



NEW ORLEANS, LOUISIANA, USA

JUNE 23-26, 2019



2019 IEEE INTERNATIONAL CONFERENCE ON FUZZY SYSTEMS



Rosenblatt Medal Winner, Plenary, and Invited Talks

Rosenblatt Medal Winner's Presentation: Similarity and Fuzzy Logic in Cluster Analysis

Tue 9:40-10:40am, Room: ILE DE FRANCE – Ballroom, Speaker: Enrique Ruspini

Plenary Talk: BE1: Data Explainability Through Linguistic Expression of Extracted Knowledge

Mon 1:30-2:30pm, Room: ILE DE FRANCE - Ballroom, Speaker: Marie-Jeanne Lesot

Plenary Talk: BE2: Fuzzy Rule-Based Classifier Design: Accuracy, Interpretability and Explanation Ability

Tue 1:30-2:30pm, Room: ILE DE FRANCE - Ballroom, Speaker: Hisao Ishibuchi

Plenary Talk: BE3: Explorations in BIG Data and sMall Data with a Fuzzy Perspective

Wed 1:30-2:30pm, Room: ILE DE FRANCE - Ballroom, Speaker: Lawrence Hall

Invited Talk: LE1: Learning Control and Knowledge Transfer Between Aerial Robots for Improved Accuracy in Trajectory Tracking

Mon 10-11am, Room: CONDE, Speaker: Erdal Kaycan

Invited Talk: LE2: Do Fuzzy Sets Matter? An Interdisciplinary Point of View

Mon 11-12pm, Room: CONDE, Speaker: Christian Wagner

Invited Talk: LE3: Process Data and Computing with Words: A Neglected Opportunity?

Wed 10-11am, Room: CONDE, Speaker: Anna Wilbik

Invited Talk: LE4: My Computer Speaks Colors! Fuzzy Color Spaces for Image Understanding, Description and Retrieval

Wed 11-12pm, Room: CONDE, Speaker: Jesus Chamorro Martinez

Sessions

Session FLFS-1: Fuzzy Logic and Fuzzy Sets

Monday, June 24, 8:00AM-9:30AM, Room: CONDE, Chair: TBD

- 8:00AM Allocating Virtual Machines exploring Type-2 Fuzzy Logic and Admissible Orders [#191]
Bruno Moura, Guilherme Schneider, Adenauer Yamin, Mauricio Pilla and Renata Reiser
Federal University of Pelotas (UFPEL), Brazil
- 8:18AM n-Dimensional Interval Uninorms [#65]
Ivan Mezzomo, Benjamin Bedregal, Thadeu Milfont, Tiago Asmus and Humberto Bustince
Universidade Federal Rural de Semi-Arido, Brazil; Universidade Federal do Rio Grande do Norte, Brazil; Universidade Federal do Rio Grande, Brazil; Universidad Publica de Navarra, Spain
- 8:36AM Fuzzy Similarity Measures and Measurement Theory [#132]
Giulianella Coletti and Bernadette Bouchon-Meunier
University of Perugia, Italy; Sorbonne Universite, France
- 8:54AM On D-Implications Derived by Grouping Functions [#159]
Gracaliz Dimuro, Helida Santos, Benjamin Bedregal, Eduardo Borges, Eduardo Palmeira, Javier Fernandez and Humberto Bustince
Universidade Federal do Rio Grande, Brazil; Universidade Federal do Rio Grande do Norte, Brazil; Universidade Estadual de Santa Cruz, Brazil; Universidad Publica de Navarra, Spain
- 9:12AM Fuzziness Control of Fuzzimetric sets [#176]
Issam Kouatli
LAU, Lebanon

Session IP: Image Processing

Monday, June 24, 8:00AM-9:30AM, Room: FRONTENAC, Chair: TBD

- 8:00AM Fuzzy based Pooling in Convolutional Neural Network for Image Classification [#97]
Teena Sharma, Vikas Singh, Siddharth Sudhakaran and Nishchal K. Verma
Indian Institute of Technology Kanpur, India, India; NIT Tiruchirappalli, Tamil Nadu, India, India
- 8:18AM Using Fuzzy Inference system for detection the edges of Musculoskeletal Ultrasound Images [#104]
Shaima Jabbar, Charles Day and Edward Chadwick
Al Furat Al Awsat Technical University, Babylon technical institute, Iraq; Keele university, United Kingdom
- 8:36AM Intuitionistic Fuzzy Clustering Method with Spatial Information for MRI Image Segmentation [#147]
Dhirendra Kumar, Ramesh Kumar Agrawal and Jyoti Singh Kirar
Delhi Technological University, Delhi, India; Jawaharlal Nehru University, New Delhi, India; Shiv Nadar University, Uttar Pradesh, India
- 8:54AM Fuzzy Pruning For Compression of Convolutional Neural Networks [#297]
Weibin Zhao, Yue Li and Lin Shang
Nanjing University, China

9:12AM A Systematic Approach to Creating Fuzzy Region Objects from Real Spatial Data Sets [#275]
Anderson Chaves Carniel and Markus Schneider
Federal University of Technology - Parana, Brazil; University of Florida, United States

Special Session SS16-1: Handling Uncertainties in Big Data by Fuzzy Systems

Monday, June 24, 8:00AM-9:30AM, Room: ORLEANS, Chair: TBD

- 8:00AM Fuzzy Deep Stack of Autoencoders for Dealing with Data Uncertainty [#82]
Bruno Costa and Jinesh Jain
Ford Motor Company, United States
- 8:18AM Statistical Based Approach for Uncertainty Analysis in Life Cycle Assessment: A Case Study in Textile industry [#96]
Kaichen Wang, Xianyi Zeng, Ludovic Koehl, Xuyuan Tao and Yan Chen
ENSAIT/GEMTEX, France; Soochow University, China
- 8:36AM A Noise-tolerant Fuzzy c-Means based Drift Adaptation Method for Data Stream Regression [#142]
Yiliao Song, Guangquan Zhang, Haiyan Lu and Jie Lu
Centre for Artificial Intelligence, University of Technology Sydney, Australia
- 8:54AM A Novel Fuzzy Neural Network for Unsupervised Domain Adaptation in Heterogeneous Scenarios [#144]
Feng Liu, Guangquan Zhang and Jie Lu
Decision Systems and e-Service Intelligence (DeSI) Lab, Centre for Artificial Intelligence, University of Technology Sydney, Australia
- 9:12AM Time series classification in cyber-physical system applications by intervals' numbers techniques [#74]
Vassilis Kaburlasos, Eleni Vrochidou, Fotios Panagiotopoulos, Charalampos Aitsidis and Alexander Jaki
Human-Machines Interaction Laboratory (HUMAIN-Lab), Greece

Special Session SS1-1: Software for Soft Computing

Monday, June 24, 8:00AM-9:30AM, Room: ST CLAUDE, Chair: TBD

- 8:00AM Tuning Fuzzy SPARQL Queries in a Fuzzy Logic Programming Environment [#78]
Jesus Manuel Almendros-Jimenez, Antonio Becerra-Teron, Gines Moreno and Jose Antonio Rianza
University of Almeria, Spain; University of Castilla-La Mancha, Spain
- 8:18AM Mining Gradual Itemsets Using Sequential Pattern Mining [#80]
Said Jabbour, Jerry Lonlac and Lakhdar Sais
CRIL UMR 8188 - CNRS University of Artois, France
- 8:36AM Improving EECluster to optimize the carbon footprint and operating costs of HPC clusters [#95]
Alberto Cocana-Fernandez, Emilio San Jose, Jose Ranilla and Luciano Sanchez
Universidad de Oviedo, Spain
- 8:54AM LFL Forecaster: Analysis, Forecasting and Mining Information from Time Series [#126]
Vilem Novak, Soheyla Mirshahi and Viktor Pavliska
University of Ostrava, IRAFM, Czech Republic

Session C-1: Clustering

Monday, June 24, 8:00AM-9:30AM, Room: ST. JEROME, Chair: TBD

- 8:00AM A new fuzzy clustering algorithm for interval-valued data based on City-Block distance [#61]
Sara Rodriguez and Francisco de Carvalho
Universidade Federal de Pernambuco - UFPE, Brazil
- 8:18AM Clustering of Information Granules in Hotspot Identification [#110]
Yinghua Shen, Witold Pedrycz, Ronei Moraes, Xingchen Hu, Xianmin Wang and Adam Gacek
University of Alberta, Canada; Federal University of Paraiba, Brazil; National University of Defense Technology, China; China University of Geosciences, China; Institute of Biomedical Engineering, Poland
- 8:36AM Evidential clustering for categorical data [#177]
Abdoul Jalil Djiberou Mahamadou, Violaine Antoine, Gregory J. Christie and Sylvain Moreno
LIMOS, UCA, France; Digital Health Hub, SFU, Canada
- 8:54AM Sampling Using Fuzzy and Crisp Clustering to Improve Recall of Building Comfort Feedback [#57]
Ross MacDonald, Nikita Neveditsin, Pawan Lingras, Zheng Qin and Trent Hillard
Saint Mary's University, Canada; Green Power Labs Inc., Canada

Session PM: Preference Modeling

Monday, June 24, 10:00AM-11:00AM, Room: FRONTENAC, Chair: TBD

- 10:00AM Incorporating Ranking Rules into K Nearest Neighbours [#241]
Noelia Rico, Raul Perez-Fernandez and Irene Diaz
University of Oviedo, Spain
- 10:18AM Fuzzy approach for group assessment based on the consistency of individual judgments [#70]
Tomoe Entani
University of Hyogo, Japan
- 10:36AM Evaluating Path Costs in Multi-Attributed Fuzzy Weighted Graphs [#310]
Andrew Buck and James Keller
University of Missouri, United States

Session FPR-1: Fuzzy Pattern Recognition

Monday, June 24, 10:00AM-11:00AM, Room: ORLEANS, Chair: TBD

- 10:00AM Linear Order Statistic Neuron [#195]
Charlie Veal, Alex Yang, Alex Hurt, Muhammad Islam, Derek Anderson, Grant Scott, Timothy Havens, Keller James and Bo Tang
University of Missouri, United States; Mississippi State University, United States; Michigan Technological University, United States
- 10:18AM A New Algorithm for Designing Theta-Fuzzy Associative Memories Based on Subsethood Measures [#290]
Peter Sussner, Estevao Esmi and Joao Florindo
University of Campinas, Brazil
- 10:36AM An Approach for Optimization of Intuitionistic and Type-2 Fuzzy Systems in Pattern Recognition Applications [#328]

Oscar Castillo and Patricia Melin
Tijuana Institute of Technology, Mexico

Special Session SS7-1: Advances on eXplainable Artificial Intelligence

Monday, June 24, 10:00AM-11:00AM, Room: ST CLAUDE, Chair: TBD

- 10:00AM FuzzAttention on Session-based Recommender System [#134]
Chi-Shiang Wang and Jung-Hsien Chiang
Dept.of Computer Science and Information Engineering, National Cheng Kung University,
Taiwan
- 10:18AM On the Need of Interpretability for Biomedical Applications: Using Fuzzy Models for Lung
Cancer Prediction with Liquid Biopsy [#182]
Nicolas Potie, Stavros Giannoukakos, Michael Hackenberg and Alberto Fernandez
University of Granada, Spain
- 10:36AM A Measure of Structural Complexity of Hierarchical Fuzzy Systems Adapted from Software
Engineering [#222]
Tajul Rosli Razak, Jonathan M. Garibaldi and Christian Wagner
Laboratory for Uncertainty in Data and Decision Making (LUCID), School of Computer
Science, University of Nottingham, United Kingdom., United Kingdom

Session C-2: Clustering

Monday, June 24, 10:00AM-11:00AM, Room: ST. JEROME, Chair: TBD

- 10:00AM A Fuzzy Density-based Clustering Algorithm for Streaming Data [#213]
Andrea Aliperti, Alessio Bechini, Francesco Marcelloni and Alessandro Renda
Department of Information Engineering, University of Pisa, Italy
- 10:18AM A Swarm Intelligence Approach to Avoid Local Optima in Fuzzy C-Means Clustering [#225]
Caro Fuchs, Simone Spolaor, Marco S. Nobile and Uzay Kaymak
Eindhoven University of Technology, Netherlands; University of Milano-Bicocca, Italy
- 10:36AM Data Stream Trajectory Analysis Using Sequential Possibilistic Gaussian Mixture Model
[#168]
Wenlong Wu, James Keller, Marjorie Skubic and Mihail Popescu
University of Missouri, Columbia, United States

Session FM: Fuzzy Mathematics

Monday, June 24, 11:00AM-12:00PM, Room: FRONTENAC, Chair: TBD

- 11:00AM A Probabilistic Nested Relational Database Model with Fuzzy Probability Measures [#108]
Li Yan and Ma Zongmin
Nanjing University of Aeronautics and Astronautics, China
- 11:18AM Distance Measures for Intuitionistic Fuzzy Sets and Interval Valued Intuitionistic Fuzzy Sets
[#120]
Leila Baccour and Adel M. Alimi
National School of Engineers, Tunisia; National School of Engineers, Turks and Caicos
Islands

- 11:36AM A Cohesion Measure for Improving the Weighting of Experts' subgroups in Large-scale Group Decision Making Clustering Methods [#188]
Alvaro Labella, Rosa M. Rodriguez, Guy De Tre and Luis Martinez
University of Jaen, Spain; University of Granada, Spain; University of Ghent, Belgium

Session DS: Data Summarization

Monday, June 24, 11:00AM-12:00PM, Room: ORLEANS, Chair: TBD

- 11:00AM Extracting Fuzzy Gradual Patterns from Property Graphs [#118]
Faaiz Shah, Arnaud Castelltort and Anne Laurent
LIRMM, University of Montpellier, CNRS, France
- 11:18AM OWA-based Summarization of Data using iPad-drawn Concepts [#299]
Nhuan D. To, Marek Z. Reformat and Ronald R. Yager
University of Alberta, Canada; Iona College, United States
- 11:36AM Feature Ranking using Robust Fuzzy Score Function for Gene Expression Data [#125]
Vikas Singh, Nishchal K Verma, Teena Sharma and Yan Cui
Indian Institute of Technology, Kanpur, India, India; University of Tennessee Health Science Center, Memphis, Tennessee, USA, United States

Special Session SS1-2: Software for Soft Computing

Monday, June 24, 11:00AM-12:00PM, Room: ST CLAUDE, Chair: TBD

- 11:00AM DECSYS - Discrete and Ellipse-based response Capture SYstem [#130]
Zack Ellerby, Josie McCulloch, John Young and Christian Wagner
University of Nottingham, United Kingdom; National Cyber Security Centre, United Kingdom
- 11:18AM A software implementation of the fuzzy rule learning algorithm NSLVOrd for ordinal classification into KEEL [#210]
Juan Carlos Gamez-Granados, Jose Manuel Soto-Hidalgo, Giovanni Acampora, Antonio Gonzalez and Raul Perez
University of Cordoba, Spain; University of Naples Federico II, Italy; University of Granada, Spain
- 11:36AM Do we still need fuzzy classifiers for Small Data in the Era of Big Data? [#153]
Mikel Elkano, Humberto Bustince and Mikel Galar
Public University of Navarre, Spain

Special Session SS17-1: Biologically-inspired Intelligence based Fuzzy Logic for Robotics and Mechatronics

Monday, June 24, 11:00AM-12:00PM, Room: ST. JEROME, Chair: TBD

- 11:00AM Semi-Unknown Environments Exploration Inspired by Swarm Robotics using Fuzzy Cognitive Maps [#143]
Marcio Mendonca, Henrique Seiti Kondo, Lucas Botoni de Souza, Rodrigo Henrique Cunha Palacios and Joao Paulo Lima Silva de Almeida
UTFPR-CP, Brazil; IF-PR, Brazil

- 11:18AM Optimization of fuzzy controllers for autonomous mobile robots using the grey wolf optimizer [#298]
Eufonio Hernandez, Oscar Castillo and Jose Soria
Tijuana Institute of Technology, Mexico
- 11:36AM Introduce a Novel "STEAMS" Methodology of Conducting Scientific Research [#13]
Mason Chen
Stanford University OHS, United States

Session DM: Data Mining

Monday, June 24, 2:45PM-4:15PM, Room: CONDE, Chair: TBD

- 2:45PM Content And Concept Indexing For High-Dimensional Multimedia Data [#217]
Serdar Arslan and Adnan Yazici
PhD, Turkey; Prof. Dr., Turkey
- 3:03PM Processing Fuzzy Relational Queries Using Fuzzy Views [#129]
Emmanuel Doumard, Olivier Pivert, Gregory Smits and Virginie Thion
University of Rennes 1 / IRISA, France
- 3:21PM A Probabilistic Relational Database Model with Fuzzy Attribute Values [#84]
Tru Cao, Hoa Nguyen, Atsushi Inoue and Duanning Zhou
Ho Chi Minh City University of Technology, Viet Nam; Saigon University, Viet Nam; Eastern Washington University, United States
- 3:39PM Personalized Queries under a Generalized User Profile Model based on Fuzzy SPARQL Preferences [#279]
Olfa Slama
UMANIS, France
- 3:57PM Mining Fuzzy-Temporal Gradual Patterns [#33]
Dickson Owuor, Anne Laurent and Joseph Orero
LIRMM Univ Montpellier, CNRS, France; Strathmore University, Kenya

Session AGG-1: Aggregation

Monday, June 24, 2:45PM-4:15PM, Room: FRONTENAC, Chair: TBD

- 2:45PM Fuzzy Integral Driven Ensemble Classification using A Priori Fuzzy Measures [#236]
Utkarsh Agrawal, Christian Wagner, Jonathan M. Garibaldi and Daniele Soria
University of Nottingham, Nottingham, United Kingdom; University of Westminster, London, United Kingdom
- 3:03PM A possibilistic counterpart to Shafer evidence theory [#326]
Didier Dubois, Francis Faux, Henri Prade and Agnes Rico
IRIT-CNRS, France; ERIC, France
- 3:21PM Machine Learning of Choquet Integral Regression with Respect to a Bounded Capacity (or Non-monotonic Fuzzy Measure) [#292]
Timothy Havens and Derek Anderson
Michigan Technological University, United States; University of Missouri, United States
- 3:39PM Compositions of Partial Fuzzy Relations and Fuzzy Quantifiers Employing Dragonfly Algebras [#58]

Nhung Cao, Martin Stepnicka and Michal Burda
University of Ostrava, Czech Republic

3:57PM Transfer Learning for the Choquet Integral [#180]

Bryce Murray, Muhammad Islam, Anthony Pinar, Derek Anderson, Grant Scott, Timothy Havens, Fred Petry and Paul Elmore
University of Missouri, United States; Mississippi State University, United States; Michigan Technological University, United States; Naval Research Laboratory, United States

Special Session SS16-2: Handling Uncertainties in Big Data by Fuzzy Systems

Monday, June 24, 2:45PM-4:15PM, Room: ORLEANS, Chair: TBD

2:45PM A Constrained Interval-Valued Linear Regression Model: a New Heteroscedasticity Estimation Method [#158]

Yu Zhong and Shoumei Li
Beijing University of Technology, China

3:03PM Fuzzy Hot Spot Identification for Big Data: An Initial Approach [#253]

Rebecca Tickle, Isaac Triguero, Graziela P. Figueredo, Ender Ozcan, Mohammad Mesgarpour and Robert I. John
Automated Scheduling, Optimisation and Planning Research Group, University of Nottingham, United Kingdom; The Advanced Data Analysis Centre, University of Nottingham, United Kingdom; Microlise, United Kingdom

3:21PM A complexity analysis of MPE inference in possibilistic networks [#260]

Salem Benferhat, Karim Tabia and Amelie Levray
CRIL Universite d'Artois, France; University of Edinburgh, United Kingdom

3:39PM Digital Coaching to Make Fuzzy Real Options Methods Viable for Investment Decisions [#42]
Christer Carlsson

IAMSR/Abo Akademi University, Finland

3:57PM In Its Usual Formulation, Fuzzy Computation Is, In General, NP-Hard, But a More Realistic Formulation Can Make It Feasible [#35]

Martine Ceberio, Olga Kosheleva, Vladik Kreinovich and Luc Longpre
University of Texas at El Paso, United States

Special Session SS1-3: Software for Soft Computing

Monday, June 24, 2:45PM-4:15PM, Room: ST CLAUDE, Chair: TBD

2:45PM A Graded Approach to Requirement Satisfaction for Evolving Systems [#242]

Trevor Martin and Ratih Anggraini
University of Bristol, United Kingdom

3:03PM VisualJFML: A Visual Environment for Designing Fuzzy Systems according to IEEE Std 1855-2016 [#291]

Giovanni Acampora, Jesus Alcala-Fdez, Roberta Siciliano, Jose M. Soto-Hidalgo and Autilia Vitiello
University of Naples Federico II, Italy; University of Granada, Spain; University of Cordoba, Spain

3:21PM Py4JFML: A Python wrapper for using the IEEE Std 1855-2016 through JFML [#39]

Jesus Alcala-Fdez, Jose M. Alonso, Ciro Castiello, Corrado Mencar and Jose M. Soto-Hidalgo

University of Granada, Spain; Universidade de Santiago de Compostela, Spain; University of Bari Aldo Moro, Italy; University of Cordoba, Spain

3:39PM A New Fuzzy Rule Generation Scheme based on Multiple-Selection of Influencing Factors [#85]

Begum Mutlu and Ebru A. Sezer

Gazi University, Turkey; Hacettepe University, Turkey

Special Session SS11-1: Soft Computing in Computer Vision and Pattern Recognition

Monday, June 24, 2:45PM-4:15PM, Room: ST. JEROME, Chair: TBD

2:45PM Interval Type-2 Fuzzy Restricted Boltzmann Machine for the Enhancement of Deep Learning [#319]

Manvendra Janmajaya, Amit K. Shukla, Taniya Seth and Pranab K. Muhuri

South Asian University, India

3:03PM Detection of Dynamic Objects in Videos Using LBSP and Fuzzy Gray Level Difference Histograms [#23]

Abimael Guzman-Pando and Mario I. Chacon-Murguia

Tecnologico Nacional de Mexico/ I.T. Chihuahua, Mexico

3:21PM Human Image Complexity Analysis Using a Fuzzy Inference System [#89]

Luis Madrid-Herrera, Mario I Chacon-Murguia, Daniel A Posada-Urrutia and Juan A Ramirez-Quintana

Chihuahua Institute of Technology, Mexico

3:39PM People Detection in Downward-Viewing Fisheye Camera Networks Using Fuzzy Integral [#305]

Tsaipei Wang and Chih-Hao Liao

Department of Computer Science, National Chiao Tung University, Taiwan

Special Session SS4: The Theory of Type-2 Fuzzy Sets and Systems (T2-T)

Monday, June 24, 4:45PM-6:15PM, Room: CONDE, Chair: TBD

4:45PM A New Insight on the Mappings of Type-2 Fuzzy Logic Systems [#36]

Tufan Kumbasar

Istanbul Technical University, Turkey

5:03PM Managing the Doubt in Fuzzy Clustering by Means of Interval-Valued Fuzzy Sets [#234]

Aranzazu Jurio, Humberto Bustince and Vicenc Torra

Universidad Publica de Navarra, Spain; Maynooth University, Ireland

5:21PM Leveraging IT2 Input Fuzzy Sets in Non-Singleton Fuzzy Logic Systems to Dynamically Adapt to Varying Uncertainty Levels [#185]

Direnc Pekaslan, Christian Wagner and Jonathan M. Garibaldi

University of Nottingham, United Kingdom

5:39PM Measuring Inter-group Agreement on zSlice Based General Type-2 Fuzzy Sets [#295]

Javier Navarro and Christian Wagner

University of Nottingham, United Kingdom

Special Session SS16-3: Handling Uncertainties in Big Data by Fuzzy Systems

Monday, June 24, 4:45PM-6:15PM, Room: FRONTENAC, Chair: TBD

- 4:45PM Fuzzy Option Pricing Using a Novel Data-Driven Feed Forward Neural Networks Volatility Model [#106]
Aerambamoorthy Thavaneswaran, Ruppa Thulasiram, Julieta Frank, Zimo Zhu and Manmohit Singh
University of Manitoba, Canada
- 5:03PM A clustering algorithm based on fuzzy sets and its application in learning analytics [#155]
Jun Ma, Jie Yang and Sarah Howard
University of Wollongong, Australia
- 5:21PM Domain Selection of Transfer Learning in Fuzzy Prediction Models [#136]
Hua Zuo, Guangquan Zhang, Witold Pedrycz and Jie Lu
University of Technology Sydney, Australia; University of Alberta, Canada
- 5:39PM Exploring Type-2 Fuzzy Logic with Dynamic Rules in IoT Resources Classification [#194]
Amanda Argou, Renato Dilli, Renata Reiser and Adenauer Yamin
UFPEL, Brazil
- 5:57PM Ontology-Based Representation and Reasoning about Precise and Imprecise Time Intervals [#304]
Ghorbel Fatma, Hamdi Faycal and Metais Elisabeth
University of Sfax, Tunisia; CEDRIC, Conservatoire National des Arts et Metiers, France

Special Session SS12-1: Human Symbiotic Systems

Monday, June 24, 4:45PM-6:15PM, Room: ORLEANS, Chair: TBD

- 4:45PM Gaussian noise and the intersection problem in Human-Robot Systems - analytical and fuzzy approach [#12]
Rainer Palm and Achim Lilienthal
Oerebro University, Sweden
- 5:03PM A Study on Not-Boring Oddball Task for Users by Adopting Elements of Games [#156]
Tadashi Koike, Tomohiro Yoshikawa and Takeshi Furuhashi
Nagoya University, Japan
- 5:21PM A Consideration on Initial Parameter Setting using Onomatopoeias for Interactive Design Tools [#170]
Yuki Sawamura, Keima Osuka, Tsuyoshi Nakamura, Masayoshi Kanoh and Koji Yamada
Nagoya Institute of Technology, Japan; Chukyo University, Japan; Institute of Advanced Media Arts and Sciences, Japan
- 5:39PM Human Intention Estimation Using Fuzzy Inference Based on Gaze Tracking and Saliency Map [#239]
Yoichiro Maeda and Jiaao Niu
Ritsumeikan University, Japan
- 5:57PM Proposal and Analysis of Driver Support System to Verify Driver's Overconfidence and Dependence Bias [#294]
Junya Matsukawa, Tomoki Miyamoto, Daisuke Katagami, Takahiro Tanaka, Hitoshi Kanamori, Yuki Yoshihara and Kazuhiro Fujikake
Tokyo Polytechnic University, Japan; Nagoya University, Japan

Special Session SS7-2: Advances on eXplainable Artificial Intelligence

Monday, June 24, 4:45PM-6:15PM, Room: ST CLAUDE, Chair: TBD

- 4:45PM **Depicting Decision-Making: A Type-2 Fuzzy Logic Based Explainable Artificial Intelligence System for Goal-Driven Simulation in the Workforce Allocation Domain** [#227]
Emmanuel Ferreyra, Hani Hagra, Mathias Kern and Gilbert Owusu
University of Essex, Great Britain; BT, Great Britain
- 5:03PM **LEAFAGE: Example-based and Feature importance-based Explanations for Black-box ML models** [#248]
Ajaya Adhikari, David M.J. Tax, Riccardo Satta and Matthias Faeth
TNO, Netherlands; TU Delft, Netherlands
- 5:21PM **Natural Language Generation of Explanations of Fuzzy Inference Decisions** [#264]
Ismail Baaj and Jean-Philippe Poli
CEA, France
- 5:39PM **Improved Deep Fuzzy Clustering for Accurate and Interpretable Classifiers** [#268]
Mojtaba Yeganejou and Scott Dick
University of Alberta, Canada

Special Session SS11-2: Soft Computing in Computer Vision and Pattern Recognition

Monday, June 24, 4:45PM-6:15PM, Room: ST. JEROME, Chair: TBD

- 4:45PM **Introducing Fuzzy Layers for Deep Learning** [#277]
Stanton Price, Steven Price and Derek Anderson
U.S. Army Engineer Research and Development Center, United States; Mississippi College, United States; University of Missouri, United States
- 5:03PM **A Fuzzy Linearity-based Approach for Contour Saliency Points Selection** [#309]
Jesus Chamorro-Martinez, Alejandro Torres-Aguilera, Antonio Garrido and Pedro M. Martinez-Jimenez
University of Granada, Spain; University of Cadiz, Spain
- 5:21PM **Interval-Valued Fuzzy Thresholding Approach for Image Segmentation** [#329]
Le Thi Cam Binh, Ngo Thanh Long, Pham Van Hai, Pham Van Nha and Pham The Long
Academy of Military Science and Technology, Viet Nam; Le Quy Don Technical University, Viet Nam; Hanoi University of Science and Technology, Viet Nam
- 5:39PM **Incremental Cauchy Non-Negative Matrix Factorization and Fuzzy Rule-Based Classifier For Acoustic Source Separation** [#211]
Achyut Mani Tripathi and Rashmi Dutta Baruah
Indian Institute of Technology Guwahati, Assam, India; Indian Institute Of Technology Guwahati, India

Special Session SS18-1: Special Session on Pre-Aggregation Functions and Generalized Forms of Monotonicity

Tuesday, June 25, 8:00AM-9:30AM, Room: CONDE, Chair: TBD

- 8:00AM **Types of Recursive Computable Aggregations** [#99]
Luis Magdalena, Luis Garmendia, Daniel Gomez, Ramon Gonzalez del Campo, J.Tinguaro Rodriguez and Javier Montero
ETSI Informatica, Universidad Politecnica de Madrid, Spain; Faculty of Informatics, Complutense University of Madrid, Spain; Faculty of Statistics, Complutense University of

Madrid, Spain; Instituto de Matematica Multidisciplinar, Facultad de Matematicas,
Universidad Complutense de Madrid, Spain

- 8:18AM Where the domination of maxitive kernels is extended to signed values. [#112]
Olivier Strauss and Agnes Rico
LIRMM, Univ. Montpellier, CNRS, France; ERIC, Claude Bernard University Lyon 1, France
- 8:36AM On Generalized Intuitionistic Fuzzy Interaction Partitioned Bonferroni Mean Operators [#270]
Rajkumar Verma and Jose M Merigo
University of Chile, Chile
- 8:54AM Analyzing the Performance of Different Fuzzy Measures with Generalizations of the Choquet
Integral in Classification Problems [#128]
Giancarlo Lucca, Jose Antonio Sanz, Gracaliz Dimuro, Eduardo Borges, Helida Santos and
Humberto Bustince
Universidade Federal do Rio Grande, Brazil; Universidad Publica de Navarra, Spain
- 9:12AM Distances between Interval-valued Fuzzy Sets Taking into Account the Width of the Intervals
[#173]
Zdenko Takac, Javier Fernandez, Javier Fumanal, Cedric Marco-Detchart, Ines Couso,
Gracaliz Dimuro, Helida Santos and Humberto Bustince
Slovak University of Technology, Slovakia; Universidad Publica de Navarra, Spain;
Universidad de Oviedo, Spain; Universidade Federal do Rio Grande, Brazil

Special Session SS10-1: Fuzzy System for Control and Diagnosis of Renewable Energy and Smart Grid

Tuesday, June 25, 8:00AM-9:30AM, Room: FRONTENAC, Chair: TBD

- 8:00AM Neuro-Fuzzy Controller for AFPM Gearless Generator [#10]
Sedat Nazlibilek and Esmail Mohammed
Baskent University, EE Department, Turkey; The Higher Institute of Science and Technology,
Libya
- 8:18AM Fuzzy Control Techniques Applied to Wind Turbine Systems and Hydroelectric Plants [#15]
Silvio Simani, Stefano Alvisi and Mauro Venturini
Department of Engineering, University of Ferrara, Italy
- 8:36AM Improved LVRT Performance of PV Power Plant Using Intelligent Control Under Grid Fault
and Weak Grid Conditions [#16]
Faa-Jeng Lin, Kuang-Hsiung Tan, Wen-Chou Luo and Guo-Deng Xiao
Dept. of Electrical Engineering, National Central University, Taiwan; Dept. of Electrical and
Electronic Engineering, Chung Cheng Institute of Technology, National Defense University,
Taiwan
- 8:54AM Application of a Fuzzy Logic based Controller for Peak Load Shaving in a Typical Household
[#103]
Krishna Sharma and Nicholas Baine
Grand Valley State University, United States

Special Session SS7-3: Advances on eXplainable Artificial Intelligence

Tuesday, June 25, 8:00AM-9:30AM, Room: ORLEANS, Chair: TBD

- 8:00AM Explaining What a Neural Network has Learned: Toward Transparent Classification [#271]

Kasun Amarasinghe and Milos Manic
Virginia Commonwealth University, United States

8:18AM ExpliClas: Automatic Generation of Explanations in Natural Language for Weka Classifiers [#38]

Jose M. Alonso and Alberto Bugarin
Universidade de Santiago de Compostela, Spain

8:36AM Explainable AI For Dataset Comparison [#111]

Akshay Jain, James Keller and Mihail Popescu
University of Missouri, United States

8:54AM Explainable Decisions under incomplete knowledge with Supports and Weights [#181]

Florence Dupin de Saint-Cyr, Romain Guillaume and Umar Mushtaq
Irit, France; Lemma, France

Session MFI-1: Medical, Financial, Industrial

Tuesday, June 25, 8:00AM-9:30AM, Room: ST CLAUDE, Chair: TBD

8:00AM Sepsis Prediction: An Attention-Based Interpretable Approach [#285]

Kourosh Baghaei and Shahram Rahimi
Mississippi State University, United States

8:18AM Fuzzy Logic based Pricing combined with Adaptive Search for Reserve Price Optimization in Online Ad Auctions [#301]

Jason Rhuggenaath, Alp Akcay, Yingqian Zhang and Uzay Kaymak
Eindhoven University of Technology, Netherlands

8:36AM Cardiovascular Conditions Classification Using Adaptive Neuro-Fuzzy Inference System [#307]

Jason Rivera, Kelsey Rodriguez and Xiao-Hua Yu
California Polytechnic State University, SLO, United States

8:54AM Transfer Learning based GDP Prediction from Uncertain Carbon Emission Data [#314]

Sandeep Kumar, Amit K, Shukla, Pranab K. Muhuri and Q. M. Danish Lohani
South Asian University, India

9:12AM An Architecture Based on Fuzzy Systems for Personalized Medicine in ICUs [#318]

Joao Sousa, Susana Vieira, Joao Carvalho, Sara Madeira, Stan Finkelstein and Leo Celi
IDMEC, Instituto Superior T^ecnicico, Universidade de Lisboa, Portugal; INESC-ID, Instituto Superior T^ecnicico, Universidade de Lisboa, Portugal; LASIGE, Faculdade de Ci^encias, Universidade de Lisboa, Portugal; Laboratory for Computational Physiology, Massachusetts Institute of Technology, Cambridge, MA, USA, United States; Institute for Data, Systems, and Society, Massachusetts Institute of Technology, Cambridge, MA, USA, United States

Session FPR-2: Fuzzy Pattern Recognition

Tuesday, June 25, 8:00AM-9:30AM, Room: ST. JEROME, Chair: TBD

8:00AM Distance Measures between Interval Valued Intuitionistic Fuzzy Sets and Application in Multi-Criteria Decision Making [#257]

Belahssan Fares, Leila Baccour and Adel Alimi
REsearch Groups in Intelligent Machines, Tunisia

- 8:18AM A Preliminary Approach for the Exploitation of Citizen Science Data for Fast and Robust Fuzzy k-Nearest Neighbour Classification [#273]
Manuel Jimenez, Mercedes Torres Torres, Robert John and Isaac Triguero
University of Nottingham, United Kingdom
- 8:36AM A Statistical Random Variable Approach to Fuzzy Cognitive Map Modeling [#209]
Vesa Niskanen
University of Helsinki, Dept. of Econ. and Management, Finland
- 8:54AM A Multilayer Fuzzy Extreme Learning Machine for Regression and Classification Problems [#203]
Adrian Rubio-Solis and George Panoutsos
University Of Sheffield, United Kingdom; University of Sheffield, United Kingdom
- 9:12AM Notes on the Dynamics of Hyperbolic Tangent Fuzzy Cognitive Maps [#63]
Istvan Harmati and Laszlo Koczy
Szechenyi Istvan University, Hungary

Session FA-1: Fuzzy Algorithms

Tuesday, June 25, 2:45PM-4:15PM, Room: CONDE, Chair: TBD

- 2:45PM Measuring Similarity Between Discontinuous Intervals - Challenges and Solutions [#163]
Shaily Kabir, Christian Wagner, Timothy C. Havens and Derek T. Anderson
Intelligent Modelling and Analysis (IMA) Group and Lab for Uncertainty in Data and Decision Making (LUCID), School of Computer Science, University of Nottingham, Nottingham, UK, United Kingdom; ICC and Department of Electrical and Computer Engineering, Michigan Technological University, Houghton, MI, USA, United States; Department of Electrical Engineering and Computer Science, University of Missouri, Columbia, MO, USA, United States
- 3:03PM A (Soft) Robustness for Possibilistic Optimization Problems [#75]
Adam Kasperski and Pawel Zielinski
Wroclaw University of Science and Technology, Poland
- 3:21PM Pole Determination for Takagi-Sugeno Fuzzy Laguerre Models [#265]
Tim Oliver Heinz, Tobias Ebert and Oliver Nelles
University of Siegen, Germany
- 3:39PM Multistep Prediction using Point-Cloud Approximation of Continuous Belief Functions [#157]
Thierry Denoeux and Orakanya Kanjanatarakul
Universite de Technologie de Compiègne, France; Chiang Mai Rajabhat University, Thailand
- 3:57PM Group decision making techniques for risk assessment: a literature review and research directions [#178]
Rafael Arantes and Luiz Carpinetti
University of Sao Paulo Sao Carlos School of Engineering, Brazil

Session MFI-2: Medical, Financial, Industrial

Tuesday, June 25, 2:45PM-4:15PM, Room: FRONTENAC, Chair: TBD

- 2:45PM Optimal ranking of factors affecting students' academic performance based on belief and plausibility measures [#11]
Satish Salunkhe, Yashwant Joshi and Ashok Deshpande

Terna Engineering College, Mumbai University, India; Shri Guru Gobind Singh Institute of Engineering and Technology, SRTMU, Nanded, India; BISC -SIG-EMS, Berkeley, CA 94720-5800, United States

- 3:03PM Caregiver Assessment Using Smart Gaming Technology: A Feasibility Study [#91]
Garrett Goodman, Tanvi Banerjee, William Romine, Cogan Shimizu and Jennifer Hughes
Wright State University, United States
- 3:21PM A Comparative Study on Air Data System Calibration Methods based on Machine Learning [#146]
Hansoo Lee, Jonggeun Kim, Sungshin Kim and Jaeyong Kim
Pusan National University, Korea (South); Korea Aerospace Industries, Ltd., Korea (South)
- 3:39PM High Concentrations Naturally Lead to Fuzzy-Type Interactions and to Gravitational Wave Bursts [#152]
Oscar Galindo, Olga Kosheleva and Vladik Kreinovich
University of Texas at El Paso, United States
- 3:57PM Fuzzy Modeling of Survival Associated to Insulin Therapy in the ICU [#187]
Aldo Arevalo, Bernardo M. Firme, Susana M. Vieira, Leo Celi, Stan N. Finkelstein and Joao M. C. Sousa
IDMEC, Instituto Superior Tecnico, Universidade de Lisboa, Portugal; Laboratory for Computational Physiology, Massachusetts Institute of Technology, United States; Institute for Data, Systems, and Society, Massachusetts Institute of Technology, United States

Special Session SS8-1: Linguistic Summarization and Description of Data

Tuesday, June 25, 2:45PM-4:15PM, Room: ORLEANS, Chair: TBD

- 2:45PM FRELS: Fast and Reliable Estimated Linguistic Summaries [#243]
Gregory Smits, Pierre Nerzic, Marie-Jeanne Lesot and Olivier Pivert
Universite Rennes, IRISA, France; Sorbonne Universite, CNRS, Laboratoire d'Informatique de Paris 6, France
- 3:03PM Compound Bipolar Queries: The Case of Data with a Variable Quality [#276]
Janusz Kacprzyk and Slawomir Zadrozny
Systems Research Institute, Polish Academy of Sciences, Poland
- 3:21PM Referring under Uncertainty [#219]
Nicolas Marin, Gustavo Rivas-Gervilla and Daniel Sanchez
University of Granada, Spain
- 3:39PM Method Selecting Correct One Among Alternatives Utilizing Intuitionistic Fuzzy Preference Relation Without Consensus Reaching Process [#71]
Zhang Hengshan, Zheng Qinghua, Wang Zhongmin, Chen Yanping, Liu Ting and Chen Tianhua
Xi'an University of Posts and Telecommunications, China; Xi'an Jiaotong University, China; University of Huddersfield, United Kingdom

Session FLFS-2: Fuzzy Logic and Fuzzy Sets

Tuesday, June 25, 2:45PM-4:15PM, Room: ST CLAUDE, Chair: TBD

- 2:45PM An Epistemic Simplified Interval Temporal Logic of Moszkowski for Fuzzified Justification [#296]

Krystian Jobczyk and Antoni Ligeza
AGH University of Technology, Poland

- 3:03PM Relevance of Polynomial Order in Takagi-Sugeno Fuzzy Inference Systems Applied in Diagnosis Problem [#303]
Emanuel Ontiveros-Robles, Patricia Melin and Oscar Castillo
Tijuana Institute of Technology, Mexico
- 3:21PM Controllable Fuzziness of General Fuzzy Numbers Addition Based on Yager T-norms [#306]
Kuo-Ping Chiao
Aletheia University, Taiwan
- 3:39PM A Neutrosophic Solid Transportation Model with Insufficient Supply [#138]
Nilabhra Paul, Deepshikha Sarma and Uttam Kuamr Bera
NIT Agartala, India; NIT Agrtala, India
- 3:57PM ParaFIS:A new online fuzzy inference system based on parallel drift anticipation [#261]
Clement Leroy, Eric Anquetil and Nathalie Girard
Univ Rennes, CNRS, IRISA, France

Special Session SS15-1: Recent Advances in Fuzzy Control System Design and Analysis

Tuesday, June 25, 2:45PM-4:15PM, Room: ST. JEROME, Chair: TBD

- 2:45PM Fuzzy Adaptive Dynamic Programming Minimum Energy Control Of Dielectric Elastomer Actuators [#240]
Paolo Roberto Massenio, Gianluca Rizzello and David Naso
Department of Electrical and Information Engineering - Polytechnic University of Bari, Italy;
Department of Systems Engineering and Department of Material Science and Engineering -
Saarland University, Germany
- 3:03PM Observer-based controller design for Takagi-Sugeno fuzzy systems with local nonlinearities [#269]
Zoltan Nagy and Zsofia Lendek
Technical University of Cluj Napoca, Romania
- 3:21PM Relaxed Non-Quadratic Stability Conditions for Takagi-Sugeno Systems with Time-Varying Delays: A Wirtinger's Inequalities approach [#161]
Faycal Bourahala, Kevin Guelton and Adriano N.D. Lopes
20 August University, Skikda, Algeria; CReSTIC EA3804, University of Reims Champagne-Ardenne, France
- 3:39PM A Sorting Method: BWMSort in Interval Type-2 Fuzzy Environment [#41]
Jun Liu, Zhou Xu and Jindong Qin
School of Management, Wuhan University of Technology, China
- 3:57PM Nonlinear Fuzzy State-Space Modeling and LMI Fuzzy Control of Overhead Cranes [#149]
Daniel Leite, Charles Aguiar, Daniel Pereira, Gustavo Souza and Igor Skrjanc
Federal University of Lavras (UFLA), Brazil; University of Ljubljana, Slovenia

Special Session SS8-2: Linguistic Summarization and Description of Data

Tuesday, June 25, 4:45PM-6:15PM, Room: CONDE, Chair: TBD

- 4:45PM Wu-Mendel Approach for Linguistic Summarization: Practical Considerations and Solutions [#9]

Vugar Mirzakhonov and Latafat Gardashova

Azerbaijan State Oil and Industry University, Azerbaijan

5:03PM Using Taxonomy Tree to Generalize a Fuzzy Thematic Cluster [#166]

Dmitry Frolov, Susana Nascimento, Trevor Fenner and Boris Mirkin

Dept. of Data Analysis and AI, National Research University, Higher School of Economics, Moscow, Russian Federation; Dept. of Computer Science and NOVA LINCS, Universidade Nova de Lisboa, Lisbon, Portugal; Dept. of Computer Science, Birkbeck University of London, London, United Kingdom; Dept. of Data Analysis and AI, HSE University, Moscow, and Dept. of Computer Science, Birkbeck University of London UK, Russian Federation

5:21PM Generalized Intermediate Syllogisms with More Premises [#235]

Petra Murinova

University of Ostrava-IRAFM, Czech Republic

Session MFI-3: Medical, Financial, Industrial

Tuesday, June 25, 4:45PM-6:15PM, Room: FRONTENAC, Chair: TBD

4:45PM Between Dog and Wolf: A Continuous Transition from Fuzzy to Probabilistic Estimates [#34]

Martine Ceberio, Olga Kosheleva, Vladik Kreinovich and Luc Longpre

University of Texas at El Paso, United States

5:03PM Sentiment Classification of Drug Reviews Using Fuzzy-rough Feature Selection [#62]

Tianhua Chen, Pan Su, Changjing Shang, Richard Hill, Hengshan Zhang and Qiang Shen

University of Huddersfield, United Kingdom; Chinese Academy of Sciences, China; Aberystwyth University, United Kingdom; Xi'an University of Posts and Telecommunications, China

5:21PM Modeling Supply Chain Quality Management using Multi-Layer Fuzzy Cognitive Maps [#116]

Juan Cogollo and Alexander Correa

Instituto Tecnológico Metropolitano, Colombia; Universidad Nacional de Colombia, Colombia

Special Session SS9-1: Advances to Type-2 Fuzzy Logic Control

Tuesday, June 25, 4:45PM-6:15PM, Room: ORLEANS, Chair: TBD

4:45PM An Intelligent Control of an Inverted Pendulum Based on an Adaptive Interval Type-2 Fuzzy Inference System [#69]

Ayad Al-Mahturi, Fendy Santoso, Matthew A. Garratt and Sreenatha G. Anavatti

School of Engineering and Information Technology, The University of New South Wales, Canberra, ACT, 2612, Australia, Australia

5:03PM Learning Control of Tandem-Wing Tilt-Rotor UAV with Unsteady Aerodynamic Model [#115]

Yunus Govdali, Sheikh Moheed Bin Muzaffar, Raj Raunak, Basman Elhadidi and Erdal Kayacan

Nanyang Technological University, Singapore; Aarhus University, Denmark

5:21PM A Novel Non-Iterative Parameter Estimation Method for Interval Type-2 Fuzzy Neural Networks Based on a Dynamic Cost Function [#322]

Khanesar Mojtaba Ahmadi, Hassan Saima, Cambria Erik and Kayacan Erdal

Nottingham University, United Kingdom; Kohat University of Science and Technology, Pakistan; Nanyang Technological University, Singapore; Aarhus University, Denmark

Special Session SS10-2: Fuzzy System for Control and Diagnosis of Renewable Energy and Smart Grid

Tuesday, June 25, 4:45PM-6:15PM, Room: ST CLAUDE, Chair: TBD

- 4:45PM K Nearest Neighbour Optimal Selection in Fuzzy Inductive Reasoning for Smart Grid Applications [#154]
Sergio Jurado, Angela Nebot and Francisco Mugica
Universitat Politecnica de Catalunya, Spain
- 5:03PM Model-based Fuzzy Control of Renewable Energy Power Plants: A holistic approach [#289]
Horst Schulte, Florian Poeschke and Zeineb Rania Labidi
University of Applied Sciences Berlin (HTW) Faculty 1: School of Engineering - Energy and Information Science, Germany; University Tunis El Manar Faculty of Sciences of Tunis, Tunisia

Session FA-2: Fuzzy Algorithms

Tuesday, June 25, 4:45PM-6:15PM, Room: ST. JEROME, Chair: TBD

- 4:45PM Fuzzy Type Input-Output Monadic Automata [#50]
Jiri Mockor
Ostrava University, Czech Republic
- 5:03PM Orderings of Extensional Fuzzy Numbers [#121]
Martin Stepnicka, Michal Holcapek and Skorupova Nicole
University of Ostrava, Czech Republic
- 5:21PM Fuzzy Initial Value Problems for Fuzzy Hypocycloid Curves [#320]
Daniel Sanchez, Vinicius Wasques, Estevao Esmei, Laecio Barros and Peter Sussner
University Austral of Chile, Chile; University of Campinas, Brazil

Session FLFS-3: Fuzzy Logic and Fuzzy Sets

Wednesday, June 26, 8:00AM-9:30AM, Room: CONDE, Chair: TBD

- 8:00AM On pseudo-homogeneity of t-subnorms [#179]
Lucelia Lima, Marcus Rocha, Annaxsuel De Lima, Benjamin Bedregal and Humberto Bustince
University of the Amazon, Brazil; Federal University of Para, Brazil; Federal University of Rio Grande do Norte, Brazil; Public University of Navarre, Spain
- 8:18AM Rotational Inverted Pendulum Controller Design using Indirect Adaptive Fuzzy Model Predictive Control [#193]
Roja Eini and Sherif Abdelwahed
PhD student, United States; Professor, United States
- 8:36AM Interval Extension of the Generalized Atanassov's Intuitionistic Fuzzy Index using Admissible Orders [#216]
Lidiane Costa, Monica Matzenauer, Adenauer Yamin, Renata Reiser and Benjamin Bedregal
UFPEL, Brazil; UFRN, Brazil
- 8:54AM Fuzzy Octonion Numbers and Fuzzy Hypercomplex Numbers [#233]
Ricardo Augusto Watanabe, Estevao Esmei Laureano and Cibele Trinca Watanabe
IMECC-UNICAMP, Brazil; FEEC-UNICAMP, Brazil
- 9:12AM A Functional Equation Stemming from a Characterization of Power-based Implications [#256]

Michal Baczynski, Włodzimierz Fechner and Sebastia Massanet
University of Silesia in Katowice, Institute of Mathematics, Poland; Lodz University of
Technology, Institute of Mathematics, Poland; University of the Balearic Islands, Department
of Mathematics and Computer Science, Spain

Special Session SS1819: Special Session on Pre-Aggregation Functions and Generalized Forms of Monotonicity and on Applications of Pre-Aggregation Functions

Wednesday, June 26, 8:00AM-9:30AM, Room: FRONTENAC, Chair: TBD

- 8:00AM Interval-valued pre-aggregation functions: a study of directional monotonicity of interval-valued functions [#266]
Mikel Sesma-Sara, Laura De Miguel, Radko Mesiar, Javier Fernandez and Humberto Bustince
Public University of Navarra, Spain; Slovak University of Technology, Slovakia
- 8:18AM The Mode of Interval-Valued Data [#313]
Tim Wilkin and Gleb Beliakov
Deakin University, Australia
- 8:36AM OWA Operators Based on Admissible Permutations [#230]
Daniel Paternain, Jin LeSheng, Radko Mesiar, Lucia Vavrikova and Humberto Bustince
Universidad Publica de Navarra, Spain; Nanjing Normal University, China; Slovak University of Technology, Slovakia
- 8:54AM Equivalence measures for Atanassov intuitionistic fuzzy setting used to algorithm of image processing [#184]
Barbara Pekala, Urszula Bentkowska, Javier Fernandez and Humberto Bustince
University of Rzeszow, Poland; Public University of Navarra, Spain
- 9:12AM On the Application of Preaggregation Functions to Fuzzy Pattern Tree [#207]
Pan Su, Tianhua Chen, Haoyu Mao, Jianyang Xie, Yitian Zhao and Jiang Liu
Chinese Academy of Sciences, China; University of Huddersfield, United Kingdom; Southern University of Science and Technology, China

Special Session SS15-2: Recent Advances in Fuzzy Control System Design and Analysis

Wednesday, June 26, 8:00AM-9:30AM, Room: ORLEANS, Chair: TBD

- 8:00AM Robust Granular Feedback Linearization [#26]
Lucas Oliveira, Valter Leite, Anderson Bento and Fernando Gomide
CEFET-MG / Department of Mechatronics Engineering, Brazil; CEFET-MG / Department of Mechatronics Engineering, Brazil; UNICAMP / Department of Computer Engineering and Automation, Brazil
- 8:18AM Control Synthesis for Fuzzy Systems with Local Nonlinear Models Subject to Actuator Saturation [#214]
Anh-Tu Nguyen, Pedro Coutinho, Thierry-Marie Guerra and Reinaldo Palhares
LAMIH UMR CNRS 8201, Univ. Polytechnique Hauts-de-France, France; Graduate Program in Electrical Engineering, Federal University of Minas Gerais, Brazil; Department of Electronics Engineering, Federal University of Minas Gerais, Brazil
- 8:36AM On Robust Switched Controller Design to Minimize the Guaranteed Cost of Polynomial Fuzzy Systems [#100]

Igor Thiago Minari Ramos, Uiliam Nelson Lendzion Tomaz Alves, Marcelo Carvalho Minhoto Teixeira, Edvaldo Assuncao, Rodrigo Cardim and Adalberto Zanatta Neder Lazarini
Sao Paulo State University (UNESP), School of Natural Sciences and Engineering, Ilha Solteira, Brazil; IFPR - Federal Institute of Education, Science and Technology of Parana - Campus of Jacarezinho, Brazil

8:54AM Fuzziness Control of Fuzzimetric set [#330]

Issam Kouatli
LAU, Lebanon

Special Session SS2: Fuzzy Natural Language Processing

Wednesday, June 26, 8:00AM-9:30AM, Room: ST CLAUDE, Chair: TBD

8:00AM 2Gather4Health: Automatic Web Identification of Solutions in Patient Innovation [#250]

Joao N. Almeida, Salome Azevedo and Joao P. Carvalho
INESC-ID, Instituto Superior Tecnico, Universidade de Lisboa, Portugal; UCP - Catolica Lisbon School of Business and Economics, Portugal

8:18AM Ontological and Fuzzy Set Similarity between Perception-Based Words [#196]

Valerie Cross, Valeria Mokrenko, Keeley Crockett and Naemeh Adel
Miami University, United States; Manchester Metropolitan University, United Kingdom

8:36AM Human Hedge Perception - and its Application in Fuzzy Semantic Similarity Measures [#221]

Naemeh Adel, Keeley Crockett, Alan Crispin, Joao Paulo Carvalho and David Chandran
Manchester Metropolitan University, United Kingdom; Universidade de Lisboa, Portugal; Kings College London, United Kingdom

Special Session SS3: Fuzzy Hybrid Computing Applications in Construction Engineering and Management

Wednesday, June 26, 8:00AM-9:30AM, Room: ST. JEROME, Chair: TBD

8:00AM Consensus Building in Group Decision-Making for the Risk Assessment of Wind Farm Projects [#254]

Yajie Hao, Nebiyu Siraj Kedir, Nima Gerami Seresht, Witold Pedrycz and Aminah Robinson Fayek
University of Alberta, Canada

8:18AM Construction Industry Pursuit Intel Modeling Insights with FCM [#81]

Denise M. Case, Ty Blackburn and Chrysostomos Stylios
Northwest Missouri State University, United States; Burns and McDonnell Engineering Company, United States; University of Ioannina, Greece

8:36AM A Fuzzy Novel Hybrid Genetic Algorithm for Time-Cost-Quality Trade-off Optimization in Project Scheduling [#315]

Nasser Shahsavari-Pour and Mojtaba Kazemi
Department of Industrial Management, Vali-e-Asr University, Rafsanjan, Iran, Iran;
Department of Management, Economics and Industrial Engineering, Politecnico di Milano, Italy

8:54AM Feature Selection for Construction Organizational Competencies Impacting Performance [#102]

Getaneh Gezahegne Tiruneh and Aminah Robinson Fayek

University of Alberta, Canada

9:12AM On The Comparison of Fuzzy Interpolations and Neural Network Fitting Functions in Modeless Robot Calibrations [#46]

Ying Bai and Dali Wang

Johnson C. Smith University, United States; Christopher Newport University, United States

Special Session SS14-1: Recent Advances in Evolving Fuzzy Systems

Wednesday, June 26, 10:00AM-11:00AM, Room: FRONTENAC, Chair: TBD

10:00AM Multiobjective Optimization of Fully Autonomous Evolving Fuzzy Granular Models [#150]

Daniel Leite, Fernando Gomide and Igor Skrjanc

Federal University of Lavras (UFLA), Brazil; University of Campinas, Brazil; University of Ljubljana, Slovenia

10:18AM Adaptive Nonparametric Evolving Fuzzy Control for Uncertain Nonlinear Systems [#162]

Zhao-Xu Yang, Hai-Jun Rong, Plamen Angelov and Guang-She Zhao

Xi'an Jiaotong University, China; Lancaster University, United Kingdom

10:36AM Incremental clustering based on decomposed Cauchy-like density for imbalanced data classification from data stream [#164]

Igor Skrjanc, Saso Blazic, Goran Andonovski, Jose Iglesias, Araceli Sanchis and Daniel Leite

University of Ljubljana, Slovenia; Carlos III University of Madrid, Spain; Universidade Federal de Lavras, Brazil

Special Session SS19-1: Special Session on Applications of Pre-Aggregation Functions

Wednesday, June 26, 10:00AM-11:00AM, Room: ORLEANS, Chair: TBD

10:00AM An intelligent and private method to profile social network users [#224]

Carmen De Maio, Carlo Blundo, Mimmo Parente and Luisa Siniscalchi

Dipartimento di Ingegneria dell'Informazione ed Elettrica e Matematica Applicata Universita' degli Studi di Salerno, Italy; Dipartimento di Scienze Aziendali, Management and Innovation Systems Universita' degli Studi di Salerno, Italy; Dipartimento di Ingegneria dell'Informazione ed Elettrica e Matematica Applicata, Universita' degli Studi di Salerno, Italy

10:18AM Generalized Fuzzy Partition in Galerkin Method for the Boundary Valued Problem [#183]

Linh Nguyen, Irina Perfilieva and Michal Holcapek

Institute for Research and Applications of Fuzzy Modelling, NSC IT4Innovations, University of Ostrava, Czech Republic

10:36AM Existence of Atanassov's Intuitionistic Fuzzy Definite Integrals [#228]

Mohd Shoaib Khan, Q. M. Danish Lohani and Zubair Ashraf

South Asian University, New Delhi, India

Session T2-1: Type 2 Fuzzy Sets

Wednesday, June 26, 10:00AM-11:00AM, Room: ST CLAUDE, Chair: TBD

10:00AM Hybrid Model of Interval Type-2 Neural Fuzzy Inference System and Mutual Subsethood with Applications [#232]

Sumati Vuppuluri, Patvardhan Chellapilla, Sandeep Paul, Lotika Singh and Mehar Swarup Vuppuluri

Algoleap Technologies Pvt Ltd, India; Dayalbgh Educational Institute, India; Cisco Systems, United States

10:18AM Interval Type-2 fuzzy logic for dynamic parameter adjustment in the imperialist competitive algorithm [#321]

Emer Bernal, Oscar Castillo, Jose Soria and Fevrier Valdez

Tijuana Institute of Technology, Mexico

10:36AM Just-In-Time Supply Chain Management Using Interval Type-2 Fuzzy Decision Making [#7]

Thomas Runkler, Chao Chen, Simon Coupland and Robert John

Siemens AG, Germany; University of Nottingham, United Kingdom; De Montfort University, United Kingdom

Special Session SS5: Business Processes and Fuzzy Logic (BPFL)

Wednesday, June 26, 10:00AM-11:00AM, Room: ST. JEROME, Chair: TBD

10:00AM A fuzzy logic based machine learning tool for supporting big data business analytics in complex artificial intelligence environments [#300]

Seokjin Ahn, Stefan Couture, Alfredo Cuzzocrea, Kevin Dam, Giorgio Grasso, Carson Leung, Kaleigh McCormick and Bryan Wodi

University of Manitoba, Canada; University of Trieste, Italy; University of Messina, Italy

10:18AM Learning Analytics to Improve Coding Abilities: a Fuzzy-based Process Mining Approach [#283]

Pasquale Ardimento, Mario Luca Bernardi, Marta Cimitile and Giuseppe De Ruvo

University of Bari, Italy; Giustino Fortunato University, Italy; Unitelma Sapienza, Italy; Independent IEEE Member, Italy

10:36AM Proposal of a Takagi-Sugeno Fuzzy System on FPGA [#123]

Felipe Lopes, Sergio Natan and Marcelo Fernandes

UFRN, Brazil

Special Session SS14-2: Recent Advances in Evolving Fuzzy Systems

Wednesday, June 26, 11:00AM-12:00PM, Room: FRONTENAC, Chair: TBD

11:00AM RedPAC A Simple Evolving Neuro-Fuzzy-based Intelligent Control Framework for Autonomous Aerial Vehicles [#229]

Md Meftahul Ferdaus, Mohamad Abdul Hady, Mahardhika Pratama, Sreenatha G. Anavatti and Harikumar Kandath

School of Engineering and IT, UNSW Canberra, Australia; School of Computer Science and Engineering, Nanyang Technological University Singapore, Singapore

11:18AM Robust Evolving Neuro-Fuzzy Control of a Novel Tilt-rotor Vertical Takeoff and Landing Aircraft [#218]

Harikumar Kandath, Hady Abdul, Mahardhika Pratama and Bing Feng Ng

School of computer science and engineering, Nanyang Technological University, Singapore; School of Mechanical and Aerospace Engineering, Nanyang Technological University, Singapore

11:36AM Modeling of Fuzzy Rule-base Algorithm for the Time Dependent Traveling Salesman Problem [#284]

Laszlo T. Koczy, Peter Foldesi, Boldizsar Tuu-Szabo and Ruba Almahasneh
Szechenyi Istvan University, Gyor, Hungary, Hungary; Budapest University of Technology
and Economics Budapest, Hungary, Hungary

Session C-3: Clustering

Wednesday, June 26, 11:00AM-12:00PM, Room: ORLEANS, Chair: TBD

- 11:00AM Optimizing the Performance of Rule-Based Fuzzy Routing Algorithms in Wireless Sensor Networks [#190]
Seyyit Alper Sert and Adnan Yazici
NATO Supreme Headquarters Allied Powers Europe (S.H.A.P.E.) Strategic Development and Preparation Directorate, Belgium; Department of Computer Science, School of Science and Technology, Nazarbayev University, Kazakhstan
- 11:18AM Quantification and Visualization for Difference of Fuzzy Clustering Results [#288]
Mika Sato-Ilic
University of Tsukuba, Japan
- 11:36AM A New Incremental Cluster Validity Index for Streaming Clustering Analysis [#122]
Omar Ibrahim, James Keller and Mihail Popescu
Department of Electrical Engineering and Computer Science, University of Missouri-Columbia, United States; Health Management and Informatics Department, University of Missouri-Columbia, United States

Session T2-2: Type 2 Fuzzy Sets

Wednesday, June 26, 11:00AM-12:00PM, Room: ST CLAUDE, Chair: TBD

- 11:00AM Autonomous Landing of UAV: a Comparison Between Type-1 and Type-2 Fuzzy Logic Systems [#6]
Eduardo Queiroz, Rodrigo Costa, Andre Marcato and Eduardo Aguiar
Pontifical Catholic University of Rio de Janeiro, Brazil; Federal University of Juiz de Fora, Brazil
- 11:18AM Type-2 Fuzzy Logic System Applied to a Temperature Control of an Electric Oven [#25]
Leonardo Serapiao, Eduardo Queiroz, Alexandre Santos, Tiago Coelho, Daniel Silveira and Eduardo Aguiar
Federal University of Juiz de Fora, Brazil; Pontifical Catholic University of Rio de Janeiro, Brazil
- 11:36AM On the Concept of Meaningfulness in Constrained Type-2 Fuzzy Sets [#175]
Pasquale D'Alterio, Jonathan Garibaldi and Robert John
University of Nottingham, United Kingdom

Special Session SS6-1: Fuzzy Logic for Security and Forensics

Wednesday, June 26, 11:00AM-12:00PM, Room: ST. JEROME, Chair: TBD

- 11:00AM Improving Data Privacy using Fuzzy Logic and Autoencoder Neural Network [#90]
Sayantica Pattanayak and Simone A. Ludwig
North Dakota State University, United States

- 11:18AM Cyberthreat Hunting-Part 1: Triaging Ransomware using Fuzzy Hashing, Import Hashing and YARA Rules [#244]
Nitin Naik, Paul Jenkins, Nick Savage and Longzhi Yang
Ministry of Defence, United Kingdom; University of Portsmouth, United Kingdom;
Northumbria University, United Kingdom
- 11:36AM Cyberthreat Hunting-Part 2: Tracking Ransomware Threat Actors using Fuzzy Hashing and Fuzzy C-Means Clustering [#245]
Nitin Naik, Paul Jenkins, Nick Savage and Longzhi Yang
Ministry of Defence, United Kingdom; University of Portsmouth, United Kingdom;
Northumbria University, United Kingdom

Session AGG-2: Aggregation

Wednesday, June 26, 2:45PM-4:15PM, Room: CONDE, Chair: TBD

- 2:45PM Study of an Abating Aggregation Operator in Many-Valued Logic [#8]
Adrien Revault d'Allonnes and Marie-Jeanne Lesot
LIASD - Paris 8 University, France; LIP6 - Sorbonne University, France
- 3:03PM On obtaining Consensus Institute Rankings through Average Fuzzy Preference Aggregation [#226]
Sheikh Amanur Rahman, Md. Muzakkir Hussain and M. M. Sufyan Beg
Aligarh Muslim University, India
- 3:21PM The OWAWA operator with bonferroni means [#37]
Fabio Blanco-Mesa, Ernesto Leon-Castro and Jose M. Merigo
Universidad Pedagogica y Tecnologica de Colombia, Colombia; Universidad Catolica de la Santisima Concepcion, Chile; Universidad de Chile, Chile
- 3:39PM SENFIS - Selected Ensemble of Fuzzy Inference Systems [#189]
Errison Alves, Ricardo Tanscheit and Marley Vellasco
Pontifical Catholic University of Rio de Janeiro, Brazil
- 3:57PM An interval type-2 fuzzy MABAC group decision making approach based on non-additive fuzzy measure [#40]
Yingying Liang and Jindong Qin
School of Management, Wuhan University of Technology, China

Special Session SS6-2: Fuzzy Logic for Security and Forensics

Wednesday, June 26, 2:45PM-4:15PM, Room: FRONTENAC, Chair: TBD

- 2:45PM Dendritic Cell Algorithm Enhancement Using Fuzzy Inference System for Network Intrusion Detection [#280]
Noe Elisa, Longzhi Yang, Xin Fu and Nitin Naik
Northumbria University, United Kingdom; Xiamen University, China; Ministry of Defense, United Kingdom
- 3:03PM Adaptive Activation Function Generation for Artificial Neural Networks through Fuzzy Inference with Application in Grooming Text Categorisation [#287]
Zheming Zuo, Jie Li, Bo Wei, Longzhi Yang, Fei Chao and Nitin Naik
Northumbria University, United Kingdom; Aberystwyth University, United Kingdom; Ministry of Defense, United Kingdom

- 3:21PM An Intelligent Online Grooming Detection System Using AI Technologies [#325]
Philip Anderson, Zheming Zuo, Longzhi Yang and Yanpeng Qu
Northumbria University, Great Britain; Dalian Maritime University, China
- 3:39PM Fuzzy Rough Set Feature Selection to Enhance Phishing Attack Detection [#267]
Mahdiah Zabihimayvan and Derek Doran
Wright State University, United States
- 3:57PM A Real-Time Fuzzy Learning Algorithm for Markov Chain and Its Application on Prediction of Vehicle Speed [#316]
Qingyu Zhang, Dimitar Filev, Steven Szwabowski and Reza Langari
Texas A-M University, United States; Ford Motor Company, United States

Special Session SS13: Adaptive Fuzzy Control for Nonlinear Systems

Wednesday, June 26, 2:45PM-4:15PM, Room: ORLEANS, Chair: TBD

- 2:45PM A Fuzzy Genetic System for Resilient Routing in Uncertain And Dynamic Telecommunication Networks [#113]
Lewis Veryard, Hani Hagras, Andrew Starkey and Gilbert Owusu
University of Essex, United Kingdom; British Telecom, United Kingdom
- 3:03PM Towards an Adaptive Control Strategy Based on Type-2 Fuzzy Logic for Autonomous Mobile Robots [#312]
Felizardo Cuevas, Oscar Castillo and Prometeo Cortes-Antonio
Tijuana Institute of Technology, Mexico
- 3:21PM Finite frequency state feedback controller design for T-S fuzzy continuous systems [#55]
Abderrahim El-Amrani, Ahmed El Hajjaji, Ismail Boumhidi and Abdelaziz Hmamed
USMBA, Morocco; University of Picardie Jules Verne, France
- 3:39PM Fuzzy Discrete Event Systems with Gradient-Based Online Learning [#109]
Hao Ying, Feng Lin and Robert Sherwin
Wayne State University, United States

Session CWW: Computing with Words

Wednesday, June 26, 2:45PM-4:15PM, Room: ST CLAUDE, Chair: TBD

- 2:45PM Linguistic optimization problems: solution methodology using perceptual reasoning [#186]
Prashant Gupta and Pranab Muhuri
South Asian University, India
- 3:03PM Computing with words for multi-objective linguistic optimization problems [#204]
Prashant Gupta, Rahul Nath and Pranab Muhuri
South Asian University, India
- 3:21PM A Linguistic Decision Making Model for Psychometric Tests [#208]
Taniya Seth, Prashant Gupta and Pranab Muhuri
South Asian University, India
- 3:39PM A Study on the Interpretability of a Fuzzy System to Control an Inverted Pendulum [#223]
Bahadır Zeren, Muhammet Deveci, Simon Coupland, Robert John and Ender Ozcan
University of Nottingham, United Kingdom; De Montfort University, United Kingdom
- 3:57PM On Comparing and Selecting Approaches to Model Interval-Valued Data as Fuzzy Sets [#114]

Josie McCulloch, Zack Ellerby and Christian Wagner
University of Nottingham, United Kingdom

Session RS: Rough Sets

Wednesday, June 26, 2:45PM-4:15PM, Room: ST. JEROME, Chair: TBD

- 2:45PM Attribute Reduction for Fuzzy Relation Decision Systems on Two Universal Sets [#44]
Qianchen Li and Zheng Hua
School of Information Science, Beijing Language and Culture University, China
- 3:03PM How to Merge Opinions by using Operations between Sequences of Orthopairs [#237]
Stefania Boffa and Brunella Gerla
University of Insubria, Italy
- 3:21PM Exploiting Relevant Context with Soft-Rough sets in Context-Aware video recommender systems [#317]
Syed Manzar Abbas and Khubaib Amjad Alam
National University of Computer and Emerging Sciences, Pakistan
- 3:39PM Effective Instance Selection Using the Fuzzy-Rough Lower Approximation [#93]
Richard Jensen, Mehran Amiri and Neil Mac Parthalain
Aberystwyth University, United Kingdom; Universitat Hildesheim, Germany
- 3:57PM Strong law of large numbers for random variables valued by gradual numbers and closed intervals of gradual numbers [#165]
Michal Holcapek and Tomas Tichy
University of Ostrava, Czech Republic; TU-VSB Ostrava, Czech Republic

Session MFI-4: Medical, Financial, Industrial

Wednesday, June 26, 4:45PM-6:15PM, Room: CONDE, Chair: TBD

- 4:45PM A Novel Weighted Combination Method for Feature Selection using Fuzzy Sets [#131]
Zixiao Shen, Xin Chen and Jonathan Garibaldi
University of Nottingham, United Kingdom
- 5:03PM A Novel Approach for Personalized Itinerary Search Based on Fuzzy Ontologies [#148]
Hajer Baazaoui-Zghal and Ghada Besbes
Riadi Laboratory, ENSI, Campus Universitaire de la Manouba, Tunisia, Tunisia
- 5:21PM Credit Score Modeling of Indonesian Micro, Small and Medium Enterprises Using Neuro-Fuzzy Algorithm [#282]
Felix Pasila
Petra Christian University, Indonesia
- 5:39PM Using hybrid systems in the construction of expert systems in the identification of cognitive and motor problems in children and young people [#92]
Paulo Vitor Campos Souza, Amanda G. dos Reis, Gabriela R Rocha Marques, Augusto Junio Guimaraes, Vinicius Jonathan Silva Araujo, Vanessa Souza Araujo, Thiago Silva Rezende, Lucas Oliveira Batista and Gabriel Adriano da Silva
CEFET-MG, UNA Betim and UNI-BH, Brazil; UNA Contagem, Brazil; Una Betim, Brazil; UNA Betim, Brazil
- 5:57PM Fuzzy Multi-Constraint Programming Model for Weekly Meals Scheduling [#151]
Mary Tom

Central Queensland University, Australia

Session FR: Fuzzy Robotics

Wednesday, June 26, 4:45PM-6:15PM, Room: FRONTENAC, Chair: TBD

- 4:45PM Fuzzy Approximated Optimal Trajectory Tracking of A Marine Vessel: Reinforcement Learning Approach [#67]
Xiaolei Li, Meng Joo Er, Shun-Feng Su and Ning Wang
Nanyang Technological University, Singapore; National Taiwan University of Science and Technology, Taiwan; Dalian Maritime University, China
- 5:03PM Real-Time Mamdani-type Fuzzy Maneuvering Control of a Differential-Drive Mobile Robot [#278]
Thiago Ushikoshi, Rafael Nascimento, Pedro Coutinho, Thiago Chagas, Leizer Schnitman and Eduardo Palmeira
Universidade Estadual de Santa Cruz, Brazil; Universidade Federal de Minas Gerais, Brazil; Universidade Federal da Bahia, Brazil
- 5:21PM A Study on Solving the Inverse Kinematics of Serial Robots using Artificial Neural Network and Fuzzy Neural Network [#311]
Jacket Demby's, Yixiang Gao and Guilherme DeSouza
University of Missouri-Columbia, United States
- 5:39PM Development of Guide Robot that Lead and Consider Following User [#198]
Arakawa Toshiya and Kubota Naoyuki
Tokyo Metropolitan University, Japan

Session FAPP: Fuzzy Applications

Wednesday, June 26, 4:45PM-6:15PM, Room: ORLEANS, Chair: TBD

- 4:45PM State Detection of Switch Cabinet Based on Multi-sensor Information Fusion [#98]
Lijun Lv, Kai Gao, Hua Huang, Gangjie Zhou, Xinlei Qiao and Lijun Jin
College of Electronics and Information Engineering, Tongji University, China; State Grid Shanghai Electric Power Research Institute, State Grid Shanghai Municipal Electric Power Company, China
- 5:03PM Modelling of Hot Rolling in Metal Forming using an Interval Type-2 Fuzzy Extreme Learning Machine [#202]
Adrian Rubio-Solis, George Panoutsos, Ali Baraka and Tim Walker
University Of Sheffield, United Kingdom; University of Sheffield, United Kingdom; British Steel, United Kingdom
- 5:21PM D-FRI-CiscoFirewall: Dynamic Fuzzy Rule Interpolation for Cisco ASA Firewall [#141]
Nitin Naik, Changjing Shang, Qiang Shen and Paul Jenkins
Ministry of Defence, United Kingdom; Dept. of Computer Science, Faculty of Business and Physical Sciences, Aberystwyth University, United Kingdom

Session FA-3: Fuzzy Algorithms

Wednesday, June 26, 4:45PM-6:15PM, Room: ST CLAUDE, Chair: TBD

- 4:45PM Dynamic Output Feedback Control of Nonlinear Cyber-Physical Systems under DoS Attacks: A T-S Fuzzy Resilient Control Approach [#72]

Chao Deng, Meng Joo Er and Ning Wang

Nanyang Technological University, Singapore; Dalian Maritime University, China

- 5:03PM Soil Erosion Rate Prediction using Adaptive Neuro-Fuzzy Inference System (ANFIS) and Geographic Information System (GIS) of Wadi Sahel-Soummam Watershed (Algeria) [#101]

Messaoud Djeddou, Ibrahim A. Hameed and Elhadj Mokhtari

Research Laboratory in Subterranean and Surface Hydraulics (LARHYSS), Faculty of Sciences and Technology, Mohamed Khider University of Biskra, Algeria. PO box 145 RP, 07000 Biskra, Algeria., Algeria; Department of ICT and Natural Sciences, Faculty of Information Technology and Electrical Engineering, Norwegian University of Science and Technology (NTNU), Postboks 1517, 6025 Alesund, Norway, Norway; Department of Hydraulic, Faculty of Technology, University of M'sila, M'Sila, Algeria., Algeria

- 5:21PM Gene-Promoter-Sequence Recognition - an Interpretable and Accurate Fuzzy-Genetic Approach [#73]

Marian B. Gorzalczyk and Filip Rudzinski

Kielce University of Technology, Department of Electrical and Computer Engineering, Poland

- 5:39PM Hierarchical Attention-based Fuzzy Neural Network for Subject Classification of Power Customer Service Work Orders [#145]

Gangjie Zhou, Lijun Lv, Xinlei Qiao and Lijun Jin

Tongji University, China

Session FLFS4: Fuzzy Logic and Fuzzy Sets

Wednesday, June 26, 4:45PM-6:15PM, Room: ST. JEROME, Chair: TBD

- 4:45PM Modeling and control of nonlinear systems using an interactive software: A T-S fuzzy approach [#249]

Michael Klug and Luis Filipe Pereira Silva

Federal Institute of Santa Catarina - IFSC, Brazil; Federal Center for Technological Education - CEFET, Brazil

- 5:03PM The Natural Transformations with Fuzzified Commutativity [#293]

Krystian Jobczyk and Patryk Galczynski Patryk

AGH University of Technology, Poland

- 5:21PM A debris removal plan for emergency response minimizing cost and time under Neutrosophic environment [#140]

Deepshikha Sarma, Amrit Das and Uttam Kuamr Bera

NIT Agartala, India; VIT CHENNAI, India; NIT Agrtala, India

- 5:39PM Compatibility-Based Evidential Reasoning [#327]

Mohammad Reza Rajati

University of Southern California, United States

- 5:57PM A Novel Framework of Fuzzy Rule Interpolation for Takagi-Sugeno-Kang Inference Systems [#64]

Pu Zhang and Qiang Shen

Aberystwyth University, United Kingdom

Poster Session and Late Breaking Research

Tuesday, June 25, 10:40AM-12:00PM, Room: ILE DE FRANCE Ballroom, Chair: TBD

- P101 Operations on Hybrid Linguistic Representations [#51]
Xingli Wu, Huchang Liao and Abdullah Al-Barakati
Business School, Sichuan University, China; King Abdulaziz University, Saudi Arabia
- P102 Reachable Estimation and Compensation Boundaries for the Large-Scale Interconnected Fuzzy Systems [#45]
Zhixiong Zhong, Hao Ying, Zhijie Huan, Wenzhong Lin and Xingyi Wang
Minjiang University, China; Wayne State University, United States; Xiamen University of Technology, China
- P103 Bid evaluation for contractor selection using ELECTRE III with complex linguistic evaluations [#205]
Zhen-Song Chen, Xuan Zhang, Sheng-Hua Xiong, Wen-Tao Kong, Kwai-Sang Chin and Martinez Luis
Wuhan University, China; Civil Aviation Flight University of China, China; City University of Hong Kong, Hong Kong; University of Jaen, Spain
- P104 Mutational Intuitionistic Fuzzy Venture Group [#31]
Fan Chuan-qiang and Liu Feng
Liaoning Shihua University, China; Northeastern University, China
- P105 Evidential reasoning with linguistic belief structures [#258]
Huchang Liao, Ran Fang, Jian-Bo Yang and Dong-Ling Xu
Sichuan University, China; University of Manchester, United Kingdom
- P106 On Representation of Seminormed Integral Using Level Dependent Boolean Capacities [#133]
Jana Borzova, Lenka Halcinova and Ondrej Hutnik
Institute of Mathematics, Pavol Jozef Safarik University in Kosice, Slovakia
- P107 Switching Motion Control of the Climbing Robot for Aircraft Skin Inspection [#135]
Congqing Wang, Jiayue Gu and Zhiyu Li
Nanjing University of Aeronautics and Astronautics, China
- P108 Dynamic Scaling Adaptive Fuzzy Output Feedback Control of Nonstrict-Feedback Systems [#52]
Jeng-Tze Huang and Yu-Cheung Law
Chinese Culture University, Taiwan; Chinese Culture University, Hong Kong
- P109 Allocation of Information Granularity: A Multi-Objective Evolutionary Optimization Using Conflict Information [#171]
Xingchen Hu, Huangke Chen, Chao Chen, Boliang Sun, Jincai Huang and Kuihua Huang
College of Systems Engineering, National University of Defense Technology, China
- P110 Application of Information Sets in Accommodation Preferences of Fresh Graduates [#169]
Manish Aggarwal and Madasu Hanmandlu
IIM Ahmedabad, India; MVSR Engineering College, India
- P111 Comparison between Composite Index Solution Surfaces with Fuzzy Composite Index Decision Surfaces [#192]
J. Ruben G. Cardenas, Angela Nebot and Francisco Mugica
Understanding and Managing Extremes School, Italy; Universitat Politcnica de Catalunya (UPC-BarcelonaTech), Spain
- P112 Exploring the Impact of Evolutionary Computing based Feature Selection in Suicidal Ideation Detection [#54]

- Ramit Sawhney, Rajiv Ratn Shah, Vedant Bhatia, Chin-Teng Lin, Sagar Aggarwal and Mukesh Prasad
 Netaji Subhas Institute of Technology, India; MIDAS IIIT-D, India; IIIT-D, India; FEIT, University of Technology Sydney, Australia
- P113 Charting Perceptual Spaces with Fuzzy Rules [#212]
 Ivan Paz, Angela Nebot, Romero Enrique and Francisco Mugica
 Universitat Politecnica de Catalunya, Spain
- P114 A Choquet Fuzzy Integral Vertical Bagging Classifier for Mobile Telematics Data Analysis [#86]
 Mohammad Siami, Mohsen Naderpour and Jie Lu
 University of Technology Sydney, Australia
- P115 Comparison of Time Series Approaches applied to Greenhouse Gas Analysis: ANFIS, RNN, and LSTM [#66]
 Simone Ludwig
 North Dakota State University, United States
- LB2 Approaches to multimodal sensor fusion of HSI and LiDAR using fuzzy logic
 Elizabeth Gilmour, Kristen Nock
- LB3 On Fuzzy Features of Sound Mass and Perception of Soundscapes
 David Heise, Jason Noble
- LB4 Ontology-based FML Agents for Real World; Applications on Robotic Edutainment and Co-Learning
 Chang-Shing Lee, Yi-Lin Tsai, Mei-Hui Wang, Rin-Pin Chang, Naoyuki Kubota
- LB5 Principle Component Analysis of Foods Nutrition Science
 Mason Chen
- LB6 The Effects of the And-Or Operators in a Fuzzy Controllers Applied to a Plant With and Without Uncertainties
 Eduardo Gomez-Ramirez, Julio C. Cortes-Rios, Hector A. Ortiz-de-la-Vega, Elba P. Melin-Olmeda & Oscar Castillo-Lopez
- LB7 Fuzzy Logic-Based Fusion of Deep Learners in Remote Sensing
 Blake Ruprecht, Charlie Veal, Bryce Murray, Derek Anderson, Fred Petry, James Keller, Grant Scott, and Curt Davis
- LB8 The Choquet Integral Neuron, Its PyTorch Implementation, and Application to Decision Fusion
 Muhammad Aminul Islam, Derek Anderson, Anthony Pinar, Timothy Havens, Grant Scott, and James Keller
- LB9 Fuzzy Aggregation of Deep Networks in Real Time on a NVIDIA Jetson Platform
 Charlie Veal, Bryce Murray, Grant Scott, James Keller, Dominic Ho, Mihail Popescu, Derek Anderson
- LB10 Development of a Fuzzy-Functional Health Index for Older Adults using Geriatric Assessments
 Anup K. Mishra, Marjorie Skubic, Mihail Popescu, James Keller, Andrew Buck, Laurel A. Despina, Marilyn Rantz, and Kari Lane
- LB11 Interactive Consumer Interface Design for Older Adults Using Fuzzy-Based Linguistic Summaries
 Shradha Shalini, Amanda Hill Akshay Jain, Marjorie Skubic, James M Keller
- LB12 Linguistic summaries as explanation mechanism for clustering results
 Anna Wilbik, and Remco Dijkman