*. I urge everyone not to miss this opportunity.

Closing Session

The closing session took place on June 21st at the ITU Management Faculty building.



Murat Köksalan (top left), Matthias Ehrgott (top right), and Ilker Topcu (bottom) at the closing session

SOCIAL EVENTS

In addition to the high-quality scientific program based on the contributions of the presenters, organizers made the conference even more memorable by organizing attractive social events. On Sunday evening, the “Welcome Reception” took place at “Havuzbasi” on the Istanbul Technical University Macka campus. Participants were offered plentiful meze and finger foods along with unlimited drinks. The Creative Decision Foundation’s award reception, held Monday evening, was also at this location.



Creative Decision Foundation Award reception, June 17, 2019
Rozann Saaty addressing CDF awardees

For the “Outing on Wednesday”, visits to Sakıp Sabancı Museum and Emirgan Park were organized in the afternoon. Sabancı University’s Sakıp Sabancı Museum, a private fine arts museum, is located at one of Istanbul’s oldest settlements on the Bosphorus river. The museum presents a versatile museological environment with its rich permanent collection, the comprehensive temporary exhibitions, and its conservation units. Emirgan Park, one of the biggest parks in Istanbul, is the homeland of tulips. The park includes approximately 90 species of trees and 3,000 varieties of tulips. It is said to be the most beautiful park in Istanbul.



Sabancı Museum



Birsen Karpak and Rozann Saaty

After visiting the museum and the park, a dinner cruise on the Bosphorus was organized. The guided boat ride on the Bosphorus was a unique experience for seeing the beauties of Istanbul including palaces, monuments, and mansions accompanied by trees and flowers along the European and Asian sides of the Bosphorus. During the cruise, a buffet dinner was also served and participants enjoyed traditional Turkish street foods, unlimited local beer and wine, and DJ music. Participants were chatting with each other exchanging ideas and dancing!



Dinner cruise



Birsen Karpak, Serpil Sayin and Pinar Keskinocak chatting and enjoying the beauty of Bosphorus at night

The conference banquet was held at the historical Sait Halim Paşa Mansion on Thursday evening. The mansion, located at the Bosphorus and overlooking the mesmerizing seafront, was built in 1878. At this mansion 19th-century architectural elegance meets 21st-century service quality. The banquet started with a reception, and was followed by a four-course dinner executed by an award-winning executive chef. Participants enjoyed live lounge, jazz, Latin, and oldies music by Yosun and Aid Band, and then live local music by a Balkan band.



A view from the banquet at Sait HalimPasha Mansion



Yes, this was MCDM 2019 Beyond the Information Age!



First and second generation MCDM people at the banquet. Fusun Ulengin, Murat Koksalan, Pekka Korhonen, Jyrki Wallenius, Ralph Steuer, and Birsen Karpak are pioneers of MCDM; Ilker Topcu, Sule Onsel Ekici, Serpil Sayin, Ozgur Kabak are the second generation.



More second generation MCDM at the banquet

That night, Jyrki Wallenius, chairman of the awards committee, announced the awards of the society.



Jyrki Wallenius and Murat Köksalan (top left); Society Awardees (top right);
Doctoral Dissertation Finalists (bottom row)

SCIENTIFIC PROGRAM COMMITTEE MEMBERS

Twenty-seven Scientific Program Committee members came from every continent except Australia! They were Emel Aktaş (Cranfield University), Umut Asan (Istanbul Technical University), Adiel Teixeira de Almeida (Federal University of Pernambuco), Sarah Ben Amor (University of Ottawa), Matthias Ehrgott (Lancaster University), Gabriele Eichfelder (TU Ilmenau), José Rui Figueira (Technical University of Lisbon), Salvatore Greco (University of Catania), Zahir Irani (University of Bradford), Özgür Kabak (Istanbul Technical University), Birsen Karpak (Youngstown State University), Kathrin Klamroth (Bergische Universität Wuppertal), Murat Köksalan (Middle East Technical University), Banu Lokman (Middle East Technical University), Kaisa Miettinen (University of Jyväskylä), Enrique Mu (Carlow University), Özay Özaydın (Doğuş University), Serpil Sayın (Koç University), Hsu-Shih Shih (Tamkang University), Johannes Siebert (University of Bayreuth), Seyhan Sipahi Nişel (Istanbul University), Theo Stewart (University of Cape Town), İlker Topcu (Istanbul Technical University), Füsün Ülengin (Sabancı University), Jyrki Wallenius (Aalto University), Margaret Wiecek (Clemson University), Constantin Zopounidis (Technical University of Crete).

I would like to express my gratitude to my friends, Y. İlker Topcu, MCDM 2019 Conference General Chair, general co-chairs Özgür Kabak and Özay Özaydın, organizing committee chair Şule Önsel Ekici and program committee chair Serpil Sayın, conference secretary Çigdem Kadaifçi, and organizing committee members Sezi Çevik Onar, Bilal Ervural, Sait Gül, Gül İmamoğlu, Berk Küçükaltan, Başar Öztayşi, Seda Yanık, Özgür Yanmaz, and Umut Asan. Special recognition is due hardworking volunteer students Dilek Hafizoğlu, Nihat Can Sinayiş, İbrahim Küçükçiçek, Musa M. Almasri, Atakan Burak Birbir, Fatime İrem Yağan, Yeliz Çotoy, Esmâ Nur Acungil, Damla Erden, and Kerim Uygur Kızıl.



Conference chair, co-chairs, organizing and program committee chairs
From left to right, Özay Özaydın (Dogus University), Serpil Sayın (Koc University), Y. İlker Topcu (Istanbul Technical University), Şule Önsel Ekici (Dogus University), and Özgür Kabak (Istanbul Technical University).

I also would like to thank the conference organizing committee for selecting a competent professional conference organizer, Cormep; event planner, Beyaz Event; securing the sponsorship of the International Society on MCDM, Creative Decisions Foundation, and TÜBİTAK (The Scientific and Technological Research Council of Turkey); and obtaining so many session sponsors (Çimtaş Pipe Fabrication and Trading, Borçelik Steel Industry Trade, Arama Participatory Management Consulting; food, beverage, product, and service sponsors Sakıp Sabancı Museum, Mavi, Springer, Anadolu Efes, Coca Cola İçecek, Dimes, Muratbey). All contributed to the success of this conference. It is such a success considering the current economic conditions of Turkey.



I also wish to thank to the plenary speakers, the tutorial speakers, the invited session organizers, the session chairs, and all the presenters and participants who contributed to the organization of such a wonderful conference!

Last but not least, I would like to thank my friend Ilker Topcu who provided the basic information for this news article. Anything you appreciate belongs to him, and any mistakes or inadvertent missing information belongs to me.

Birsen Karpak, Ph.D.

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Scientific Program Committee Member, [MCDM2019](#)

www.MCDM2019.org; [instagram.com/mcdm2019](https://www.instagram.com/mcdm2019); [twitter.com/mcdm2019](https://www.twitter.com/mcdm2019)