

## 27TH INTERNATIONAL CONFERENCE ON MULTIPLE CRITERIA DECISION MAKING (MCDM2024)

*2 to 7 June 2024, Hammamet, Tunisia*

Tunis time	Sunday, June 2	Monday, June 3	Tuesday, June 4	Wednesday, June 5	Thursday, June 6	Friday, June 7
8:00 - 8:30 am		Registration	Registration	Registration	Registration	
8:30 - 9:00 am						Society Award Talks
9:00 - 9:30 am		Opening	Parallel Session B-0	Parallel Session D-0	Parallel Session E-0	Closing Ceremony
9:30 - 10:00 am		Panel Discussion	Parallel Session B-1	Parallel Session D-1	Parallel Session E-1	
10:00 - 10:30 am			Parallel Session B-2	Parallel Session D-2	Parallel Session E-2	Sightseeing Tour to Kairouan and Roman coliseum of El Jem
10:30 - 10:40 am		Coffee Break	Parallel Session B-3	Parallel Session D-3	Parallel Session E-3	
10:40 - 11:00 am			Coffee Break	Coffee Break	Coffee Break	
11:00 am - 12:00 pm		Plenary 1	Plenary 2	Plenary 3	Plenary 4	
12:00 - 2:00 pm		Lunch	Executive Committee Meeting / Lunch	Lunch	Lunch	
2:00 - 2:30 pm	Registration	Parallel Session A-0	Parallel Session C-0	Group Photo	Business Meeting	
2:30 - 3:00 pm		Parallel Session A-1	Parallel Session C-1	Sightseeing Tour of Carthage and Sidi Bou Said	Parallel Session F-0	
3:00 - 3:40 pm		Parallel Session A-2	Parallel Session C-2		Parallel Session F-1	
3:40 - 4:00 pm		Parallel Session A-3	Parallel Session C-3		Parallel Session F-2	
4:00 - 4:40 pm		Coffee Break	Coffee Break		Coffee Break	
4:40 - 5:00 pm		Tutorial 1	Tutorial 2	Doctoral Dissertation Session		
5:00 - 6:00 pm						
6:00 - 7:00 pm	Welcome Reception					
7:00 - 8:00 pm						
8:00 - 9:30 pm					Conference Dinner	
9:30 - 10:30 pm						
10:30 - 11:00 pm						



Sunday, June 2

Sunday, June 2 2:00 - 6:00

Registration

Room: Diar Lemdina Hotel - Reception

Sunday, June 2 6:00 - 8:00

Welcome Reception

Room: Diar Lemdina Hotel - Reception

Monday, June 3

Monday, June 3 8:00 - 9:00

Registration

Monday, June 3 9:00 - 9:30

Opening

Room: Caesar's Amphitheatre

Monday, June 3 9:30 - 10:30

Panel Discussion

Room: Caesar's Amphitheatre

Monday, June 3 10:30 - 11:00

Coffee Break

Monday, June 3 11:00 - 12:00

Plenary 1

Room: Caesar's Amphitheatre

Monday, June 3 12:00 - 2:00

Lunch

Room: Conference Restaurant

Monday, June 3 2:00 - 3:40

Parallel Session A-0

Finance and Investment

Room: Caesar's Amphitheatre

**2:00 Improved Credit Risk Prediction Based on an Integrated Graph Representation Learning Approach with Graph Transformation**

Yong Shi (University of Chinese Academy of Sciences, China); Yi Qu (University of Chinese Academy of Sciences); Yunlong Mi (Central South University, China)

**2:20 Empirical Analysis of the Trade-Offs Among Risk, Return, and Climate Risk in Multi-Criteria Portfolio Optimization**

Sebastian Utz (University of Augsburg, Germany & Universität Augsburg, Germany); Ralph Steuer (University of Georgia, USA)

**2:40 Market Risk Models Evaluation with MCDM Techniques**

Tomas Tichy (Technical University of Ostrava, Czech Republic)

**3:00 An Integrated Risk Management Approach for Supporting Financial Sustainability of Healthcare Providers in Emerging Economies: From Theory to Practice**



Miguel A. Ortíz-Barrios (Universitat Politècnica de Valencia (Spain) & Universidad de La Costa CUC, Colombia); Muhammet Gul (Istanbul University, Turkey); Melih Yücesan (Munzur University, Turkey); Fanny-Fabiola Lambraño-Coronado (Universidad Simón Bolívar, Colombia); Juan Jose Alfaro Saiz (Universitat Politècnica de València, Spain); José Luis Alcalá (Universidad Simón Bolívar, Colombia); Magda A Monsalve Peláez (Universidad Simón Bolívar, Colombia); Petrillo (Universita di Napoli Parrhenope, Italy)

### **3:20 A Three-Way Active Concept-Cognitive Computing System for Dynamic Financial Fraud Detection**

Yunlong Mi (Central South University, China); Yong Shi (University of Chinese Academy of Sciences, China)

## Parallel Session A-1

Decision Support Systems

Room: Cesar 1

### **2:00 A Subjective Approach to Fairness Through Explanations**

Sarra Tajouri and Alexis Tsoukiàs (LAMSADE - Paris Dauphine University-PSL - CNRS, France)

### **2:20 A Multicriteria Decision-Making Model for Photovoltaic Panel Selection: Integrating Quality, Cost, Environment, and Social Responsibility with the QCESR Indicator**

Remigiusz Gawlik (Krakow University of Economics & North-West University Business School, Poland); Dominika Siwiec and Andrzej P. Pacana (Rzeszow University of Technology, Poland)

### **2:40 The Deck of Cards-Based Ordinal Regression Method**

Salvatore Greco (University of Catania & Faculty of Economics, Italy); Maria Barbati (Ca Foscari University of Venice, Italy); Isabella Lami (Politecnico di Torino, Turin, Italy)

### **3:00 Deck of Cards Method for Hierarchical, Robust and Stochastic Ordinal Regression**

Silvano Zappalà and Salvatore Corrente (University of Catania, Italy); Salvatore Greco (University of Catania & Faculty of Economics, Italy)

### **3:20 A DSS Utilizing Belief Rules for Multi-Objective Stochastic Perishable Inventory Routing Problem**

Xiyi Chen and Dong-Ling Xu (University of Manchester, United Kingdom (Great Britain)); Jian-Bo Yang (The University of Manchester, United Kingdom (Great Britain))

## Parallel Session A-2

Practical Applications of MCDM

Room: Cesar 4

### **2:00 Exploring Conflicting Criteria in the Flexible Job Shop Scheduling Problem**

kaouther Ben Ali (ISG, Smart Lab, Tunisia); Slim Bechikh (Smart Lab, Tunisia)

### **2:20 Ranking Taxi Booking Applications Based on Customers' Perspective: Combining NLP and MCDM Approaches**

Malek Kristou and Sonia Rebai (Tunis Business School & BADEM, Tunisia)

### **2:40 Ranking Hotels Using Aspects Rating Based on Sentiment Classification and Fuzzy AHP**



Eya Hadhri (Tunis Business School, Tunisia); Sonia Rebai (Tunis Business School & BADEM, Tunisia)

**3:00 Evaluating Higher Education Systems: Comparing Tunisia Traditional and e-Learning Platforms Through Stakeholder MCDM with PCA and Copeland's Methods**

Malek Othman (University of Tunis & Central Bank of Tunisia, Tunisia); Olfa Meddeb (University of Carthage, Tunisia)

**3:20 Multi-Criteria Assessment of Energy Poverty Levels in the European Union: Insights During the Pandemic**

Carla Oliveira Henriques (Polytechnic University of Coimbra, Coimbra Business School, ISCAC & INESC Coimbra, Portugal); Jose Rui Figueira (University of Lisbon, Portugal); Carlos Silva (Instituto Superior Técnico, University of Lisbon, United Kingdom (Great Britain)); Miguel A Pereira (University of Lisbon, Portugal); Madalena Alexandre Lourenço (Universidade de Lisboa, Portugal)

**Parallel Session A-3**

Artificial Intelligence

Room: Cesar 7

**2:00 Evidential Reasoning for Evidence Based Multiple Criteria Assessment**

Jian-Bo Yang (The University of Manchester, United Kingdom (Great Britain)); Dong-Ling Xu (University of Manchester, United Kingdom (Great Britain))

**2:20 Bibliometric Analysis of AI-Based Decision Support Systems for Manufacturing Sector**

Nenad Medic (University of Novi Sad & The Institute for Artificial Intelligence Research and Development of Serbia, Serbia)

**2:40 Navigating Uncertainty: Synthesising Cross-Sector Decision-Making Dynamics to Enable AI in Rail Infrastructure Management**

Corneliu Cotet (Loughborough University & Europuls Centre for European Expertise, United Kingdom (Great Britain)); Peter Kawalek (Loughborough University, United Kingdom (Great Britain)); Tom Jackson (University of Loughborough, United Kingdom (Great Britain))

**3:00 Recent Developments in Integrating Explainability with Interactive Multiobjective Optimization Methods**

Giovanni Misitano and Bekir Afsar (University of Jyväskylä, Finland); Kaisa Miettinen (University of Jyväskylä, Finland)

**3:20 Dichotomic Search for Multiobjective PINN and Neural Network Training**

Fabian Heldmann and Kathrin Klamroth (University of Wuppertal, Germany)

Monday, June 3 3:40 - 4:00

Coffee Break

Monday, June 3 4:00 - 6:00

Tutorial 1

Room: Caesar's Amphitheatre

**MCDM Based Methodology to Big Data Analysis and Applications**

Yong Shi (University of Chinese Academy of Sciences, China)

Tuesday, June 4

Tuesday, June 4 8:00 - 9:00



## Registration

Tuesday, June 4 9:00 - 10:40

### Parallel Session B-0

The Creative Decisions Foundation

Room: Caesar's Amphitheatre

#### **9:00 AI-Driven Supplier Selection: Integrating AHP and ChatGPT-4 for Automated Decision Making**

Mohammad Dehghani (Northeastern University, USA); Nihan Kabadayi (Istanbul University, USA)

#### **9:20 Sustainable Development in the Apparel Industry: Designing New Products Preferred by the Customers**

Derya Eker and Ilker Topcu (Istanbul Technical University, Turkey)

#### **9:40 Prioritization of Attributes for Transit Services: An MCDM Approach**

Rupam Fedujwar (IIT Roorkee, India); Amit Agarwal (Indian Institute of Technology Roorkee, India)

#### **10:00 An Integrated MCDM Approach for Prioritizing Units in Aviation Maintenance and Repair Facilities**

Ömer Faruk Bekmezci, İmran Gündüz and Ilker Topcu (Istanbul Technical University, Turkey)

#### **10:20 Evaluating Suggestions for Improving the Scientific Peer-Review Process Using MCDM Techniques**

Ilker Topcu, Cigdem Kadaifci and Erkan Isikli (Istanbul Technical University, Turkey)

### Parallel Session B-1

Group Decision Making and Best Worst Method

Room: Cesar 1

#### **9:00 Better Decisions with Less Cognitive Load: The Parsimonious BWM**

Salvatore Corrente (University of Catania, Italy); Salvatore Greco (University of Catania & Faculty of Economics, Italy); Jafar Rezaei (Delft University of Technology, The Netherlands)

#### **9:20 Enhancing Decision-Making Reliability: The Best-Worst Method's Distinctive Strategy**

Jafar Rezaei (Delft University of Technology, The Netherlands)

#### **9:40 The Impact of Exploiting the Interaction Among Different Criteria in Evaluating Pain Treatment for COVID-19 Patients**

Sonia Hajlaoui (University of Sfax, Tunisia); Nesrin Halouani (Sfax & ISAAS, Tunisia); Habib Chabchoub (Al Ain University, United Arab Emirates)

#### **10:00 Characterising Decision Making in Social Networks with Belief Diffusion and Updating**

Yuwang Chen and Tao Wen (University of Manchester, United Kingdom (Great Britain)); Ting Wu (Manchester Metropolitan University, United Kingdom (Great Britain))

#### **10:20 Group Decision-Making Based on GIS and Multi-Criteria Analysis for Assessing Land Suitability for Agriculture**

Abdelkader Mendas (Centre Des Techniques Spatiales, Algeria); Abdellah Mebrek and Zohra Mekranfar (Centre des Techniques Spatiales, Algeria)

### Parallel Session B-2



Computing and Software for MCDM

Room: Cesar 4

**9:00 Development of a Software Package Based on GIS for Spatial Decision-Making Sensitivity Analysis**

Abdellah Mebrek (Centre des Techniques Spatiales, Algeria);  
Abdelkader Mendas (Centre Des Techniques Spatiales, Algeria);  
Youssef Sakmeche, Mhammed Bendania and Zohra Mekranfar (Centre des Techniques Spatiales, Algeria)

**9:20 Quantifying the Complexity of Multi-Line Charts and Radar Plots for Sensitivity Analysis**

Siraj Sajid (University of Leeds, United Kingdom (Great Britain)); He Huang (Paul Scherrer Institut (PSI), Switzerland & Vrije Universiteit Brussel (VUB), Belgium)

**9:40 A Parallel Enumeration Algorithm for Tri-Objective Integer Optimization Problem**

Kathrin Prinz and Stefan Ruzika (RPTU, Germany)

**10:00 A Simple, Efficient and Versatile Objective Space Algorithm for Multiobjective Integer Programming**

Kerstin Daechert (University of Applied Sciences (HTW) Dresden, Germany); Kathrin Klamroth (University of Wuppertal, Germany)

**10:20 Elevating Mental Well-Being Assessment Through Unsupervised Learning and MCDM Advancements**

Princy Verma and Millie Pant (Indian Institute of Technology Roorkee, India); Mukesh Kumar Barua (Indian Institute of Technology Roorkee Roorkee Uttarakhand India, India)

Parallel Session B-3

Room: Cesar 7

**9:00 Enhancing Life Insurance Product Selection for Indian Customers: A Multi-Criteria Decision-Making Approach Using Analytical Hierarchy Process (AHP)**

Prashant Pandharinath Barsing, Prof. (NMIMS University & Amity University Mumbai, India)

**9:20 Categorization of the Potential Impact of Italian Quarries on Water Resources Through MCDA-Based Model**

Matteo Paoletti (University of Bologna, Italy); Antonino Scarelli (EWGMCDM, Italy)

**9:40 Efficient Pharmaceutical Distribution Through Multi-Compartment Transportation: An Online Bi-Objective Framework**

Quertani Nasreddine (IUT de Roanne - Université Jean Monnet, France); Saoussen Krichen (ISG, Tunisia); Hajer Ben Romdhane (ISG-Tunis, Tunisia); Issam Nouaouri (Université d'Artois - LGI2A, France)

Tuesday, June 4 10:40 - 11:00

Coffee Break

Tuesday, June 4 11:00 - 12:00

Plenary 2

Room: Caesar's Amphitheatre

Tuesday, June 4 12:00 - 2:00

Executive Committee Meeting

Room: Conference Restaurant

Lunch



Room: Conference Restaurant

Tuesday, June 4 2:00 - 3:40

## Parallel Session C-0

Healthcare Management

Room: Caesar's Amphitheatre

### **2:00 Addressing the Barriers to Organ Donation in Turkey**

Cigdem Kadaifci, Deniz Buse Ozyurt and Omer Faruk Bekce (Istanbul Technical University, Turkey)

### **2:20 Evidential Reasoning Rule for MCDM, Bayesian Inference, and Explainable Machine Learning**

Dong-Ling Xu (University of Manchester, United Kingdom (Great Britain)); Jian-Bo Yang (The University of Manchester, United Kingdom (Great Britain))

### **2:40 Factors Influencing Demand in the Childhood Vaccine Supply Chain: A MCDM Approach**

Oussema Omri (LGI CentraleSupélec, Paris-Saclay University - CESIT KEDGE Business School, France); Nadine Kafa (Centre of Excellence in Supply Chain (CESIT), Kedge Business School, Talence, Fr, France); Mohamed Zied Babai (Kedge Business School, France); Zied JEMAI (LGI, CentraleSupélec, Université Paris-Saclay, France)

### **3:00 Implicit and Explicit Approaches for Efficient Healthcare Scheduling**

Aymen Ben Said and Malek Mouhoub (University of Regina, Canada)

### **3:20 An Integrated Neutrosophic Fuzzy MCDM Model to Evaluate the Emergency Department's Readiness Against Seasonal Respiratory Diseases**

Miguel A. Ortíz-Barrios (Universitat Politècnica de Valencia (Spain) & Universidad de La Costa CUC, Colombia); Juan Jose Alfaro Saiz (Universitat Politècnica de València, Spain); Helder Jose Celani de Souza, Prof. PMP (UNESP - Sao Paulo State University & Lidproj Consulting Ltd, Brazil); Armando Perez, Sr. (Instituto Tecnológico Superior de Villa La Venta, Mexico); Andres Ariza-Ortiz (Institución Universitaria de Barranquilla, Colombia); Genett Jimenez (Institucion Universitaria de Barranquilla, Colombia); Zaury E Fernández Mendoza, Sra (Institución Universitaria de Barranquilla & Itsa, Colombia); Eduardo Navarro Jimenez and Carmen Cecilia Laborde Cardenas (Universidad Simon Bolivar, Colombia)

## Parallel Session C-1

Climate Change and Sustainable Development

Room: Cesar 1

### **2:00 Multicriteria Decision Analysis for Bridges Development and Interventions: A Bibliometric Review**

Amanda Trojan Fenerich, Aradhana Yadav and Myra Lydon (University of Galway, Ireland); Amaya Vega (Atlantic Technological University, Ireland)

### **2:20 MCDA & Econometrics Contribute a New Set of Weights for Life Cycle Assessment**

Marco Cinelli (Leiden University College, The Netherlands); Ayşe Bayazıt Subaşı (İstanbul Technical University, Turkey); Cecilia Askham (Norwegian Institute for Sustainability Research, Norway); Erlend Dancke Sandorf (Norwegian University of Life Sciences, Norway); Luis Cândido Dias (University of Coimbra, Portugal); Danny Campbell (University of Stirling, United Kingdom (Great Britain)); Elçin Filiz Taş (İstanbul Technical University, Turkey); Norihiro Itsubo (Waseda University, Japan); Christine Betty Nagawa and Christine Mugumya



Kyarimpa (Makerere University, Uganda); Mamadou Djerma (Sustainable Water and Environment Expertise and Technologies, Burkina Faso); Bazoin Sylvain Raoul Bazie (Université Norbert Zongo, Burkina Faso)

**2:40 Multi-Objective Analysis for Sustainable Fruit Exportation Value Chains Based on Profit, Remaining Quality and Carbon Footprint**

Damrongpol Kamhangwong (Mae Fah Luang University, Thailand & Digital Transformation Research Unit for Agro- Industry and Business, Thailand); Fouad Ben Abdelaziz (NEOMA Business School, France); Nattapan Kongbuamai (Mae Fah Luang University, Thailand); Samatthachai Yamsa-ard (CEWT Research Center, Mae Fah Luang University)

**3:00 A Sustainable Circular Supply Chain Production Planning for E-Waste Reduction: Epsilon-Constraint and NSGA-II Based Approach**

Houria LAHMAR (University of Batna 2, Algeria); Mohammed Dahane (Université de Lorraine, France); Nadia Kinza Mouss and Mohammed Haoues (Batna 2 University, Algeria)

**3:20 Dynamic Analysis of Factors Affecting the Sustainability of Suggestions for Improving the Peer-Review Process Using Fuzzy Cognitive Mapping**

Erkan Isikli, Cigdem Kadaifci and Ilker Topcu (Istanbul Technical University, Turkey)

Parallel Session C-2

Risk, Fuzziness and Uncertainty

Room: Cesar 4

**2:00 Representation of Preferences for Multiple Criteria Decision Aiding in a New Seven-Valued Logic**

Salvatore Greco (University of Catania, Italy); Roman Slowinski (Poznan University of Technology, Poland)

**2:20 Circular Intuitionistic Fuzzy AHP for Smart City Evaluation**

Esra Çakır (Galatasaray University, Turkey)

**2:40 Fuzzy Chance Constraint Programming Approach for the Two-Echelon Inventory Routing Problem**

Khouloud Dorgham (Université d'Orléans, Laboratoire PRISME, France); Issam Nouaouri (Université d'Artois - LGI2A, France); Gilles Goncalves (Artois University, LGI2A, France)

**3:00 Enhancing Reliability in Global AI Index Rankings Through SMAA and Statistical Analysis**

Renata Pelissari (Mackenzie Presbyterian University, Brazil); Betania Silva Carneiro Campello and Guilherme Dean Pelegrina (UNICAMP, Brazil); Ricardo Suyama (Universidade Federal do ABC, Brazil); Sarah Ben Amor (University of Ottawa, Canada); Leonardo Tomazeli Duarte (University of Campinas (UNICAMP), Brazil)

**3:20 A Decision Support System for Watersheds Multi-Criteria Ranking in a Flood Risk Management Context**

Anissa Frini (Université Du Québec à Rimouski, Canada & Unité Départementale Des Sciences de La Gestion, Canada); Clément Alexis Besnard and Loubna Benabbou (Université Du Québec à Rimouski, Canada); Mehdi Adda (University of Quebec at Rimouski, Canada); Thomas Buffin-Bélanger (Université Du Québec À Rimouski, Canada)

Parallel Session C-3

Data Envelopment Analysis





Room: Cesar 7

**2:00 Assessing Eco-Innovation Dynamics in European Union Member States Using Window Slack-Based Measure Data Envelopment Analysis**

Clara Pisco Viseu (Polytechnic Institute of Coimbra, Coimbra Business School, ISCAC, Portugal); Sara Sousa (Polytechnic Institute of Coimbra, Coimbra Business School, ISCAC & CERNAS, Portugal); Carla Oliveira Henriques (Polytechnic University of Coimbra, Coimbra Business School, ISCAC & INESC Coimbra, Portugal)

**2:20 An Analysis of the Performance and Efficiency Evolution of European Countries in the Field of Eco-Innovation: A Multi-Criteria Approach**

Samira El Gibari (University of Malaga, Spain); Maria Isabel Peregrina Mila (Universidad Popular Autonoma del Estado de Puebla, Mexico); Francisco Ruiz (Universidad de Malaga, Spain)

**2:40 Comparing the Efficiency of Finding Efficient Sets in DEA Using Multiobjective Linear Programming and Convex Hull Methods**

Mathias Ehrgott (Lancaster University, USA)

**3:00 Assessing the Performance of Sugarcane Industry for Selected States in India: Machine Learning and Network DEA Approach**

Atul Kumar (IIT ROORKEE, India); Millie Pant (Indian Institute of Technology Roorkee, India)

**3:20 Assessing the European Union's Transition of Eco-Innovation Through Productivity Value-Based Data Envelopment Analysis**

Maria Gouveia (ISCAC - Coimbra Business School & INESC Coimbra, Portugal); Carla Oliveira Henriques (Polytechnic University of Coimbra, Coimbra Business School, ISCAC & INESC Coimbra, Portugal)

Tuesday, June 4 3:40 - 4:00

Coffee Break

Tuesday, June 4 4:00 - 6:00

Tutorial 2

Room: Caesar's Amphitheatre

**4:00 Tutorial on Multi-Objective Retail Store Layout**

Bacel Maddah (American University of Beirut, Lebanon)

Wednesday, June 5

Wednesday, June 5 8:00 - 9:00

Registration

Wednesday, June 5 9:00 - 10:40

Parallel Session D-0

Evolutionary multi-objective optimization

Room: Caesar's Amphitheatre

**9:00 Creating Tailor-Made Scalarizing Functions with Grammatical Evolution**

Amín Bernabé Rodríguez and Carlos Coello Coello (Cinvestav, Mexico)

**9:20 Generalized Dominance Structures for Multi-Objective Optimization**



Kalyanmoy Deb (Michigan State University, USA)

**9:40 A Dominance and Adaptive Decomposition-Based Evolutionary Algorithm for Many-Objective Optimization with Complicated Pareto Fronts**

Maha Elarbi (SMART Lab, ISG-Tunis, University of Tunis, Tunisia)

**10:00 A NSGA-II Based Hyperheuristic for Multi-Objective Scheduling Problems**

Imen Oueslati (University of Tunis & University of Artois, Tunisia); Moez Hammami (Institut Supérieur de Gestion, Tunisia); Maha Elarbi (SMART Lab, ISG-Tunis, University of Tunis, Tunisia); Lamjed Ben Said (Institut Supérieur de Gestion de Tunis, Tunisia); Issam Nouaouri (Université d'Artois - LGI2A, France); Hamid Allaoui (Artois University, France)

**10:20 A Bounded Archiver for Hausdorff Approximations of the Pareto Front for Multi-Objective Evolutionary Algorithms**

Carlos Ignacio Hernandez Castellanos (National Autonomous University of Mexico, Mexico); Schütze Oliver (National Polytechnic Institute of Mexico, Mexico)

**Parallel Session D-1**

Multi-Criteria Decision models

Room: Cesar 1

**9:00 An Approach for Choice of Method in Multicriteria Decision Models**

Adiel T de Almeida, LUCIA RP ROSELLI and Eduarda Asfora Frej, Dr (Universidade Federal de Pernambuco, Brazil)

**9:20 Quantifying Uncertainty in Decision Ranking: A New Index for Assessing Discrepancies Between SMAA Acceptability Index and Existing Ranking**

Betania Silva Carneiro Campello (UNICAMP, Brazil); Renata Pelissari (Mackenzie Presbyterian University, Brazil); Guilherme Dean Pelegrina (UNICAMP, Brazil); Ricardo Suyama (Universidade Federal do ABC, Brazil); Leonardo Tomazeli Duarte (University of Campinas (UNICAMP), Brazil)

**9:40 Sensitivity Analysis Under Partial Information: A Structured Protocol for the FITradeoff Multicriteria Method**

Eduarda Asfora Frej, Dr, Pedro Henrique De Souza, Wagner Gouveia and Adiel T de Almeida (Universidade Federal de Pernambuco, Brazil)

**10:00 Multicriteria Model to Combat Unauthorized Water Consumption: A Case Study in Brazil**

Ana Clara Cachina Saraiva, Danielle Costa Morais and Eduarda Asfora Frej, Dr (Universidade Federal de Pernambuco, Brazil)

**10:20 Spare Parts Management Using the Flexible and Interactive Tradeoff Method**

Siraj Sajid (University of Leeds, United Kingdom (Great Britain)); Salem Chakhar (University of Portsmouth, United Kingdom (Great Britain)); LUCIA RP ROSELLI and Adiel T de Almeida (Universidade Federal de Pernambuco, Brazil)

**Parallel Session D-2**

Multiple Criteria Ranking or Sorting

Room: Cesar 4

**9:00 Is Tunisia Developing Sustainably and Harmoniously?**



Ignacy Kaliszewski (Systems Research Institute of the Polish Academy of Science & WIT University, Poland)

**9:20 Ranking Alternatives Based on the Dominance Degree. an Investigation of Rank Reversal**

Marc Pirlot (University of Mons, Belgium); Roumaissa Kerbouli and Moncef Abbas (USTHB, Algeria)

**9:40 The ARPIRA Method: A Novel Multi-Attribute Ranking Method Built on a Simultaneous Use of Superiority and Inferiority Indexes**

Moufida Hidouri (Shaqra University & Laboratory (MODILS), Faculty Economics and Management, University of Sfax, Saudi Arabia); Mouhamed Souissi (Laboratory MODILS University of Sfax, Tunisia)

**10:00 Promethee Application to Multistage Bipolar Method**

Tadeusz Trzaskalik (University of Economics in Katowice, Poland)

**10:20 Evaluating the PROMETHEE II Ranking Quality**

Boris Coquelet, Gilles Dejaegere and Yves De Smet (Université Libre de Bruxelles, Belgium)

Parallel Session D-3

AHP and ANP

Room: Cesar 7

**9:00 Agile Transformation in Traditional Companies**

Tayyip Dogu Aydin, Cigdem Kadaifci and Ilker Topcu (Istanbul Technical University, Turkey)

**9:20 Exploring Factors and Techniques for Effective Team Formation in Project Management: A Multi-Criteria Decision-Making Approach**

Maryam Ali Abu Alfateh, Mourad Messaadia and Mazen Ali (University of Bahrain, Bahrain)

**9:40 Prioritizing Public Transportation Investments in West Algiers Using Multi-Criteria Decision Analysis**

Mohamed Akhrouf (Ecole Supérieure de Commerce, Algeria); Hadjer Medjamia and Meriem Bessou (ENSSEA, Algeria)

**10:00 Prioritizing Risk Mitigation Strategies in Supply Chain Management Using an Integrated MCDM Framework**

Sonya Javadi (Isik University, Turkey); Ilker Topcu (Istanbul Technical University, Turkey); Fusun Ulengin (Sabanci University, Turkey)

**10:20 Enhancing AHP Consistency Through Genetic Algorithm and Artificial Neural Networks**

ebtihel kantaoui (Tunis Business School, Tunisia); Sonia Rebai (Tunis Business School & BADEM, Tunisia)

Wednesday, June 5 10:40 - 11:00

Coffee Break

Wednesday, June 5 11:00 - 12:00

Plenary 3

Room: Caesar's Amphitheatre

Wednesday, June 5 12:00 - 2:00

Lunch

Room: Conference Restaurant

Wednesday, June 5 2:00 - 2:30



## Group Photo

Wednesday, June 5 2:30 - 9:30

Sightseeing Tour of Carthage and Sidi Bou Said

Thursday, June 6

Thursday, June 6 8:00 - 9:00

## Registration

Thursday, June 6 9:00 - 10:40

## Parallel Session E-0

Multi-objective Optimization

Room: Caesar's Amphitheatre

### **9:00 A Divide-And-Conquer Approach for Polyhedral Dominance Cones: Bridging the Gap from General Order Relations to Practical Problem Solving**

Julia Sudhoff Santos, Katrin Klamroth and Michael Stiglmayr (University of Wuppertal, Germany)

### **9:20 Pareto Tracing Methods in Higher Dimensions**

Lara Löhken and Kathrin Klamroth (University of Wuppertal, Germany)

### **9:40 A Grid-Free Convex Approximation Algorithm for Multi-Objective Combinatorial Problems**

Levin Nemesch (Rheinland-Pfälzische Technische Universität Kaiserslautern-Landau (RPTU), Germany); Stefan Ruzika (University of Kaiserslautern, Germany); Clemens Thielen (Technical University of Munich, Germany); Alina Wittmann (Technical University of Munich & Weihenstephan-Triesdorf University of Applied Sciences, Germany)

### **10:00 What is the Meaning of Pessimistic Pareto Front in Multiobjective Bilevel Problems?**

Maria João Alves (University of Coimbra, Portugal); Carlos Henggeler Antunes (University of Coimbra & INESC Coimbra, Portugal)

### **10:20 Multi-Objective Optimization for Sustainable Energy in Thailand**

Nattapan Kongbuamai (Mae Fah Luang University, Thailand); Fouad Ben Abdelaziz (NEOMA Business School, France); Samatthachai Yamsa-ard (CEWT Research Center, Mae Fah Luang University); Damrongpol Kamhangwong (Mae Fah Luang University, Thailand & Digital Transformation Research Unit for Agro- Industry and Business, Thailand)

## Parallel Session E-1

Transportation and Traffic

Room: Cesar 1

### **9:00 Analyzing the Relationships Between Transportation and Sustainable Development Goals Through Fuzzy Cognitive Mapping**

Ozay Ozaydin (Dogus University, Turkey); Fusun Ulengin (Sabanci University, Turkey); Sule Onsel Ekici (Istanbul University-Cerrahpasa, Turkey); Ozgur Kabak and Ilker Topcu (Istanbul Technical University, Turkey)

### **9:20 Novel Criteria Weighting Methodology ARES: A Case of Micromobility Modes Assessment in İstanbul**

Esra Çakır (Galatasaray University, Turkey)

### **9:40 Safe Streets for Kids: Evaluating Traffic Danger Through a Multi-Criteria Decision-Aiding Approach**



Shabnam Abdollahi and Owen Waygood (Polytechnique Montreal, Canada); Marie-Soleil Cloutier (INRS Urbanisation Culture Société Research Centre, Canada); Irène Abi-Zeid (Laval University, Canada)

**10:00 A Multicriteria Decision Support Tool for Bridge Maintenance Interventions: A Focus on Rural Communities' Accessibility**

Amanda Trojan Fenerich and Aradhana Yadav (University of Galway, Ireland); Amaya Vega (Atlantic Technological University, Ireland); Myra Lydon (University of Galway, Ireland)

**10:20 A Multi-Objective Perspective on the Dial-a-Ride Problem**

Michael Stiglmayr, Katrin Klamroth and Daniela Gaul (University of Wuppertal, Germany)

**Parallel Session E-2**

Multiple Criteria Decision Aiding 1

Room: Cesar 4

**9:00 Multi-Criteria Decision-Making Using Interpretable Self-Organizing Maps**

Kalyanmoy Deb (Michigan State University, USA)

**9:20 Inverse Optimization on the Evaluations of One Alternative for Promethee II Rankings**

Alexandre Flachs and Yves De Smet (Université Libre de Bruxelles, Belgium)

**9:40 Enhancing Transparency and Quality in AI Ranking: A Methodological Analysis of the Global AI Index**

Betania Silva Carneiro Campello and Guilherme Dean Pelegrina (UNICAMP, Brazil); Renata Pelissari (Mackenzie Presbyterian

University, Brazil); Ricardo Suyama (Universidade Federal do ABC, Brazil); Leonardo Tomazeli Duarte (University of Campinas (UNICAMP), Brazil)

**10:00 Towards a Tool to Support the Design of Plant Protection Solutions in the Context of Fruit Growing**

Mohamed-Mahmoud Memah (INRAE, UR PSH, Avignon, France); Jean-Noël Aubertot (AGIR, University of Toulouse, INRAE, Castanet-Tolosan, France); Julie Borg and Michel Génard (INRAE, UR PSH, Avignon, France); Isabelle Grechi (CIRAD, UPR HortSys, Montpellier, France); Sacha Lavaud (Ecole Des Hautes Etudes En Santé Publique (EHESP), France); Françoise Lescourret and Didace Ndalla-Landou (INRAE, UR PSH, Avignon, France); Marie-Hélène Robin (AGIR, Université Toulouse, INRAE, Castanet-Tolosan, France); Pierre Valsesia and Gilles Vercambre (INRAE, UR PSH, Avignon, France); Antoine Rolland (Université Lumière Lyon 2, Laboratoire ERIC, France)

**10:20 Multiple Criteria Decision Making for Electric Vehicles in Stochastic Networks with Incidents (MCDM-EV-SNRI)**

Faycal Znidi (TAMUT, USA); Heena Rathore (Texas State University, USA); Kawther Zayani (Institut Supérieur de Gestion, USA)

**Parallel Session E-3**

Industry Applications and Logistics

Room: Cesar 7

**9:00 A Dairy Product Distribution Planning Using Vehicle Routing Problem: A Case of Algerian Company**

Fouad Maliki (Higer School in Applied Sciences of Tlemcen, Algeria & MELT Laboratory, Algeria); Mehdi Souier (Manufacturing Engineering Laboratory of Tlemcen (MELT), Algeria); Mohammed Dahane



(Université de Lorraine, France); Fouad Ben Abdelaziz (NEOMA Business School, France)

**9:20 Artificial Intelligence Algorithms for Ambulance Routing Problem: Tunisian Hospitals Case Study**

Ines Sbai (Universite de Tunis, Institut Supérieur de Gestion de Tunis, LARODEC, Tunisia); Saoussen Krichen (ISG, Tunisia)

**9:40 Assessing Forest Fire Risks in Algeria: A Comprehensive Study on Prevention, Detection, and Response**

Rym Bouali (École Supérieure En Science Appliquées Tlemcen, Algeria); Fouad Maliki (Higer School in Applied Sciences of Tlemcen, Algeria & MELT Laboratory, Algeria); M'hammed Sahnoun (CESI LINEACT, France & CESI, France); Benatia Mohamed Amin (CESI LINEACT, France)

**10:00 Management of Restricted Resources Through the Resolution of Multi-Region Isoperimetric Optimal Control Problems: Continuous-Time Case**

Ilias Elmouki (ENSA,, Safi & Hassan II University of Casablanca, Morocco); Ling Zhong (Cheung Kong Graduate School of Business, China); Albatoul Khaled and Amine Hamdache (ENSA-Safi, Morocco); Abdelilah Jraifi (Ensa safi, Morocco); Kaouthar Oubbad (ENSA-Safi, Morocco); Aziz Darouichi (FST, Cadi Ayyad University, Morocco)

**10:20 Suitability Analysis for Wind Farms Projects: The Case of Rio Grande Do Norte, Brazil**

Duan Vilela Ferreira (Universidade Federal de Pernambuco & KTH Royal Institute of Technology, Sweden); Caroline Mota (Universidade Federal de Pernambuco)

Thursday, June 6 10:40 - 11:00

Coffee Break

Thursday, June 6 11:00 - 12:00

Plenary 4

Room: Caesar's Amphitheatre

Thursday, June 6 12:00 - 2:00

Lunch

Room: Conference Restaurant

Thursday, June 6 2:00 - 3:00

Business Meeting

Room: Caesar's Amphitheatre

Thursday, June 6 3:00 - 4:40

Parallel Session F-0

Advances in MCDM Theory

Room: Caesar's Amphitheatre

**3:00 Normalization of Multidimensional Data for Multi-Criteria Decision Making Problems: Inversion, Displacement, Asymmetry**

Irik Z. Mukhametzyanov (Ufa State Petroleum Technological University, Russia)

**3:20 The Priorities Estimation Using a Spanning Graph Approach of Pairwise Comparisons Matrix**

Irik Z. Mukhametzyanov (Ufa State Petroleum Technological University, Russia)



**3:40 Addressing the Descriptive Problem Setting in the Context of the PROMETHEE Methods: An Alternative to the GAIA Plane**

Yves De Smet and Dorian De Frenne (Université Libre de Bruxelles, Belgium)

**4:00 Modeling Cause and Effect for Decisions**

Jerzy Michnik (University of Economics in Katowice, Poland)

**4:20 An Integrated Process of Multimodel-Based Formulating and Solving Multicriteria Social Impact Optimization Problems**

Andrzej Skulimowski (AGH University of Science and Technology, Poland)

**Parallel Session F-1**

Multi-objective Combinatorial Optimization

Room: Cesar 1

**3:00 Ordinal Location Problems and Consistent Multiobjective Shortest Paths**

Katrin Klamroth, Renee Lamsfuss, Julia Sudhoff Santos and Michael Stiglmayr (University of Wuppertal, Germany)

**3:20 An Output-Polynomial Time Algorithm to Determine All Supported Efficient Solutions for Multi-Objective Integer Network Flow Problems**

David Könen (Uni Wuppertal, Germany); Michael Stiglmayr (University of Wuppertal, Germany)

**3:40 Solving the Optimal Camera Placement Problem Using Multi-Objective Methods**

Malek Ziad Almousa (Lancaster University, United Kingdom (Great Britain)); Mathias Ehrgott (Lancaster University, USA); Ahmed Kheiri (Lancaster University, United Kingdom (Great Britain))

**4:00 A Multi-Objective Approach to Walking School Bus Route Design: Integrating Optimisation and Instance Generation**

Leena Hassan Ahmed, Dr (Lancaster University, United Kingdom (Great Britain)); Mathias Ehrgott (Lancaster University, USA); Ahmed Kheiri (Lancaster University, United Kingdom (Great Britain)); Judith Wang (University of Leeds, United Kingdom (Great Britain))

**4:20 Grouping Strategies for Two-Phase Methods for Biobjective Combinatorial Optimization Problems**

Felipe de Oliveira Mota (University of Coimbra, Portugal); Luís Paquete (CISUC, DEI, University of Coimbra, Portugal); Daniel Vanderpooten (Université Paris Dauphine, France)

**Parallel Session F-2**

Multiple Criteria Decision Aiding 2

Room: Cesar 4

**3:00 Multiple Conflicting Objectives Cause Psychological Burden on Decision-Makers and Lowers Decision Quality**

Matias Kivikangas and Eeva Vilkkumaa (Aalto University School of Business, Finland); Julian Blank (Michigan State University, USA); Ville Johannes Harjunen (University of Helsinki, Finland); Pekka Malo (Aalto University School of Business, Finland); Kalyanmoy Deb (Michigan State University, USA); Jyrki Wallenius (Aalto University School of Business, Finland); Niklas Ravaja (Helsinki University, Finland)

**3:20 A Multi-Objective Approach to Design a Scalable Reconfigurable Assembly Line in an Uncertain Environment**



Siwar Arbi and Audrey Cerqueus (IMT Atlantique, LS2N, Nantes, France); Evgeny Gurevsky (LS2N, University of Nantes, France); Alexandre Dolgui (IMT Atlantique & LS2N, France); Ali Siadat (Arts et Métiers ParisTech, France)

**3:40 An Exact Algorithm to Converge Towards Preferred Solutions Under Distance-Based Preference Functions**

Gulsah Karakaya (Middle East Technical University, Turkey); Murat Koksalan (University of Michigan, USA)

**4:00 Relatively Robust Multiobjective Optimization**

Thomas A Weber (EPFL, Switzerland)

**4:20 On Assessing Capability Sets**

Nicolas Fayard (LAMSADE, France)

Thursday, June 6 4:40 - 5:00

Coffee Break

Thursday, June 6 5:00 - 6:00

Doctoral Dissertation Session

Room: Caesar's Amphitheatre

**5:00 A NOVEL HYPER PROJECT PORTFOLIO APPROACH TO SELECT AND BALANCE A SUSTAINABLE PROJECT PORTFOLIO (as a Doctoral Dissertation Finalist)**

Ercan Emin Cihan (Global Proje Doktoru & Yıldız Technical University, Turkey)

**5:20 Ordinal Costs in Multi-Objective Combinatorial Optimization**

Julia Sudhoff Santos (University of Wuppertal, Germany)

**5:40 Pioneering Techniques to Tackle Challenges of Interactive Multiobjective Optimization**

Bhupinder Singh Saini (University of Jyväskylä, Finland)

Thursday, June 6 7:00 - 11:00

Conference Dinner

Friday, June 7

Friday, June 7 8:30 - 10:00

Society Award Talks

Room: Caesar's Amphitheatre

Friday, June 7 10:00 - 10:30

Closing Ceremony

Room: Caesar's Amphitheatre

Friday, June 7 10:30 - 10:30

Sightseeing Tour to Kairouan and Roman coliseum of El Jem

Registered participants only

