14th Conference of The European Society for Fuzzy Logic and Technology July 21 - July 25, 2025, Riga Program

Monday, July 21				
08.00-09.00	0 Registration			
09.00-09.30	Opening, <i>Alfa</i>			
09.30-10.30	Plenary talk, Alfa Oscar Cordón Title: Artificial Intelligence for Skeleton-Based Biological Profiling and Forensic Human Identification Chairman: Martin Štěpnička			
10.30-11.00		Coffee break		
	Mathematical Fuzzy Logic Chairman: Tommaso Flaminio Alfa	Information Fusion Techniques I Chairman: Humberto Bustince Room 103	Modeling Complex Dynamics: Adapting Analytical Tools for Diverse Scenarios Chairman: Martina Dankova Room 203	
11.00-11.20	On Some Properties of Tabular Varieties of MTL-Algebras and Their Decidability Stefano Aguzzoli and Matteo Bianchi	Rule Base Combination in Federated Fuzzy Rule Learning Asier Urío Larrea, Javier Andreu-Perez, Graçaliz Dimuro and Humberto Bustince	Adaptive Fuzzy Level Set Algorithm for Bitcoin Realized Volatility Modeling and Forecasting Leandro Maciel, Guilherme Freitas, Vinicius Nazato and Fernando Gomide	
11.20-11.40	Foulis Quantales and Complete Orthomodular Lattices Jan Paseka, Michal Botur and Richard Smolka	Modelling Sequential Dependent Data with Non-Commutative Aggregation Functions Obtained by Means of Pseudo-Automorphisms Mikel Ferrero-Jaurrieta, Zdenko Takác, Lubomira Horanská and Humberto Bustince	Unconstrained Parametrization of Proper Symplectic Decomposition for Learning Hamiltonian Dynamics Jānis Bajārs, Dāvis Kalvāns and Dmitry Gromov	
11.40-12.00	Gödel Logic and Nested Regular Languages Stefano Aguzzoli, Brunella Gerla and Sarah Nastasi	Capturing Divergent ESG and Financial Priorities in Heterogeneous Investor Groups: An Opinion Dynamics-Based Multi-Criteria Decision- Making Approach Ezgi Türkarslan and Christian Oliver Ewald	Multiplication and Linear Interactivity Petra Stevuliakova and Zahra Alijani	
12.00-12.20	On The Non-Falsity and Threshold Preserving Variants of MTL Logics Francesc Esteva, Joan Gispert and Lluis Godo	Global Pooling of Features in Convolutional Neural Networks through Moderate Deviation Based Aggregation Functions Iosu Rodriguez-Martinez, Jana Špirková, Mikel Ferrero-Jaurrieta, Humberto Bustince and Javier Fernandez	Differential Equations Driven by Fuzzy Measures - Existence and Uniqueness of Solution of Initial Value Problem <i>Miloslav Cisko</i>	
12.20-12.40	Quantitative Lockean Thesis and its Logical Representation Tommaso Flaminio and Lluis Subirana	Learnable Fuzzy Measures for Enhancing F-Integrals in Deep Learning Xabier Gonzalez-Garcia, Ľubomíra Horanská and Humberto Bustince	Lower–Upper Bounds Approach to Solve Differential Equations: Theory, Universal Properties, and Numerical Methods Zahra Alijani and Martina Dankova	
12.40-13.00	A First-Order Extension of Fuzzy Probability Logics Libor Behounek	Chatbots with Character - An implementation of Fuzzy Conversational Character Computing Sophie Hundertmark, Ramon Christen and Edy Portmann Online		
13.00-14.30	Lunch			

	Monday, July 21		
14.30-15.30	Plenary talk, Alfa <i>Irina Perfilieva</i> Title: Alexander Šostak's Groundbreaking Contributions to Fuzzy Mathematics Chairman: Olga Grigorenko		
15.30-16.30	Round table Homage to Alexander Šostak		
16.30-16.50		Coffee break	
	Homage to Alexander Šostak Chairman: Olga Grigorenko Alfa	Information Fusion Techniques II Chairman: Tiago da Cruz Asmus Room 103	Soft Methods in Statistical Inference and Data Analysis I Chairman: Przemysław Grzegorzewski Room 203
16.50-17.10	On Fuzzy Metrics Constructed from Metrics and Their Topology Juan-José Miñana and Simona Talia	Measuring Representativeness through Coverage Degrees and Indexes Inmaculada Gutiérrez, J. Tinguaro Rodríguez, Xabier González, Daniel Gómez, Javier Montero and Humberto Bustince	Modeling Treatment Effect with Fuzzy Data Przemysław Grzegorzewski
17.10-17.30	Some Metric-Like Structures and ⊕-Based Semi (Pseudo) Metric-Like Şuara Onbaşıoğlu Altuhovs and Banu Pazar Varol	Understanding Data Properties in the Mallows Model: Impact of Voter Count Variability Mario Villar, Noelia Rico and Irene Diaz	Resampling Approaches for Multivariate Random Interval Numbers Maciej Romaniuk
17.30-17.50	Fuzzy Equivalence Based Metrizable Space Reinis Isaks and Olga Grigorenko	Input Importance in Aggregation Theory by Means of Dependence Stochastic Orders Juan Baz and Franco Pellerey	A Hierarchical Representation of Fuzziness in Epistemic Fuzzy Data Analysis Antonio Calcagni and Przemyslaw Grzegorzewski
17.50-18.10	On Behavior of Fuzzy Morphological Operators Under the Morphisms from Category L-FSLin Ksenija Varfolomejeva and Ingrīda Uljane	Idempotence and Internality of Aggregations of Random Variables Juan Baz, Irene Diaz and Susana Montes	FLIRTAn Algorithm to Enhance a Regression Model with Federated Learning and GAN-Based Resampling Przemysław Grzegorzewski and Maciej Romaniuk
18.10-18.30	On Combination of T-Conorms for Aggregation of Data in Risk Assessments <i>Māris Krastiņš</i>		Implicational Quantifiers for Fuzzy Association Rule Mining: Theory and Application to Bipolar Disorder Data Martina Dankova and Katarzyna Kaczmarek-Majer
18.30-20.30	Welcome party		

	Tuesday, July 22				
9.30-10.30	Plenary talk, Alfa <i>Humberto Bustince</i> Title: Possible Applications of Fuzzy Theory in Artificial Intelligence Chairman: Michal Holčapek				
10.30-11.00		Coffee break			
	Main Track / Interval Uncertainty Chairman: Vladik Kreinovich Alfa	Information Fusion Techniques III Chairman: Graçaliz Dimuro Room 103	Advancements and Applications of Fuzzy Theory and Fuzzy Control I Chairman: Chia-Wen Chang Room 203		
11.00-11.20	A Study of the Fuzzy Differential Entropy Zuzana Ontkovičová and Vicenç Torra	Construction of Uninorms on Bounded Lattices: Augmenting the Flexibility of Choice Ander Goñi Medrano, Marisol Gómez Fernández and Raúl Pérez Fernández	On Approximation Properties of Stochastic Higher Degree F-Transform Michal Holčapek, Linh Nguyen and Thi Minh Tam Pham		
11.20-11.40	How to Deal with High-Impact Low-Probability Events: Theoretical Explanation of the Empirically Successful Fuzzy-Like Technique Juan Ulloa, Aaron Velasco, Olga Kosheleva and Vladik Kreinovich	An Analysis of Discrete Fuzzy Negations on a Subset of Discrete Fuzzy Numbers and Their Applications to Discrete t-Subnorms Manuel González-Hidalgo, Arnau Mir, Juan Vicente Riera, Daniel Ruiz-Aguilera and All Authors	A New Adaptive Dynamic Window Method Combined with Fuzzy Neural Network in Complex Dynamic Environment Xuan-Wen Chen, Shun-Feng Su and Mei-Yung Chen		
11.40-12.00	How to Share a Success, How to Share a Crisis, and How All This Is Related to Fuzzy Olga Kosheleva and Vladik Kreinovich	Uncertainty Fusion in Generalizations of Fuzzy Sets Using Distance Transformations Laura De Miguel and Carlos Lopez-Molina	Applications of Kolmogorov Arnold Networks Lan-Shin Jiang, Shun-Feng Su and Mei-Yung Chen		
12.00-12.20	A Natural Extension of F-Transform to Triangular and Triangulated Domains Necessitates the Use of Triangular Membership Functions Hana Zamecnikova, Irina Perfilieva, Olga Kosheleva and Vladik Kreinovich	Interval Generalized Kernel-Based Fuzzy-Possibilistic C-Means Clustering Algorithm Yung-Ju Cheng, Yi-Hsing Chien and Wei-Yen Wang	Dynamic Simplified Decomposed Fuzzy Systems and Its Modeling Effects Analysis Wei-Chen Lee and Shun-Feng Su		
12.20-12.40	A new approach to interval clustering using ordering degrees Mohammad Ojaghi, Susana Montes and Irene Mariñas-Collado	Insights into the q Exponent in PM with Choquet-Integrals for Classification Giancarlo Lucca, Tiago da Cruz Asmus, Cedric Marco-Detchart, Helida Santos, Graçaliz Dimuro, Humberto Bustince, Adenauer Yamin, Renata Reiser, Alice Pintanel and Heloisa Camargo	PSO-Based Framework for Autonomous Driving in Dynamic Environments Zhen-Yu Zhang, Shun-Feng Su and Mei-Yung Chen		
12.40-13.00	On the definition of arithmetic operations for intervals under the Xu and Yager order Adan Rodriguez-Martinez, Agustina Bouchet and Susana Montes	[a,b]-FG-Functionals: A Generalization of Sugeno Integral with Floating Domains in Arbitrary Closed Real Intervals Tiago da Cruz Asmus, Giancarlo Lucca, Cedric Marco-Detchart, Javier Fernandez, Humberto Bustince and Graçaliz Dimuro	Dimension Reduction Methods for Regression with Interval-Valued Data Chen-Chia Chuang, Ping-Yi Yu, Yong-Cian Jheng and Jin-Tsong Jeng		
13.00-14.30	Lunch				

	Tuesday, July 22		
14.30-15.30	Plenary talk, Alfa <i>Katarzyna Kaczmarek-Majer</i> Title: The Role of Fuzzy Linguistic Summaries - New Methods and Challenges Chairman: Przemysław Grzegorzewski		
15.30-16.30	Round table 60 Years of Fuzzy Sets: What Do We Have and What Is Next?		
16.30-16.50		Coffee break	
	Main Track Chairman : Svetlana Asmuss Alfa	Soft Computing, Uncertainty and Imprecision in Image Processing Chairman: Irina Perfilieva Room 103	Advancements and Applications of Fuzzy Theory and Fuzzy Control II <i>Chairman: Shun-Feng Su</i> <i>Room 2</i> 03
16.50-17.10	An Enhanced Multi Criteria Decision Making Model for Delivery Locker Placement Using TOPSIS and Einstein Operators in a Pythagorean Fuzzy Framework <i>Gvantsa Tsulaia</i>	Environmental Semantic Mapping and Obstacle Avoidance System Using Lidar and RGB-D Images Shu-Yin Chiang and Shin-En Huang	Designing an LSTM-Based Action Recognition System with Limited Data Chia-Wen Chang, Chin-Wang Tao and Song-Shyong Chen
17.10-17.30	Robust Decisions: Bridging the Quantitative-Qualitative Gap Sébastien Destercke and Agnes Rico	Evolved Image Filtering Using Aggregation Operators Carlos Lopez-Molina and Laura De Miguel	Energy-Saving Technology with Distributed Intuitionistic Fuzzy Sets for Internet of Things Systems Jau-Yang Chang and Ching-Chieh Feng
17.30-17.50	A Fuzzy Logic Framework for Decision-Making Support Using a Variant of TSK Models David Muñoz-Valero, Juan Moreno Garcia, Julio Alberto López-Gómez, Enrique Adrian Villarrubia-Martin and Luis Jimenez-Linares	Laplacian-Guided Keypoint Selection for Efficient Fuzzy Transform Approximation in Bayesian Networks Jan Mrógala and Irina Perfilieva	Study on the Explainable AI of Temporal Convolutional Network Hsuan-Jui Chang, Chen-Chia Chuang, Justin Lin and Jin-Tsong Jeng
17.50-18.10	Fuzzy Clustering-Based Aggregation for Credit Risk Assessment Pavels Orlovs	Improving Early Warnings of Flash Floods Using Radar Images and Al Iñaki Pérez del Notario López, Pedro Oria Iriarte and Humberto Bustince Sola	Enhanced AML Transaction Monitoring via Fuzzy Equivalence in Rule-Based Systems Igor Rodin and Jelizaveta Jelinska
18.10-18.30	Uniqueness and Reconstruction of Strict T-Norms Known Only Above a Level Curve and Different Curves Gabriel Bauza-Llompart, Raquel Fernandez-Peralta and Marc Munar	Comparative Study of Choquet-Inspired Aggregation Functions for Dimensionality Reduction in Noisy Images Joaquin Arellano, Humberto Bustince, Francisco Javier Fernandez, Cedric Marco-Detchart, Graçaliz Dimuro and Benjamin Bedregal	
18.30-20.00	EUSFLAT Assembly		

Wednesday, July 23				
9.30-10.30	Plenary talk, Alfa <i>Bernard De Baets</i> Title: It's All Convolution, Stupid! Chairman: Vladik Kreinovich			
10.30-11.00		Coffee break		
	Main Track Chairman: Martin Štěpnička Alfa	New Contexts in Aggregation Theory I Chairman: Bernard De Baets Room 103	Soft Methods in Statistical Inference and Data Analysis II Chairman: Katarzyna Kaczmarek-Majer Room 203	
11.00-11.20	Functors from Fuzzy Structures Categories into Category of Fuzzy Topological Spaces with Continuous Fuzzy Relations Jiří Močkoř	Ontology Aggregation with Maximum Consensus Based on a Fuzzy Multi-Criteria Group Decision Making Method Lydia Castronovo, Giuseppe Filippone, Mario Galici, Gianmarco La Rosa and Marco Elio Tabacchi	Fuzzy Events Require a Strengthened Form of Independence Kamila Houšková and Mirko Navara	
11.20-11.40	Bipolarity on Bounded Lattices Martin Kalina, Biljana Mihailović and Mirjana Štrboja	An Axiomatic Study of the Properties Satisfied by Methods for Ranking the Elements of a Poset Ignacio Montes, Raúl Pérez-Fernández and Bernard De Baets	A Proposal for Measuring Polarization in the Context of Ordinal Scales José Luis García-Lapresta, Daniel Gómez and Juan Antonio Guevara	
11.40-12.00	From Lower Boundary Approach to Partial Fuzzy Logics to the Upper Boundary One and Back <i>Martin Stepnicka and Nhung Cao</i>	Goodness-of-Fit Tests to Location-Scale Families Based on OWA Functions Marina Iturrate-Bobes, Ignacio Montes and Raúl Pérez-Fernández	Is There Something Fuzzy in Hypotheses Testing? Ivana Stajner-Papuga and Aleksandar Takaci	
12.00-12.20	Locally Modified Multivariate F^m-Transform: Theoretical Background and Possible Applications Martins Kokainis and Svetlana Asmuss	Decomposition of Non-Commutative Associative Functions via Non-Commutative Ordinal Sum Andrea Mesiarová-Zemánková and Juraj Kalafut	Weighted Quantile Approach to Time Series Forecasting Using Fuzzy-Probabilistic Inference Systems Michal Holcapek, Nhung Cao, Radek Valasek, Nicolas Madrid, Tomas Tichy and David Nedela	
12.20-12.40	Kernel Operators on Trellises Inma P. Cabrera, Pablo Cordero, Bernard de Baets, Emilio Muñoz-Velasco and Manuel Ojeda-Hernández	Decomposition Integrals Constrained by Linear Inequalities Adam Šeliga and Timur Kramár	On the Consistency of Fuzzy Linguistic Summaries with Multiple Qualifiers Katarzyna Miś, Katarzyna Kaczmarek-Majer and Michał Baczyński	
12.40-13.00	Visual Comparison of Inclusion Measures Patryk Żywica, Anna Stachowiak and Joanna Siwek	A New Perspective on the Discrete Choquet Integral and OWA Operator Barbora Hennelová, Michał Boczek, Ondrej Hutník and Jaroslav Šupina	Alpha-Maxmin Classification with an Ensemble of Structural Restricted Boltzmann Machines Davide Petturiti and Maria Rifqi Online	
13.00-14.30	Lunch			
14.30-21.30	Excursions			

Thursday, July 24			
9.30-10.30	Plenary talk, Alfa Ulrich Bodenhofer Title: Al for Good: Machine Learning in Medicine and Healthcare – Basics, Use Cases and Prospects Chairman: Bernard de Baets		
10.30-11.00		Coffee break	
	Main Track Chairman: Bernard de Baets Alfa	Fuzzy Implication Functions Chairman: Michal Baczynski Room 103	Student works Room 203
11.00-11.20	Prioritized Preference Aggregation for Non-Uniform Groups of Agents Janusz Kacprzyk and Slawomir Zadrozny	Implication construction methods on bounded lattices Ümit Ertuğrul, Funda Karaçal and Kübra Karacair	A Soft Clustering Method Derived from the Probabilistic Interpretation of Fuzzy C-Means Davide Cazzorla and Corrado Mencar
11.20-11.40	Direct Compatible Copulas Roberto Ghiselli Ricci	On the threshold-based generalization of the Modus Ponens syllogism Michal Baczynski and József Dombi	Verification of Validity of Generalized Logical Syllogisms Applying the Contraposition Karel Fiala and Petra Murinová
11.40-12.00	Multi-Metric Genetic Optimization of Ordinal Sums of Conjunctive and Disjunctive Functions in Classification Tasks Erika Bombarová, Miroslav Hudec and Marek Reformat	On a generalization of the F-chains based construction of fuzzy implication functions Raquel Fernandez-Peralta and Juan Vicente Riera	On Modular Fuzzy Equivalences, Aggregation and Modular Pseudo-Metrics Gabriel Jaume-Martin, Maria del Mar Bibiloni-Femenias and Oscar Valero
12.00-12.20	Can Fuzzy Fingerprints Really Make LLMs More Interpretable? Joao Paulo Carvalho and Rui Ribeiro	Generalized Quantifiers, Logical Syllogisms and Applications Chairman: Vilém Novák Room 207	The Role and Value of Information in Decision Making Chairman: Dmitry Gromov Room 203
		Using Intermediate Quantifiers to Reduce the Number of Linguistic Rules for Diagnosing Mood Disorders from Incomplete Data Lucas Dantas de Oliveira and Peter Sussner	Pollution Control under Uncertainty: Integrating Optimal Control Theory and Value of Information Dmitry Gromov, Prateek Verma, Amelie Luhede and Thorsten Upmann
12.20-12.40	A First Approach to Fuzzy Logic Applied to the Explainability of Deep Learning Models by Layers Arturo Fernández-Mora, Juan Moreno-Garcia, David Muñoz-Valero and Luis Martínez	Verification of Validity of Logical Syllogisms Generated by Cube of Opposition using Extended Peterson's Rules Petra Murinová and Vilém Novák	Prioritized preference aggregation for non-uniform groups of agents Janusz Kacprzyk and Slawomir Zadrozny
12.40-13.00	On the Existence of Non-Trivial Monometrics on Betweenness Relations: Some Sufficient Conditions Kavit Nanavati, Megha Gupta and Balasubramaniam Jayaram Online	Graded Hexagon of Opposition with New Forms of Intermediate Quantifiers Petra Murinová and Vilém Novák	Extending the Concept of the Value of Information to Fuzzy Decision-Making with Expert Systems Martiņš Zemlītis, Svetlana Asmuss, Dmitry Gromov, Olga Grigorenko
13.00-14.30	Lunch		

	Thursday, July 24		
	Representing and Managing Uncertainty I Chairman: Jesús Medina Alfa	Fuzzy Relations and Applications I Chairman: Oscar Valero Room 103	New Contexts in Aggregation Theory II Chairman: Raúl Pérez-Fernández Room 203
14.30-14.50	On direct systems of implications with graded attributes Manuel Ojeda-Hernandez and Domingo López-Rodríguez	Generating Modular Relaxed Pseudo-Metrics by Aggregation Maria del Mar Bibiloni-Femenias, Gabriel Jaume-Martin and Oscar Valero	Exploring Divisibility and Related Properties of T-Norms on Finite Lattices Juraj Kalafut
14.50-15.10	Credibility of decision rules as a tool for decision-making in fuzzy rough set theory Fernando Chacón-Gómez, M. Eugenia Cornejo Piñero and Jesús Medina	Prostate Cancer Diagnosis: A Geometric Approach Based on the Beer Index Miquel Angel Serra-Moll, Arnau Mir-Fuentes, Antoni Burguera Burguera and Oscar Valero	A General Framework for Measuring Chord Distances Using Aggregation Functions <i>Kristína Hurajová</i>
15.10-15.30	Studying the structure generated by subsets of ϕ -indexes of inclusion Nicolas Madrid, Manuel Ojeda-Aciego and Eloisa Ramirez-Poussa	On the Impossibility of Universally Transforming Similarity Metrics into Partial Metrics Arnau Mir Fuentes and Oscar Valero	OFWA operators for multi-criteria decision making Roberto G. Aragón, Jesús Medina and Samuel Molina-Ruiz
15.30-15.50	Computing minimal solutions of fuzzy relation equations with incremental quasi-polynomial delay David Lobo, Jesús Medina, Timo Camillo Merkl and Reinhard Pichler	On Metric Aggregation Functions and Fuzzy Decision-Making Miquel Angel Serra-Moll, Onofre Martorell-Cunill, Carles Mulet-Forteza and Oscar Valero	Multidimensional Aggregation and Social Poverty Marta Cardin Online
15.50-16.10	Embedding-Based Similarity Measure for IVFS Sara Suarez-Fernandez, Agustina Bouchet, Susana Diaz-Vazquez and Susana Montes	A Few Notes to the Fuzzy Best-Worst Method Jana Špirková and Igor Kollár	
16.10-16.30	Coffee break		
19.00-23.00	Conference dinner		

Friday July 25				
9.30-10.30	Plenary talk, Alfa Andris Ambainis Title: Mathematical Ideas in Quantum Algorithms Chairman: Svetlana Asmuss			
10.30-11.00		Coffee break		
	Main Track Chairman : Christophe Marsala Alfa	Representing and Managing Uncertainty II Chairman: David Lobo Room 103	Fuzzy Relations and Applications II Chairman: Ingrīda Uļjane Room 203	
11.00-11.20	About T-Norms and T-Conorms on New Preorders in Type-2 Fuzzy Sets Pablo Hernandez-Varela, Francisco Javier Talavera, Carmen Torres-Blanc, Susana Cubillo, Pedro Huidobro and Jorge Elorza	Idea Management and Game Theory with Uncertain Payoffs Inese Bula, Elīna Miķelsone, Līga Peiseniece, Astrīda Rijkure, Aivars Spilbergs and Inga Uvarova	Incomplete Preference Relation Analysis for MgGDM System José Ramón Trillo, Juan Carlos Gonzáles-Quesada, Francisco Mata, Ignacio Javier Pérez and Francisco Javier Cabrerizo	
11.20-11.40	A Decision-Making Framework Based on Intersection and Similarity Measures for Type-2 Fuzzy Sets Pedro Huidobro, Francisco Javier Talavera, Susana Cubillo, Carmen Torres-Blanc, Pablo Hernandez-Varela and Jorge Elorza	Federated Learning with Strategy for Uncertainty Management in Machine Learning based on Interval-Valued Fuzzy Sets and Choquet Integral for Medical Diagnostic Barbara Pękala, Jarosław Szkoła and Krzysztof Dyczkowski	A Parametric Dissimilarity Measure for Pythagorean Fuzzy Sets and Its Application to Pattern Recognition Shivani Singh	
11.40-12.00	Towards Probabilistic Entropies for Interval Valued Fuzzy Sets Christophe Marsala and Bernadette Bouchon-Meunier	GranFRRI: Improving Fuzzy Rough Rule Induction with Granular Approximations Henri Bollaert, Marko Palangetić, Chris Cornelis, Salvatore Greco and Roman Slowinski	Fuzzy Logic-Based Mathematical Structures in Classification Problem <i>Valerijs Mihailovs</i>	
12.00-12.20	Some Results on Fuzzy Basis of Fuzzy Lie Algebras Giuseppe Filippone, Mario Galici, Gianmarco La Rosa and Marco Elio Tabacchi	New Approach to the Uncertainty Degree for φ -Intuitionistic Values Matúš Ďubek		
12.20-12.50		Closing		
13.00-14.30		Lunch		