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Indian Institute of Technology Guwahati, India; Hanyang University, Korea (South)

Poster2: FUZZIEEE Poster 2
Tuesday, July 10, 4:10PM-6:30PM
Europa II
Session Chair(s): Bernadete Ribeiro

Evolving Methodology in Unobservable Components Space for Multivariate Time Series Forecasting *762*
Selmo Rodrigues Junior and Ginalber Serra
IFMA, Brazil

A Soft Computing Fusion for River Flow Time Series Forecasting *770*
Thanh Nguyen, Ngoc Duy Nguyen, Saeid Nahavandi, Syed Moshfeq Salaken and Amin Khatami
Deakin University, Australia

A Proposal by Using Fuzzy Vectors on the Study of Complex-Valued Channel Quantization *777*
Ricardo Watanabe, Cibele Trinca Watanabe and Estevao Esmi Laureano
IMECC - UNICAMP, Brazil; FEEC - UNICAMP, Brazil

Wrapper-Based FIR Model Identification for Imbalance Data Classification *784*
Solmaz Bagherpour, Angela Nebot and Francisco Mugica
Universitat Politecnica de Catalunya (UPC-BarcelonaTech), Spain

Clustering with Minimum Spanning Tree using TOPSIS with Multi-Criteria Information *792*
Jose Esgario and Renato Krohling
Federal University of Espirito Santo, Brazil

Desired Compensation Based Adaptive Fuzzy Control for Hypersonic Vehicle with Measurement Noises *799*
Yifan Liu, Jianqiang Yi and Zhiqiang Pu
Institute of Automation, Chinese Academy of Sciences, China

T31: Linguistic Summarization and Description of Data
Tuesday, July 10, 4:30PM-6:30PM
Galapagos I
Session Chair(s): Anna Wilbik and Marie-Jeanne Lesot

Linguistic Summaries for Compliance Analysis of a Glucose Management Clinical Protocol *806*
Anna Wilbik, Irene Vanderfeesten, Dennis Bergmans, Serge Heines and Walther van Mook
TU/e, Netherlands; MUMC+, Netherlands

An Approximation to Context-Aware Size Modeling for Referring Expression Generation *813*
Nicolas Marin, Gustavo Rivas-Gervilla and Daniel Sanchez
University of Granada, Spain

Generating Textual Descriptions for Recommendation Results using Fuzzy Linguistic Summaries *821*
Szymon Lukasik, Mateusz Smet and Jaroslaw Krolewski
AGH University of Technology; Systems Research Institute, Polish Academy of Sciences; Synerise, Poland; AGH University of Technology, Poland; Synerise, Poland

T32: Robotics and Autonomous Systems
Tuesday, July 10, 4:30PM-6:30PM
Galapagos II
Session Chair(s): Rainer Palm and Thiago Chagas

Fuzzy logic and control in Human-Robot Systems - geometrical and kinematic considerations *827*
Rainer Palm and Achim Lilienthal
Oerebro University, Sweden

Trajectory Tracking Control Based in Fuzzy Concepts *835*
Luiz Henrique Lopes de Almeida and Renato Aguiar
Centro Universitario FEI, Brazil

Group of Robots Inspired by Swarm Robotics Exploring Unknown Environments *842*
Patrick Prieto Soares, Lucas Botoni de Souza, Marcio Mendonca, Rodrigo H. C. Palacios and Jooo Paulo Lima Silva de Almeida
Federal University of Technology - Parana (UTFPR), Brazil; Federal University of Technology - Parana, Brazil; Federal Institute of Parana, Brazil

Fuzzy Maneuvering Controller applied to a Dynamic Model of a Differential Drive Mobile Robot *849*
Thiago de Almeida Ushikoshi, Kamilla Pereira Peixoto, Filipe Hamdan Sampaio Souto, Thiago Pereira das Chagas and Leizer Schnitman
Universidade Estadual de Santa Cruz, Brazil; Universidade Federal da Bahia, Brazil

Indoor RSSI-based Localization using Fuzzy Path Loss Models *857*
Simon Tomazic and Igor Skrjanc
Faculty of Electrical Engineering, University of Ljubljana, Slovenia

T33: Fuzzy Systems for Data Mining
Tuesday, July 10, 4:30PM-6:30PM
Galapagos III
Session Chair(s): Mikel Galar and Alberto Fernandez

Extracting Rules for Black Jack Using Machine Learning and Fuzzy Systems *865*
Karla Cardoso, Marcos Cintra and Marcio Basgalupp
Fed. Territorial Univ. of the Semi-Arid, Brazil; Federal University of Sao Paulo, Brazil

Fuzzy Aggregation for Rule Selection in Imbalanced Datasets Classification using Choquet Integral *871*
Safa Abdellatif, Mohamed Ali Ben Hassine, Sadok Ben Yahia and Amel Bouzeghoub
University of Tunis El Manar, Faculty of Sciences of Tunis, LIPAH-LR11ES14, El Manar - 2092, Tunis, Tunisia; Institut Mines-TELECOM, TELECOM SudParis, UMR CNRS Samovar, 91011, Evry Cedex, France

An Approach for Extracting Frequent (Closed) Gradual Patterns Under Temporal Constraint *878*
Jerry Lonlac, Yannick Miras, Aude Beauger, Vincent Mazenod, Jean-Luc Peiry and Engelbert Mephu Nguifo
CRIL CNRS,UMR 8188, University Lille-Nord de France, Lens, France, France; HNHP, Musum National d'Histoire Naturelle, UMR 7194, France; CNRS, UMR 6042, GEOLAB, University Clermont Auvergne, Clermont-Ferrane, France; CNRS, UMR 6158, LIMOS, University Clermont Auvergne, AUBIERE, France, France

Optimal Feature Selection using Fuzzy Combination of Feature Subset for Transcriptome Data *886*
Vikas Singh, Harsh Vardhan, Nishchal K Verma and Yan Cui
IIT Kanpur, India; University of Tennessee, USA, United States

WEDNESDAY, JULY 11

W11: Interpretable Artificial Intelligence and Fuzzy Inference
Wednesday, July 11, 8:00AM-10:00AM
Galapagos I
Session Chair(s): Luis Magdalena and Valerie Cross

Designing Interpretable Hierarchical Fuzzy Systems *894*
Luis Magdalena
Universidad Politecnica de Madrid, Spain

Comparing Similarity and Distance Based Fuzzy Inferencing Methods *902*
Valerie Cross, Valeria Mokrenko and Shangye Chen
Miami University, United States

Smart Fuzzy Cupper: Employing approximate reasoning to derive coffee bean quality scoring from individual attributes *910*
Javier Livio, Wilfredo Flores, Rania Hodhod and David Umphress
Author, United States; Coauthor, Honduras; Coauthor, United States

End-to-End Hierarchical Fuzzy Inference Solution *917*
Begum Mutlu, Ebru A. Sezer and M. Ali Akcayol
Gazi University, Turkey; Hacettepe University, Turkey

A Big-Bang Big-Crunch Type-2 Fuzzy Logic System for Generating Interpretable Models in Workforce Optimization *926*
Ravikiran Chimatapu, Hani Hagras, Andrew Starkey and Gilbert Owusu
University of Essex, United Kingdom; British Telecom, United Kingdom

Learning Fuzzy Relations and Properties for Explainable Artificial Intelligence *934*
Regis Pierrard, Jean-Philippe Poli and Celine Hudelot
CEA, France; CentraleSupelec, France

W12: Decision Analysis
Wednesday, July 11, 8:00AM-10:00AM
Galapagos II
Session Chair(s): Rita Ribeiro and Skander Abdallah

Continuous Reinforcement Operator applied to Resilience in Disaster Rescue Networks *942*
Javad J. Jassbi, Rita A. Ribeiro, Luis M. Camarinha-Matos, Jose Barata and Maria Isabel Gomes
UNINOVA CTS, Portugal; FCT- Nova University, Portugal

Fuzzy Volatility Effect on Major Projects Timing *948*
Skander Ben Abdallah and Issam Kouatli
University of Quebec at Montreal, Canada; Lebanese American University, Lebanon

Application of Fuzzy Systems in Power Quality: Diagnosis of Total Harmonic Distortions *954*
Diego Nolasco, Denis Alves, Flavio Costa, Eduardo Palmeira, Ricardo Ribeiro and Evandro Nunes
Federal University of Rio Grande do Norte, Brazil; State University of Santa Cruz, Brazil

On Quantitative Interpretation of Fuzzy Quantified Propositions for User Preference Handling *960*
Nouredine Tamani and Yacine Ghamri-Doudane
L3i university of La Rochelle, France

FDA - Fuzzy Decision Analyzer *967*
Radomir Perzina, Ramik Jaroslav and Mielcova Elena
Silesian University in Opava, School of Business Administration, Czech Republic

A novel approach for student performance evaluation using consistency driven linguistic methodology *974*
Prashant Gupta and Pranab Muhuri
South Asian University, India

W13: Cyber Security and Mobility
Wednesday, July 11, 8:00AM-10:00AM
Galapagos III
Session Chair(s): Francesco Mercaldo and Mario Bernardi

An Ensemble Fuzzy Logic Approach to Game Bot Detection through Behavioural Features *981*
Mario Luca Bernardi, Marta Cimitile, Fabio Martinelli and Francesco Mercaldo
Giustino Fortunato University, Italy; Unitelma Sapienza, Roma, Italy, Italy; National Research Council of Italy, Italy

A Novel Structural Entropy based Classification Technique for Supporting Android Ransomware Detection and Analysis *989*
Alfredo Cuzzocrea, Fabio Martinelli and Francesco Mercaldo
University of Trieste - ICAR-CNR, Italy; National Research Council of Italy, Italy

Not so Crisp, Malware! Fuzzy Classification of Android Malware Classes *996*
Francesco Mercaldo and Andrea Saracino
IIT-CNR, Italy

Online Spatio-Temporal Fuzzy Relations *1003*
Jean-Philippe Poli, Laurence Boudet and Jean-Marie Le Yaouanc
CEA, France

Handling Uncertainty and Vagueness in Network Knowledge Representation for Cyberthreat Intelligence *1011*
Leslie F. Sikos
University of South Australia, Australia

W21: Fuzzy Interpolation and Rule-Based Systems
Wednesday, July 11, 2:10PM-4:10PM
Galapagos I
Session Chair(s): Laszlo Koczy and Qiang Shen

F-transform-Based Optimization for Image Restoration (Inpainting) *1017*
Irina Perfilieva
IRAFM, Czech Republic

On Combining Fuzzy C-Regression Models and Fuzzy C-Means with Automated Weighting of the Explanatory Variables *1023*
Ricardo A. M. da Silva and Francisco de A. T. de Carvalho
Universidade Federal de Pernambuco, Brazil

Interval Type-2 TSK+ Fuzzy Inference System *1031*
Jie Li, Longzhi Yang, Xin Fu, Fei Chao and Yanpeng Qu
Northumbria University, United Kingdom; Xiamen University, China; Dalian Maritime University, China

Feature Ranking-Guided Fuzzy Rule Interpolation for Mammographic Mass Shape Classification *1039*
Fangyi Li, Changjing Shang, Ying Li and Qiang Shen
Aberystwyth University, United Kingdom; Northwestern Polytechnical University, China

The effect of image feature qualifiers on fuzzy colorectal polyp detection schemes using KH interpolation - towards hierarchical fuzzy classification of coloscopic still images *1046*
Szilvia Nagy, Brigita Sziova and Laszlo T Koczy
Szechenyi Istvan University, Hungary; Szechenyi Istvan University, Budapest University of Technology and Economics, Hungary

Quantum Implementation of Fuzzy Systems through Grover's Algorithm *1053*
Giovanni Acampora, Federico Luongo and Autilia Vitiello
University of Naples Federico II, Italy; University of Salerno, Italy

W22: Fuzzy Neural Networks and Deep Learning
Wednesday, July 11, 2:10PM-4:10PM
Galapagos II
Session Chair(s): Anca Ralescu and Uzay Kaymak

Adaptive hierarchical sliding mode control based on fuzzy neural network for an underactuated system *1061*
Xiaorong Huang, Anca Ralescu, Hongli Gao and Juan Wen
Southwest Jiaotong of University, China; University of Cincinnati, United States

Towards More Specific Estimation of Membership Functions for Data-Driven Fuzzy Inference Systems *1068*
Caro Fuchs, Anna Wilbik and Uzay Kaymak
Eindhoven University of Technology, Netherlands

A Sparse Bayesian Model for Random Weight Fuzzy Neural Networks *1076*
Rosa Altilio, Antonello Rosato and Massimo Panella
University of Rome La Sapienza, Italy

Modified Convolutional Neural Network based on Adaptive Patch Extraction for Hyperspectral Image Classification *1083*
Maissa Hamouda, Karim Saheb Ettabaa and Med Salim Bouhlel
SETIT, Tunisia; IMT ATLANTIQUE, France

A TOPSIS Multi-Criteria Decision Method-Based Function-Link Fuzzy CMAC Control System Design for Uncertain Nonlinear Systems *1090*
Chih-Min Lin, Tuan-Tu Huynh and Ching-Chih Tsai
Yuan Ze University, Taiwan; National Chung-Hsing University, Taiwan

W23: Fuzzy Brain Analysis and Interfaces
Wednesday, July 11, 2:10PM-4:10PM
Galapagos III
Session Chair(s): Mukesh Prasad and Javier Andreu

Sustained Attention Driving Task Analysis based on Recurrent Residual Neural Network using EEG Data *1097*
Yurui Ming, Yu-Kai Wang, Mukesh Prasad, Dongrui Wu and Chin-Teng Lin
Centre for Artificial Intelligence, School of Software, FEIT, University of Technology Sydney, Australia; DataNova LLC, NY, United States

A Fuzzy Genetic Algorithm for Optimal Spatial Filter Selection for P300-Based Brain Computer Interfaces *1103*
David Achanccaray, Christian Flores, Christian Fonseca and Javier Andreu-Perez
Tohoku University, Japan; University of Engineering and Technology, Peru; University of Essex, United Kingdom

P-300 and N-400 Induced Decoding of Learning-Skill of Driving Learners Using Type-2 Fuzzy Sets *1109*
Lidia Ghosh, Amit Konar, Pratyusha Rakshit, Sricheta Parui, Anca L. Ralescu and Atulya K. Nagar
Jadavpur University, India; University of Cincinnati, United States; Liverpool Hope University, United Kingdom

Hemodynamic Response Analysis for Mind-Driven Type-writing Using a Type 2 Fuzzy Classifier *1117*
Mousumi Laha, Amit Konar, Pratyusha Rakshit, Lidia Ghosh, Susmita Chaki, Anca L. Ralescu and Atulya K. Nagar
Jadavpur University, India; University of Cincinnati, United States; Liverpool Hope University, United Kingdom

W31: Human Symbiotic Systems
Wednesday, July 11, 4:30PM-6:30PM
Galapagos I
Session Chair(s): Tomohiro Yoshikawa and Yoichiro Maeda

Effect of Sympathy Expression Methods by Educational-Support Robot using Facial Expression and Body Motion in Long Term Experiment *1125*
Yuhei Tanizaki, Felix Jimenez, Tomohiro Yoshikawa, Takeshi Furuhashi and Masayoshi Kanoh
Graduate School of Engineering Nagoya University, Japan; Engineering Chukyo University, Japan

Sympathy-Expression Method for Educational-Support Robots Based on Writing Times *1131*
Kenshi Ota, Felix Jimenez, Tomohiro Yoshikawa and Takeshi Furuhashi
Graduate School of Engineering Nagoya University, Japan

Effect of Educational-Support Robot Based on Cognitive Apprenticeship Theory *1137*
Kenya Miyauchi, Felix Jimenez, Tomohiro Yoshikawa and Takeshi Furuhashi
Graduate School of Engineering Nagoya University, Japan

Correcting Pointing Position of Fingers by Using Inclusion-Exclusion Integral *1143*
Yuya Aikawa, Kento Motoyama, Masayoshi Kanoh, Tsuyoshi Nakamura and Yoshikazu Yano
Chukyo University, Japan; Nagoya Institute of Technology, Japan; Aichi Institute of Technology, Japan

Human-Robot Interaction Experiment Based on Markovian Emotional Model *1147*
Yoichiro Maeda
Ritsumeikan University, Japan

W32: Fuzzy Technologies for Web Intelligence and Internet of Things
Wednesday, July 11, 4:30PM-6:30PM
Galapagos II
Session Chair(s): Marek Reformat and Christian Wagner

Multi-level Processing of Sensory Data with Evidence Theory *1153*
Marek Z. Reformat, Ronald R. Yager and Majid RobatJazi
University of Alberta, Canada; Iona College, United States

Fuzzy Logic As-a-Service for Ambient Intelligence Environments *1159*
Amir Pourabdollah, Christian Wagner, Giovanni Acampora and Ahmad Lotfi
Nottingham Trent University, United Kingdom; University of Nottingham, United Kingdom; University of Naples Federico II, Italy

Ontology-based Adaptive e-Textbook Platform for Student and Machine Co-Learning *1166*
Noel Nuo Wi Tay, Sheng-Chi Yang, Chang-Shing Lee and Naoyuki Kubota
Center for Research of Knowledge Application and Web Service, National University of Tainan, Taiwan; Dept. of Computer Science and Information Engineering, National University of Tainan, Taiwan; Graduate School of System Design, Tokyo Metropolitan University, Japan

Automatic Address Aassigning Problem in Smart Homes *1173*
David Sec, Dalibor Cimr, Jan Stepan, Richard Cimler and Jitka Kuhnova
Faculty of Informatics and Management, University of Hradec Kralove, Czech Republic; Faculty of Science, University of Hradec Kralove, Czech Republic

W33: Fuzzy Systems on Renewable Energy and Smart Grid
Wednesday, July 11, 4:30PM-6:30PM
Galapagos III
Session Chair(s): Marco Mussetta and Francesco Grimaccia

Modeling and Performance Evaluation of a Fuzzy Logic Controller for Buck-Boost DC/DC Converters *1179*
Minh Quan Duong, Kim Hung Le, Grimaccia Francesco, Leva Sonia and Mussetta Marco
University of Da Nang, Viet Nam; Politecnico di Milano, Italy

A Robust Predictive Control Strategy for Building HVAC Systems Based on Interval Fuzzy Models *1186*
Oscar Cartagena, Diego Munoz-Carpintero and Doris Saez
University of Chile, Chile

Uncertainty management for classification and benchmarking of energy-use preference profiles *1194*
Camilo Franco, Kurt Nielsen and Pieter Kerstens
Andes University, Colombia; Copenhagen University, Denmark

Comparison of Three Techniques for Maximum Power Point Tracking of Solar PV *1202*
Arnold Sagonda and Komla Agbenyo Folly
University of Cape Town, South Africa

Th11: Modeling and Control
Thursday, July 12, 8:00AM-10:00AM
Galapagos I
Session Chair(s): Marcelo Minhoto and Qianying Chen

On Switched Control of Discrete-Time Takagi-Sugeno Fuzzy Systems with Unknown Membership Functions *1210*
Diogo Ramalho de Oliveira, Gilberto Rodrigues dos Santos, Marcelo Carvalho Minhoto Teixeira, Edvaldo Assuncao, Rodrigo Cardim and Uiliam Nelson Lendzion Tomaz Alves
IFMS - Federal Institute of Education, Science and Technology of Mato Grosso do Sul, Campus of Tres Lagoas, Brazil; UFMS - Federal University of Mato Grosso do Sul, Campus of Pantanal, Brazil; UNESP - Sao Paulo State University, School of Engineering, Department of Electrical Engineering, Ilha Solteira, Brazil; IFPR - Federal Institute of Education, Science and Technology of Parana, Campus of Jacarezinho, Brazil

Entropy Fuzzy System Identification for the Dynamics of the Dragonfly-like Flapping Wing Aircraft *1218*
Fendy Santoso, Matthew Garratt, Sreenatha Anavatti and Osama Hassanein
The University of New South Wales, Australia; Abu Dhabi Polytechnic, United Arab Emirates

A Novel Takagi-Sugeno Fuzzy System Modeling Method with Joint Feature Selection and Rule Reduction *1226*
Lin Defu, Wang Jun, Zhu Jihua, Wang Yifan, Li Weiwei, Jiang Yizhang, Deng Zhaohong and Wang Shitong
School of Digital Media, Jiangnan University, China; School of Software Engineering, Xi'an Jiaotong University, China; College of Astronautics, Nanjing University of Aeronautics and Astronautics, China

Delay-Partitioning Approach to State and Sensor/Actuator Fault Estimation for T-S Fuzzy Systems with Time-Delay *1233*
Dhouha Kharrat, Hamdi Gassara, Ahmed El Hajjaji and Mohamed Chaabane
University of Picardie Jules Verne, France; National school of Engineering of Sfax, Tunisia

Enhancement of Dynamical Characteristics of a Fuzzy Control System by Using Unstable Subsystem *1240*
Andriy Lozynskyy, Vladimir Vantsevitch and Lyubomyr Demkiv
National University "Lviv Polytechnic", Ukraine; The University of Alabama at Birmingham, United States

Th12: Social, Communication Networks, and Security
Thursday, July 12, 8:00AM-10:00AM
Galapagos II
Session Chair(s): Leslie Sikos and Longzhi Yang

Fuzzy Logic Aided Intelligent Threat Detection in Cisco Adaptive Security Appliance 5500 Series Firewalls *1248*
Nitin Naik, Paul Jenkins, Brian Kerby, Joseph Sloane and Longzhi Yang
Ministry of Defence, United Kingdom; Northumbria University, United Kingdom

An ANEW based Fuzzy Sentiment Analysis Model *1256*
Andres Montoro, Jose A. Olivas, Arturo Peralta, Francisco P. Romero and Jesus Serrano-Guerrero
Prometeus Global Solutions, Spain; Univ. of Castilla-La Mancha, Spain

Sensitive Analysis of Timeframe Type and Size Impact on Community Evolution Prediction *1263*
Narimene Dakiche, Fatima Benbouzid-Si Tayeb, Yahya Slimani and Karima Benatchba
Ecole nationale Superieure d'Informatique (ESI), Algeria; Computer Science Department, ISAMM Institute of Manouba, Tunisia

New Solution based on Fuzzy System for the IA-RMLSA Problem in Elastic Optical Network *1271*
Enio Barbosa, Andre Soares, Vinicius Machado, Ricardo Rabelo and Jose Reis Junior
Federal University of Piaui (UFPI), Brazil

Continuous Biometric Authentication using Possibilistic C-Means *1279*
Matheus Santos and Mauricio Pamplona Segundo
Federal University of Bahia, Brazil

Th13: Type-2 Fuzzy Sets in Emerging Systems
Thursday, July 12, 8:00AM-10:00AM
Galapagos III
Session Chair(s): Patricia Melin and Pranab Muhuri

A new variant of Fuzzy K-Nearest Neighbor using Interval Type-2 Fuzzy Logic *1287*
Patricia Melin, Eduardo Ramirez and German Prado-Arechiga
Tijuana Institute of Technology, Mexico; Cardio-Diagnostico, Mexico

Evolutionary Extreme Learning Machine for the Interval Type-2 Radial Basis Function Neural Network: A Fuzzy Modelling Approach *1294*
Adrian Rubio-Solis, Uriel Martinez-Hernandez and George Panoutsos
The University of Sheffield, United Kingdom; University of Bath, United Kingdom

Determining the Optimal Fuzzifier Range for Alpha-Planes of General Type-2 Fuzzy Sets *1302*
Shreyas Kulkarni, Rishabh Agrawal and Frank Rhee
Indian Institute of Technology Guwahati, India; Hanyang University, Korea (South)

Exploring Constrained Type-2 Fuzzy Sets *1310*
Pasquale D'Alterio, Jonathan Garibaldi and Amir Pourabdollah
University of Nottingham, United Kingdom; Nottingham Trent University, United Kingdom

A Novel Image Steganography Approach Based on Interval Type-2 Fuzzy Similarity *1317*
Zubair Ashraf, Mukul Lata Roy, Pranab K Muhuri and Q. M. Danish Lohani
South Asian University, India

Linguistic operation time computation in parallel processor scheduling using the 2-tuple fuzzy representation model *1325*
Prashant Gupta and Pranab Muhuri
South Asian University, India

Th21: Recent Advances in Fuzzy Control Systems Design and Analysis
Thursday, July 12, 2:10PM-4:10PM
Galapagos I
Session Chair(s): Jun Yoneyama and Kevin Guelton

H-∞ Filter Design for Fuzzy Bilinear Systems with Unknown Inputs and Disturbances *1331*
Jun Yoneyama
Aoyama Gakuin University, Japan

Output-Tracking Controller Design for Switched T-S Systems Subject to External Disturbances *1337*
Dalel Jabri, Kevin Guelton, Djamel Eddine Chouaib Belkhiat and Noureddine Manamanni
Ferhat Abbas University Setif 1, Algeria; CReSTIC EA3804 - University of Reims Champagne-Ardenne, France

Finite Frequency Filter Design for T-S Fuzzy Continuous Systems *1343*
Abderrahim El Amrani, Ahmed El Hajjaji, Abdelaziz Hmamed and Ismail Boumhidi
USMBA, Morocco; University of Picardie Jules Verne, France

Stability and controller design for T-S fuzzy discrete-time systems with time-varying delay in the state *1350*
Luis Silva, Valter Leite, Eugenio Castelan and Adriano Lopes
CEFET-MG, Brazil; UFSC, Brazil

Nonquadratic Stabilization Conditions for Time-Delay Nonlinear Systems in a Takagi-Sugeno Form *1357*
Sara Angulo, David Vazquez, Raymundo Marquez and Miguel Bernal
Sonora Institute of Technology, Mexico

Lmi-Based Dynamic Control of Non-Affine Nonlinear Systems via Takagi-Sugeno Models *1364*
Thierry Marie Guerra, Jeremie Guerra and Miguel Bernal
University of Valenciennes, France; Sonora Institute of Technology, Mexico

Th22: Image Processing and Understanding
Thursday, July 12, 2:10PM-4:10PM
Galapagos II
Session Chair(s): Anasol Rios and Chaojie Ou

A Type-2 Fuzzy Logic Based System for Augmented Reality Visualisation of Georeferenced Data *1370*
Anasol Pena Rios, Hani Hagras, Gilbert Owusu and Gardner Michael
University of Essex, United Kingdom; British Telecom, United Kingdom

Matrix resemblance functions for image comparison *1378*
Mikel Sesma-Sara, Laura De Miguel, Mesiar Radko and Bustince Humberto
Universidad Publica de Navarra, Spain; Slovak University of Technology, Slovakia

Evolving Background Subtraction for Dynamic Lighting Scenarios *1384*
Bruno Costa and Madeline Goh
Ford Motor Company, United States

Driver Behavior Monitoring Using Tools of Deep Learning and Fuzzy Inferencing *1391*
Chaojie Ou, Chahid Ouali, Safaa Bedawi and Fakhri Karray
University of Waterloo, Canada

Fuzzy Modelling of Local Linearity in Contours *1398*
Jesus Chamorro-Martinez, Pedro Manuel Martinez-Jimenez, Antonio Garrido and Jose Manuel Soto-Hidalgo
University of Granada, Spain; University of Cordoba, Spain

Fuzzy NLG System for Extensive Verbal Description of Relative Positions *1404*
Jesse Francis, Farhad Rahbarnia and Pascal Matsakis
University of Guelph, Canada; McGill University, Canada

Th23: Fuzzy Cognitive Maps
Thursday, July 12, 2:10PM-4:10PM
Galapagos III
Session Chair(s): Giovanni Acampora and Autilia Vitiello

Fuzzy Reasoning in Cognitive Cities - An Exploratory Work on Fuzzy Analogical Reasoning Using Fuzzy Cognitive Maps *1412*
Sara D'Onofrio, Stefan Markus Mueller, Elpiniki I. Papageorgiou and Edy Portmann
Human-IST Institute, University of Fribourg, Switzerland; TEI of Central Greece, Greece

On the Existence and Uniqueness of Fixed Points of Fuzzy Set Valued Sigmoid Fuzzy Cognitive Maps *1420*
Istvan Harmati and Laszlo Koczy
Szechenyi Istvan University, Hungary

Fuzzy Cognitive Maps and Fuzzy Logic applied in Industrial Processes Control *1427*
Lucas Botoni de Souza, Patrick Prieto Soares, Marcio Mendonca, Asmaa Mourhir and Elpiniki I. Papageorgiou
Federal University of Technology - Parana (UTFPR), Brazil; School of Sciences and Engineering Al Akhawayn University Ifrane, Morocco, Morocco; Computer Engineering Department Technological Educational Institute of Sterea Ellada Lamia, Greece, Greece

Aggregate Experts Knowledge in Fuzzy Cognitive Maps *1435*
Giovanni Mazzuto, Maurizio Bevilacqua, Chrysostomos Stylios and Voula C. Georgopoulos
Universita Politecnica delle Marche, Italy; Educational Institute of Epirus, Greece; School Health and Welfare Professions TEI of Western Greece, Greece

Fuzzy Cognitive Maps Designing through Large Dataset and Experts' Knowledge Balancing *1441*
Giovanni Mazzuto, Filippo E. Ciarapica, Chrysostomos Stylios and Voula C. Georgopoulos
Universita Politecnica delle Marche, Italy; Educational Institute of Epirus, Greece; School Health and Welfare Professions TEI of Western Greece, Greece

Th31: Fuzzy Differential Equations
Thursday, July 12, 4:30PM-6:30PM
Galapagos I
Session Chair(s): Estevao Esmi and Fakhreddine Karray

Finite Time Synchronization For Delayed Fuzzy Inertial Cellular Neural Networks *1447*
Chaouki Aouiti, El Abed Assali and Fakhreddine Karray
University of Carthage, Faculty of Sciences of Bizerta, Department of Mathematics Mathmatiques et applications UR13ES47, BP W, 7021 Zarzouna, Bizerta,, Tunisia; PAMI: Pattern Analysis and Machine Department of Electrical and Computer Engineering University of Waterloo, Ont.,, Canada

New Results on Neutral Type Fuzzy Based Cellular Neural Networks *1455*
Chaouki Aouiti, Farah Dridi and Fakhreddine Karray
University of Carthage, Faculty of Sciences of Bizerta, Department of Mathematics Mathmatiques et applications UR13ES47, BP W, 7021 Zarzouna, Bizerta,, Tunisia; PAMI: Pattern Analysis and Machine Department of Electrical and Computer Engineering University of Waterloo, Ont.,, Canada

Linear Ordinary Differential Equations with Linearly Correlated Boundary Values *1463*
Daniel Sanchez, Estevao Esmi and Barros Laecio
University of Campinas, Chile; University of Campinas, Brazil

Th32: Software for Soft Computing
Thursday, July 12, 4:30PM-6:30PM
Galapagos II
Session Chair(s): Jose Soto-Hidalgo and Autilia Vitiello

Interoperability for Embedded Systems in JFML Software: An Arduino-based implementation *1469*
Francisco Jesus Arcos, Jose Manuel Soto-Hidalgo, Autilia Vitiello, Giovanni Acampora and Jesus Alcala-Fdez
University of Granada, Spain; University of Cordoba, Spain; University of Salerno, Italy; University of Naples Federico II, Italy

Exploring Subsethood to Determine Firing Strength in Non-Singleton Fuzzy Logic Systems *1477*
Direnc Pekaslan, Jonathan M. Garibaldi and Christian Wagner
University of Nottingham, United Kingdom

FASILL: Fuzzy Correct Answers and Soundness *1485*
Pascual Julian-Iranzo, Gines Moreno and Jaime Penabad
University of Castilla-La Mancha, Spain

SyFSeL: Generating Synthetic Fuzzy Sets Made Simple *1493*
Josie McCulloch
University of Nottingham, United Kingdom

MeetCI: A computational intelligence software design automation framework *1499*
Igor Khokhlov, Chinmay Jain, Ben Miller-Jacobson, Andrew Heyman, Leonid Reznik and Robert St.Jacques
Rochester Institute of Technology, United States

A Possibilistic I/O Hidden Semi-Markov Model For Assessing Cyber-Physical Systems Effectiveness *1507*
Gerald Rocher, Jean-Yves Tigli, Stephane Lavirotte and Nhan Le Thanh
Universite Nice Cote d'azur, GFI Informatique, France; Universite Nice Cote d'azur, CNRS, France

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Decision Systems and e-Service Intelligence (DeSI) Lab, Centre for Artificial Intelligence, Faculty of Engineering and Information Technology University of Technology Sydney, Australia

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Centre for Artificial Intelligence,University of Technology Sydney, Australia

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Anahita Namvar and Mohsen Naderpour
CAI, University of Technology Sydney, Australia

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Robert Gordon University, United Kingdom

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Francisco Bruno de Sousa Rocha, Ranulfo Plutarco Bezerra Neto, Wilson Leal Rodrigues Junior, Dyogo Medeiros Reis, Ricardo de Andrade Lira Rabelo, Andre Macedo Santana and Joao Guilherme C Costa
Federal University Piaui, Brazil; Federal University of Piaui, Brazil; Federal University of Piaui (UFPI), Brazil

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University of Sao Paulo, Brazil

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South Asian University, India

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Institute of Mechanical Engineering, Instituto Superior Tecnico, Portugal; Engineering Systems, Massachusets Institute of Technology, Cambridge, United States; Laboratory of Computational Phisiology, Massachusets Institute of Technology, Cambridge, United States

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Aykut Beke and Tufan Kumbasar
Istanbul Technical University, Turkey

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Ahmet Sakalli, Aykut Beke and Tufan Kumbasar
AVL Research and Engineering Turkey, Turkey; Istanbul Technical University, Turkey

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Flavio Faria, Vilma Oliveira, Leandro Elias, Jorge Capela and Julia Tanaka
UNESP, Brazil; USP, Brazil; IFSP, Brazil

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Adriano Lopes, Valter Leite and Luis Silva
CEFET-MG / Campus Divinopolis, Brazil

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Hicham El Aiss, Taha Zoulagh, Abdelaziz Hmamed and Ahmed El Hajjaji
University of Sidi Mohamed Ben Abdellah,Faculty of Sciences Dhar El Mahraz-Fes, Morocco; University of Picardie Jules Vene, MIS Lab. UFR of Sciences, France

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Giovanni Acampora, Pasquale D'Alterio and Autilia Vitiello
University of Naples Federico II, Italy; University of Nottingham, United Kingdom; University of Salerno, Italy

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Juan Miguel Medina, Carlos David Barranco and Olga Pons
Granada University, Spain; Pablo de Olavide University, Spain

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URJC, Spain; CUNEF, Spain; UCM, Spain

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Antonio Farias, Claudio Callejas, Regivan Santiago and Benjamin Bedregal
UFERSA / UFRN, Brazil; UFERSA, Brazil; UFRN, Brazil

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Qin Feng
Jiangxi Normal University, China

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University of Applied Sciences Berlin (HTW), Germany

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Tatung University, Taiwan

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Tatung University, Taiwan

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Tatung University, Taiwan

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UNAB, Colombia

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University of Sao Paulo, Brazil; University of Florida, United States

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LRIA-USTHB, Algiers, Algeria; LIAS-Poitiers University, Poitiers, France; LIAS-ENSMA, Poitiers, France

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Korea University, Korea, Republic of

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National Chung Hsing University,, Taiwan

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Escuela Superior Politecnica del Litoral (ESPOL), Ecuador

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Federal University of Juiz de Fora, Brazil; Pontifical Catholic University of Rio de Janeiro, Brazil

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Universidad Nacional de San Agustin, Peru; Universidad Catolica San Pablo, Peru

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South Asian University, India

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Linkoping University, Sweden; Chaos Technology Research Laboratory, Japan

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Universidad Publica de Navarra, Spain; Universidade Federal do Rio Grande, Brazil; Universidade de Tras-os-Montes e Alto Douro, Portugal

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

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Scott Dick and Mojtaba Yeganejou
University of Alberta, Canada

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Arnaud Grivet Sebert and Jean-Philippe Poli
CEA - List, France

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Meryem Bendella, Feda Almuhisen and Mohamed Quafafou
Aix-Marseille University, France

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Federal University of Juiz de Fora, Brazil; Pontifical Catholic University of Rio de Janeiro, Brazil

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