

Program of the  
15<sup>th</sup> European Symposium  
on Computational Intelligence and Mathematics  
including Workshop DigForASP  
May 12<sup>th</sup> - 15<sup>th</sup>, 2024. Krakow, Poland



MONDAY 13 <sup>th</sup>	
Location: Matejko Hotel	
8:30	Open Registration Desk
9:00–9:30	Inauguration
9:30–10:20	<b>Keynote Speaker - Janusz Kacprzyk</b> Title: An approach to Consensus and dissensus driven decision making under fuzziness Chairperson: Jesús Medina
10:20–11:20	<b>Session S1.</b> Chairperson: Janusz Kacprzyk
	<i>A note on aggregation of T-fuzzy subgroups</i> Andreja Tepavcevic, Ivana Štajner-Papuga
	<i>Independent subcontexts in fuzzy formal concept analysis</i> Roberto G. Aragón, Jesús Medina and Eloísa Ramírez-Poussa
	<i>Two sufficient conditions for having a maximal solution to fuzzy relational equations</i> Vanja R. Stepanović
11:20–11:40	Coffee break
11:40–13:20	<b>Special Session: Rough Sets and Information Granulation</b> Chairperson: Jarosław Was
	<i>Towards compatible subcontext by means of classical attribute reduction</i> María José Benítez-Caballero, Jesús Medina
	<i>Extension of The Time Dependent Travelling Salesman Problem Model with Interval-Valued Fuzzy Soft Sets with Arithmetic Mean Method</i> AlMahasneh Ruba, László T. Kóczy
	<i>Representation of distances between objects using weighted distance graph with rough set membership: application to cosmic rays dataset annotation</i> Tomasz Hachaj, Marcin Piekarczyk, Jarosław Was
	<i>Typology of Granular Sets based on Granular Spectrum of Covering Rough Sets</i> Piotr Wasilewski, Dominik Ślęzak
	<i>Ranking Bipolarity in Partial Approximation Spaces</i> Zoltán Ernő Csajbók
13:20–14:40	Lunch

14:40–15:30	<p><b>Keynote Speaker - Radu-Emil Precup</b>  Title: Applications of metaheuristic algorithms to fuzzy control and model building, learning-based control, and mobile robot navigation.  Chairperson: László T. Kóczy.</p>
15:30–16:00	Coffee break
16:00–16:40	<p><b>Regular Session S2.</b>  Chairperson: Roberto G. Aragón</p>
	<p><i>On aggregation operators and utility functions with truncation property</i>  Dragan Jočić, Ivana Štajner-Papuga</p>
	<p><i>Categories of morphological operators on L-fuzzy groups and LR-fuzzy homomorphisms</i>  Alexander P. Šostak, Ksenija Varfolomejeva</p>
16:40–18:00	<p><b>Special Session: Decision and optimization model applied to logistics and transport.</b>  Part 1.  Chairperson: Julio Alberto López-Gómez</p>
	<p><i>Message Passing Graph Neural Network for Seeds Classification</i>  Piotr Moszkowicz, Piotr A. Kowalski, Tomasz Bold</p>
	<p><i>Fuzzy Rule Systems design to model the decision method of a passenger profile</i>  David Muñoz Valero, Enrique Adrián Villarrubia Martín, Julio Alberto López-Gómez, Juan Moreno-García</p>
	<p><i>An interval-valued fuzzy soft sets based decision support model for route optimization</i>  Boldizsár Tüü-Szabó, Ruba AlMahasneh, László T. Kóczy</p>
	<p><i>Railway Capacity Allocation in Liberalized Markets: First Approach for an Artificial Intelligence-Based Computational Model</i>  David Muñoz Valero, Enrique Adrián Villarrubia Martín, Julio Alberto López-Gómez, Juan Moreno-García</p>
19:30	<b>Welcome reception</b>

<b>TUESDAY 14<sup>th</sup></b> <b>Workshop DigForASP</b> <b>Location: Matejko Hotel</b>	
9:00–9:50	<b>Keynote Speaker - Viviana Mascardi</b> Title: Logic Programming and Legal Reasoning: the Past and the Future Chairperson: Stefania Costantini
9:50–10:50	<b>Workshop DigForASP. Session 1</b> Chairperson: Viviana Mascardi
	<i>Semi-automatic knowledge representation and reasoning on vague crime concepts</i> Manuele Dozzi, Talissa Dreossi, Luca Baron, Federico Costantini, Agostino Dovier, Andrea Formisano
	<i>Empowering Emotional Behavior Trees with Neural Computation for Digital Forensic</i> Stefania Costantini, Giovanni De Gasperis, Pierangelo Dell'Acqua, Andrea Rafanelli
	<i>Legal and technical challenges of AI in the field of Criminal investigations</i> Dévika Pérez-Medina, Nicolás Madrid, Piotr A. Kowalski
10:50–11:10	Coffee break
11:10–12:00	<b>Workshop DigForASP. Session 2</b> Chairperson: Manuel Ojeda-Aciego
	<i>Fingerprint Revolution: Unleashing the Potential of Modified Bacterial Memetic Evolution for a Paradigm Shift in Fingerprint Recognition and Optimization</i> Ahmad Momani, László T. Kóczy
	<i>Comparison of text similarity techniques for power of attorney clauses for Polish banks</i> Karolina Wadowska and Piotr A. Kowalski
	<i>Using Human-Computer Interaction Data to Improve Authentication Reliability in High-stake Electronic Assessments</i> Danilo Strugarevic, Nikola Gligorijevic, Goran Simic, Aleksandar Jevremovic
12:20–13:40	<b>Regular Session 3</b> Chairperson: Stefania Costantini
	<i>Belief Change: Axiomatic Characterization of KM-Erasure</i> Eduardo Fermé
	<i>Stable Reasoning, ASP and the Interrogative Model of Inquiry</i> David Pearce, Agustín Valverde
	<i>Hypergraph logic program representation versus stratified programs</i> David Lobo, Jesús Medina, José Ramón Portillo, José Antonio Torné-Zambrano
	<i>A preliminary taxonomy of explanations in problem solving</i> Pedro Cabalar, Esra Erdem, Muge Fidan, Brais Muñiz
	<i>Efficiency of decision rule sets in classification problems</i> Fernando Chacón-Gómez, María Eugenia Cornejo, Jesús Medina
13:40–15:00	Lunch
15:00–16:00	<b>Round table. Next steps DigForASP</b>
17:00–19:30	<b>Krakow tour</b>
20:00	<b>Gala dinner</b>

WEDNESDAY 15 <sup>th</sup>	
Location: Matejko Hotel	
10:00–11:00	<b>Keynote Speaker - Piotr A. Kowalski</b> Title: Sensitivity Analysis as a Method for Explaining AI (XAI) in the Artificial Neural Networks Domain Chairperson: M. Eugenia Cornejo
11:00–11:20	Coffee break
11:20–12:00	<b>Special Session: Decision and optimization model applied to logistics and transport. Part 2</b> Chairperson: Julio Alberto López-Gómez
	<i>Enhancement of Discrete Bacterial Memetic Evolutionary Algorithm for solving The Travelling repairman Problem</i> Ali Jawad Ibada, Boldizsár Tüü-Szabó, László T. Kóczy
	<i>Simulated Annealing and Bacterial Foraging for Probabilistic Neural Network parameters adjustment</i> Szymon Kucharczyk, Piotr A. Kowalski
12:00–13:30	<b>Special Session: Recent trends in knowledge representation and modelling</b> Chairperson: Manuel Ojeda-Hernández
	<i>Extreme Learning Machine as a New Learning Paradigm: Pros and Cons</i> Irina Perfilieva, Nicolás Madrid, Manuel Ojeda-Aciego, Piotr Artiemjew, Agnieszka Niemczynowicz
	<i>Inheritance of completeness between systems of strong and weak implications</i> Francisco Pérez-Gámez, Pablo Cordero, Carlos Bejines-López, Manuel Ojeda-Hernández, Domingo López-Rodríguez
	<i>Connections between attribute implications in heterogeneous formal contexts and GUHA association rules</i> L'ubomír Antoni, Peter Eliaš, Ján Guniš, Dominika Kotlárová, Stanislav Krajčí, Ondrej Krídlo, L'ubomír Šnajder
	<i>Migrative properties for triangular conorms and fuzzy implications</i> M. Eugenia Cornejo, Jesús Medina, Francisco José Ocaña
	<i>Masonry strength assessment based on Fuzzy signature model</i> András Kaszás, András Dormány, Vanda Pomezanski, Zoltán Orbán, László T. Kóczy
13:30–15:00	<b>Closing Session</b>

Social Events	
SUNDAY 12 <sup>th</sup>	
08:00	<b>Wieliczka Salt Mines Tour. The details will be announced very soon.</b>
MONDAY 13 <sup>th</sup>	
19:30	<b>Welcome reception</b>
TUESDAY 14 <sup>th</sup>	
16:30–19:30	<b>Krakov tour</b>
19:30	<b>Gala dinner</b>
WEDNESDAY 15 <sup>th</sup>	
13:30–15:00	<b>Closing Session</b>