2014 IEEE International Conference on Fuzzy Systems

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1:50PM *Fuzzy Measures of Pixel Cluster Compactness*
Gleb Beliakov, Gang Li, Quan Vu and Tim Wilkin 1104

2:10PM *Image Composition Using F-Transform*
Marek Vajgl, Petr Hurtik, Irina Perfilieva and Petra Hodakova 1112

2:30PM *Fusion of Multi-Spectral and Panchromatic Satellite Images Using Principal Component Analysis and Fuzzy Logic*
Reham Gharbia, Ali Hassan El Baz, Aboul Ella Hassanien, Gerald Schaefer, Tomoharu Nakashima and Ahmad Taher Azar 1118

2:50PM *Structural Classification of Proteins through Amino Acid Sequence Using Interval Type-2 Fuzzy Logic System*
Thanh Nguyen, Abbas Khosravi, Douglas Creighton and Saeid Nahavandi 1123

3:10PM *A Hybrid Type-2 Fuzzy Clustering Technique for Input Data Preprocessing of Classification Algorithms*
Vahid Nouri, Mohammad-R Akbarzadeh-T and Alireza Rowhanimanesh 1131

Wednesday, July 9, 3:30PM-6:00PM

Poster Session: PF3 Fuzzy Theory & Decision Making, Chair: Christian Mayr and Anca Croitoru, Room: Posters Area (Level 2)

P501 *On the Cross-Migrativity of Triangular Subnorms*
Hangdan Wang and Qin Feng 1139

P502 *A Fast Geometric Defuzzication Algorithm for Large Scale Information Retrieval*
Simon Coupland, David Croft and Stephen Brown 1143

P503 *A Novel Algorithm to Solve the Minimal Hitting Sets in MBD*
Jianfang Xu, Zhigang Liu and Chenxi Dai 1150

P504 *Fuzzy Linguistic First Order Logic Based on Refined Hedge Algebra*
Duc Khanh Tran and Minh Tam Nguyen 1156

P505 *Bayesian Games with Ambiguous Type Players*
Youzhi Zhang, Xudong Luo, Wenjun Ma and Ho-fung Leung 1164

P506 *Clustering Based Outlier Detection in Fuzzy SVM*
Rahul Kumar Sevakula and Nishchal Kumar Verma 1172

P507 *Situation-Based Allocation of Medical Supplies in Unconventional Disasters with Fuzzy Triangular Values*
Junhu Ruan and Yan Shi 1178

P508 *Novel Hierarchical Fault Diagnosis Approach for Smart Power Grid with Information Fusion of Multi-Data Resources Based on Fuzzy Petri Net*
Yingnan Wang, Jinfeng Ye, Guojun Xu, Qingmiao Chen, Haiyang Li and Xinrui Liu 1183

P509 *A New Approach to Improve the Consistency of Linguistic Pair-Wise Comparison Matrix and Derive Interval Weight Vector*
Hengshan Zhang, Qinghua Zheng, Ting Liu and Yan Nan 1190

P510 *Collaborative Diagnosis through Fuzzy Petri Net Based Agent Argumentation*
Xuehong Tao, Yuan Miao, Yanchun Zhang and Zhiqi Shen 1197

P511 *Estimations, Convergences and Comparisons on Fuzzy Integrals of Sugeno, Choquet and Gould Type*
Anca Croitoru and Nikos Mastorakis 1205

P512 *An Approach to Covering-Based Rough Sets through Bipartite Graphs*
Jingqian Wang and William Zhu 1213

P513 *A Generalized Equilibrium Value-Based Approach for Solving Fuzzy Programming Problem*
Chenxia Jin, Yan Shi, Meng Yang and Fachao Li 1219

P514 *On Three Types of Covering-Based Rough Sets via Definable Sets*
Yanfang Liu and William Zhu 1226

P515 *Multi-Agent Evolutionary Design of Beta Fuzzy Systems*
Yosra Jarraya, Souhir Bouaziz, Adel M. Alimi and Ajith Abraham 1234

P516 *T-S Fuzzy Affine Linear Modeling Algorithm by Possibilistic C-Regression Models Clustering Algorithm*
Chung-Chun Kung and Hong-Chi Ku 1242

P517 *An Under-Sampling Method Based on Fuzzy Logic for Large Imbalanced Dataset*
Ginny Y. Wong, Frank H. F. Leung and Sai-Ho Ling 1248

P518 *A Differential Evolution Based Adaptive Neural Type-2Fuzzy Inference System for Classification of Motor Imagery EEG Signals*
Debabrota Basu, Saugat Bhattacharyya, Dwaipayan Sardar, Amit Konar, D.N. Tibarewala and Atulya Nagar 1253

P519 *Construction of Slope-Consistent Trapezoidal Interval Type-2 Fuzzy Sets for Simplifying the Perceptual Reasoning Method*
Chengdong Li, Jianqiang Yi, Guiqing Zhang and Ming Wang 1261

Wednesday, July 9, 4:00PM-6:00PM

Special Session: WeF2-1 Human Symbiotic Systems II, Chair: Daisuke Katagami, Room: 201A

4:00PM *Effect of Robot Utterances Using Onomatopoeia on Collaborative Learning*
Felix Jimenez, Masayoshi Kanoh, Tomohiro Yoshikawa, Takeshi Furuhashi and Tsuyoshi Nakamura 1268

4:20PM *Behavior Extraction from Tweets Using Character N-Gram Models*
Yuji Yano, Tomonori Hashiyama, Junko Ichino and Shun'ichi Tano 1273

4:40PM *Saliency Map for Visual Attention Region Prediction Based on Fuzzy Neural Network*
Mao Wang, Yoichiro Maeda and Yasutake Takahashi 1281

5:00PM *Melody Oriented Interactive Chaotic Sound Generation System Using Music Conductor Gesture*
Shuai Chen, Yoichiro Maeda and Yasutake Takahashi 1287

5:20PM *Intention Recognition by Inverted Two-Wheeled Mobile Robot through Interactive Operation*
Yasutake Takahashi, Takuya Inoue and Nakamura Takayuki 1291

5:40PM *Development of Facial Expression Recognition for Training Video Customer Service Representatives*
Linh Tuan Dang, Eric W. Cooper and Katsuari Kamei 1297

Special Session: WeF2-2 Modalities of Fuzzy Signatures in Knowledge Representation, Chair: Laszlo Koczy, Sukanya Manna and Tom Gedeon, Room: 201B

4:00PM *On the Development of Signatures for Artificial Intelligence Applications*
Claudiu Pozna, Radu-Emil Precup, Peter Foldesi and Laszlo Koczy 1304

4:20PM *A Price Prediction Model for Online Auctions Using Fuzzy Reasoning Techniques*
Preetinder Kaur, Madhu Goyal and Jie Lu 1311

4:40PM *OWA-Based Fuzzy Rule Interpolation for Group Decision Making*
Chengyuan Chen and Qiang Shen 1319

5:00PM *Sensitivity Analysis of the Weighted Generalized Mean Aggregation Operator and Its Application to Fuzzy Signatures*
Istvan Harmati, Adam Bukovics and Laszlo Koczy 1327

5:20PM *Understanding Early Childhood Obesity Risks: An Empirical Study Using Fuzzy Signatures*
Sukanya Manna and Abigail M. Jewkes 1333

5:40PM *A New Fuzzy Graph and Signature Based Approach to Describe Fuzzy Situational Maps*
Aron Ballagi, Claudiu Pozna and Laszlo Koczy 1340

WeF2-3 Hybrid Fuzzy Systems, Chair: Scott Dick and Chiew Foong Kwong, Room: 201C

4:00PM *Oil Spill Trajectory Tracking Using Swarm Intelligence and Hybrid Fuzzy System*
Mohsen Pashna, Rubiyah Yusof and Rasoul Rahmani 1346

4:20PM *Generating Interpretable Mamdani-Type Fuzzy Rules Using a Neuro-Fuzzy System Based on Radial Basis Functions*
Diego G. Rodrigues, Gabriel Moura, Carlos M. C. Jacinto, Paulo Jose de Freitas Filho and Mauro Roisenberg 1352

4:40PM *An ANFIS Approach to Transmembrane Protein Prediction*
Hassan Kazemian and Syed Adnan Yusuf 1360

5:00PM *Binary Fish School Search Applied to Feature Selection: Application to ICU Readmissions*
Joao Sargo, Susana Vieira, Joao Sousa and Carmelo Filho 1366

5:20PM *The ANFIS Handover Trigger Scheme: The Long Term Evolution (LTE) Perspective*
Chiew Foong Kwong, Teong Chee Chuah and Su Wei Tan 1374

5:40PM *Genetic Fuzzy Classifier with Fuzzy Rough Sets for Imprecise Data*
Janusz Starczewski, Robert Nowicki and Bartosz Nowak 1382

6:00PM *An Improvement in Forecasting Interval based Fuzzy Time Series*
Shanoli Samui Pal, Tandra Pal and Samarjit Kar 1390

WeF2-4 Fuzzy Decision Making and Decision Support Systems I, Chair: Mika Sato-Ilic and Mengyin Fu, Room: 201D

4:00PM *The Prioritization for Higher Education Institutions Performance Criteria with Fuzzy Analytical Hierarchy Process*
Rati Wongsathan, Witchakorn Khuankaew and Aitsari Khaothawirat 1395

4:20PM *Use of Cumulative Information Estimations for Risk Assessment of Heart Failure Patients*
Jan Bohacik, Chandra Kambhampati, Darryl Davis and John Cleland 1402

4:40PM *A Quantitative Preference-Based Structured Argumentation System for Decision Support*
Nouredine Tamani and Madalina Croitoru 1408

5:00PM *Fuzzy Group Decision Making Based on Variable Weighted Averaging Operators*
Deqing Li, Wenyi Zeng and Junhong Li 1416

5:20PM *Developing Tw fuzzy DEMATEL Method for Evaluating Green Supply Chain Management Practices*
Kuo-Ping Lin, Ru-Jen Lin and Kuo-Chen Hung 1422

5:40PM *Gradient-Based Fuzzy Fault Isolation in Residual-Based Fault Detection Systems*
Francisco Serdio, Edwin Lughofer, Kurt Pichler, Thomas Buchegger, Markus Pichler and Hajrudin Efendic 1428

Thursday, July 10, 1:30PM-3:30PM

Special Session: ThF1-1 Hand Skill Recognition and Transfer, Chair: Honghai Liu, Room: 201A

1:30PM *Active Interaction Control of a Rehabilitation Robot Based on Motion Recognition and Adaptive Impedance Control*
Wei Meng, Yilin Zhu, Zude Zhou, Kun Chen and Qingsong Ai 1436

1:50PM *Fuzzy Neural Network-Based Adaptive Impedance Force Control Design of Robot Manipulator under Unknown Environment*
Wei-Chen Wang and Ching-Hung Lee 1442

2:10PM *Finger Pinch Force Estimation through Muscle Activations Using a Surface EMG Sleeve on the Forearm*
Yinfeng Fang, Zhaojie Ju, Xiangyang Zhu and Honghai Liu 1449

2:30PM *Joint Angle Estimation System for Rehabilitation Evaluation Support*
Junya Kusaka, Takenori Obo, Janos Botzheim and Naoyuki Kubota 1456

2:50PM *Fuzzy-Based Adaptive Motion Control of a Virtual iCub Robot in Human-Robot-Interaction*
Zejun Xu, Chenguang Yang, Hongbin Ma and Mengyin Fu 1463

3:10PM *Teleoperation of a Virtual iCub Robot under Framework of Parallel System via Hand Gesture Recognition*
Chen Li, Hongbin Ma, Chenguang Yang and Mengyin Fu 1469

Special Session: ThF1-2 Hybridisations, Extensions, and High-Order Fuzzy Sets, Chair: Neil Mac Parthaláin and Richard Jensen, Room: 201B

1:30PM *Approximate Nature of Traditional Fuzzy Methodology Naturally Leads to Complex-Valued Fuzzy Degrees*
Olga Kosheleva and Vladik Kreinovich 1475

1:50PM *Tightly Coupled Fuzzy Rough Description Logic Programs under the Answer Set Semantics for the Semantic Web*
Tingting Zou, Yanpeng Qu and Ansheng Deng 1480

2:10PM *Feature Grouping-Based Fuzzy-Rough Feature Selection*
Richard Jensen, Neil Mac Parthalain and Chris Cornelis 1488

2:30PM *An Advancing Investigation on Reduct and Consistency for Decision Tables in Variable Precision Rough Set Models*
James N. K. Liu, Yanxing Hu, Jia You and He Yulin 1496

2:50PM *Heuristic Search for Fuzzy-Rough Bireducts and Its Use in Classifier Ensembles*
Ren Diao, Neil Mac Parthalain, Richard Jensen and Qiang Shen 1504

3:10PM *Hybrid Fuzzy Genetics-Based Machine Learning with Entropy-Based Inhomogeneous Interval Discretization*
Yuji Takahashi, Yusuke Nojima and Hisao Ishibuchi 1512

ThF1-3 Fuzzy Clustering, Chair: Seiichi Ozawa and Xiao-Jun Zeng, Room: 201C

1:30PM *Incremental Fuzzy Clustering for Document Categorization*
Jianping Mei, Yangtao Wang, Lihui Chen and Chunyan Miao 1518

1:50PM *Enhanced Cluster Validity Index for the Evaluation of Optimal Number of Clusters for Fuzzy C-Means Algorithm*
Neha Bharill and Aruna Tiwari 1526

2:10PM *A Learning Scheme to Fuzzy C-Means Based on a Compromise in Updating Membership Degrees*
Shang-Lin Wu, Yang-Yin Lin, Yu-Ting Liu, Chih-Yu Chen and Chin-Teng Lin 1534

2:30PM *Link-Based Pairwise Similarity Matrix Approach for Fuzzy C-Means Clustering Ensemble*
Pan Su, Changjing Shang and Qiang Shen 1538

2:50PM *Fuzzy Clustering Using Automatic Particle Swarm Optimization*
Min Chen and Ludwig Simone 1545

3:10PM *A Preprocessed Induced Partition Matrix Based Collaborative Fuzzy Clustering for Data Analysis*
Mukesh Prasad, Dong Lin Li, Yu-Ting Liu, Linda Siana, Chin-Teng Lin and Amit Saxena 1553

3:30PM *Dynamic Texture Classification Using Local Fuzzy Coding*
Liuyang Wang, Huaping Liu and Fuchun Sun 1559

ThF1-4 Fuzzy Systems Modelling and Identification, Chair: Faa-Jeng Lin and Jozo Dujmovic, Room: 201D

1:30PM *A New Monotonicity Index for Fuzzy Rule-Based Systems*
Lie Meng Pang, Kai Meng Tay and Chee Peng Lim 1566

1:50PM *Sparse Fuzzy C-Regression Models with Application to T-S Fuzzy Systems Identification*
Minnan Luo, Fuchun Sun and Huaping Liu 1571

2:10PM *A Systems Approach for Scheduling Aircraft Landings in JFK Airport*
Sina Khanmohammadi, Chun-An Chou, Harold W. Lewis III and Doug Elias 1578

2:30PM *A New Fuzzy Ratio and Its Application to the Single Input Rule Modules Connected Fuzzy Inference System*
Chian Haur Jong, Kai Meng Tay and Chee Peng Lim 1586

2:50PM *Fuzzy Uncertainty Assessment in RBF Neural Networks Using Neutrosophic Sets for Multiclass Classification*
Adrian Rubio-Solis and George Panoutsos 1591

3:10PM *A New Adaptive Mamdani-Type Fuzzy Modeling Strategy for Industrial Gas Turbines*
Yu Zhang, Jun Chen, Chris Bingham and Mahdi Mahfouf 1599

3:30PM *Introduction to Tunable Equivalence Fuzzy Associative Memories*
Estevao Esmi, Peter Sussner and Sandra Sandri 1604

Thursday, July 10, 3:30PM-6:00PM

Poster Session: PF4 Fuzzy Modeling, Control, & Applications II, Chair: Tomoharu Nakashima and Neha Bharill, Room: Posters Area (Level 2)

P701 *Reengineering Fuzzy Nested Relational Databases into Fuzzy XML Model*
Weijun Li, Xu Chen and Z. M. Ma 1612

P702 *Evaluation of Responsiveness of Health Systems Using Fuzzy-based Technique*
Sukanya Phongsuphap and Yongyuth Pongsupap 1618

P703 *A Fuzzy Logic Based Parkinson's Disease Risk Predictor*
Siyuan Liu, Zhiqi Shen, Martin J. McKeown, Cyril Leung and Chunyan Miao 1624

P704 *An Integrated Intelligent Technique for Monthly Rainfall Time Series Prediction*
Jesada Kajornrit, Kok Wai Wong, Chun Che Fung and Yew Soon Ong 1632

P705 *A Fuzzy Ontology Driven Method for a Personalized Query Reformulation*
Hajer Baazaoui-zghal and Henda Ben ghezala 1640

P706 *A Comparison of Computational Intelligence Techniques for Energy Time Series Forecasting*
Abbas Namdar and Hamid Berenji 1648

P707 *Perceptual Computing Based Performance Control Mechanism for Power Efficiency in Mobile Embedded Systems*
Prashant Gupta and Pranab Muhuri 1654

P708 *Medical Diagnosis and Monotonicity Clarification Using SIRMs Connected Fuzzy Inference Model with Functional Weights*
Hirosato Seki and Tomoharu Nakashima 1662

P709 *T-S Fuzzy Models Based Approximation for General Fractional Order Nonlinear Dynamic Systems*
Yong Wang, Yiheng Wei, Min Zhu, Mengmeng Liu, Cheng Peng and Zeshao Chen 1666

P710 *A Mathematical Programming Method for the Multiple Attribute Decision Making with Interval Intuitionistic Fuzzy Values*
Junfeng Chu and Xinwang Liu 1671

P711 *Fuzzy Multi Entity Bayesian Networks: A Model for Imprecise Knowledge Representation and Reasoning in High-Level Information Fusion*
Keyvan Golestan, Fakhri Karray and Mohamed S. Kamel 1678

P712 *The Realization Problems Related to Weighted Transducers over Strong Bimonoids*
Ping Li, Yongming Li and Shengling Geng 1686

P713 *Identification of Dynamic Systems Using a Differential Evolution-Based Recurrent Fuzzy System*
Cristian dos Santos, Rogerio Espindola, Vinicius Vieira and Alexandre Evsukoff 1691

P714 *Similarities in Structured Spaces of Sets*
Wladyslaw Homenda and Agnieszka Jastrzebska 1697

P715 *A Novel Low-Complexity Method for Determining Nonadditive Interaction Measures Based on Least-Norm Learning*
Wei An, Chunxiao Ren, Song Ci, Dalei Wu, Haiyan Luo and Yanwei Liu 1705

P716 *Model Reference Adaptive Iterative Learning Control for Nonlinear Systems Using Observer Design*
Ying-Chung Wang, Chiang-Ju Chien and I-Hong Jhuo 1713

Thursday, July 10, 4:00PM-6:00PM

Special Session: ThF2-1 Computational Intelligence for Cognitive Robotics, Chair: Naoyuki Kubota, Room: 201A

4:00PM *A Reduced Classifier Ensemble Approach to Human Gesture Classification for Robotic Chinese Handwriting*
Fei Chao, Yan Sun, Zhengshuai Wang, Gang Yao, Zuyuan Zhu, Changle Zhou, Qinggang Meng and Min Jiang 1720

4:20PM *Reinforcement Learning in Non-Stationary Environments: An Intrinsically Motivated Stress Based Memory Retrieval Performance (SBMRP) Model*
Tiong Yew Tang, Simon Egerton and Naoyoki Kubota 1728

4:40PM *A Modified EM Algorithm for Hand Gesture Segmentation in RGB-D Data*
Zhaojie Ju, Yuehui Wang, Wei Zeng, Haibin Cai and Honghai Liu 1736

5:00PM *Grounding Spatial Relations in Natural Language by Fuzzy Representation for Human-Robot Interaction*
Jiacheng Tan, Zhaojie Ju and Honghai Liu 1743

5:20PM *Vowel Recognition System of Lipsynchrobot in Lips Gesture Using Neural Network*
Indra Adji Sulistijono, Haikal Hakim Baiqunni, Zaqiatud Darojah and Didik Setyo Purnomo 1751

5:40PM *Quantum-Inspired Multidirectional Associative Memory for Human-Robot Interaction System*
Naoki Masuyama and Chu Kiong Loo 1757

Special Session: ThF2-2 Aggregation Operators, Chair: Simon James and Gang Li, Room: 201B

4:00PM *"And"- and "Or"-Operations for "Double", "Triple", etc. Fuzzy Sets*
Hung T. Nguyen, Vladik Kreinovich and Olga Kosheleva 1765

4:20PM *Upper and Lower Generalized Factoraggregations Based on Fuzzy Equivalence Relation*
Pavels Orlovs and Svetlana Asmuss 1772

4:40PM *Interpolative GCD Aggregators*
Jozo Dujmovic 1778

5:00PM *Analytical Solution Methods for the Linguistic Weighted Average Problem*
Xinwang Liu, Xu Yong, Tong Wu and Na Li 1786

5:20PM *Nearest Neighbour-Guided Induced OWA and Its Application to Journal Ranking*
Pan Su, Tianhua Chen, Changjing Shang and Qiang Shen 1794

5:40PM *Worker Ranking Determination in Crowdsourcing Platforms Using Aggregation Functions*
David Sanchez-Charles, Jordi Nin, March Sole and Victor Muntes-Mulero 1801

Special Session: ThF2-3 Paradigms of Fuzzy Systems for Medical Benefits, Chair: Syoji Kobashi and Md. Atiqur Rahman Ahad, Room: 201C

4:00PM *Fuzzy Object Growth Model for Newborn Brain Using Manifold Learning*
Ryosuke Nakano, Syoji Kobashi, Kei Kuramoto, Yuki Wakata, Kumiko Ando, Reiichi Ishikura, Tomomoto Ishikawa, Shozo Hirota and Yutaka Hata 1809

4:20PM *Investigating Distance Metric Learning in Semi-Supervised Fuzzy C-Means Clustering*
Daphne Teck Ching Lai, Jonathan Garibaldi and Jenna Reps 1817

4:40PM *Soft Class Decision for Nursing-Care Text Classification Using a K-Nearest Neighbor Based System*
Manabu Nii, Kazunobu Takahama, Atsuko Uchinuno and Reiko Sakashita 1825

5:00PM *An Automated Determination of Blumensaat Line Using Fuzzy System Based on Physician Experience from Femur CT Image*
Yosuke Uozumi, Kouki Nagamune, Naoki Nakano, Kanto Nagai, Yuichiro Nishizawa, Yuichi Hoshino, Takehiko Matsushita, Ryosuke Kuroda and Masahiro Kurosaka 1831

5:20PM *Multimodeling for the Prediction of Patient Readmissions in Intensive Care Units*
Marta Fernandes, Claudia Silva, Susana Vieira and Joao Sousa 1837

5:40PM *Benefits of Fuzzy Logic in the Assessment of Intellectual Disability*
Alessandro Di Nuovo, Santo Di Nuovo, Serafino Buono and Vincenzo Cutello 1843

Special Session: ThF2-4 Advances to Self-tuning and Adaptive Fuzzy Control Systems, Chair: Tsung-Chih Lin, Room: 201D

4:00PM *Model-Based Takagi-Sugeno Fuzzy Approach for Vehicle Longitudinal Velocity Estimation during Braking*
Haiping Du and Weihua Li 1851

4:20PM *Analysis of the Performances of Type-1, Self-Tuning Type-1 and Interval Type-2 Fuzzy PID Controllers on the Magnetic Levitation System*
Ahmet Sakalli, Tufan Kumbasar, Engin Yesil and Hani Hagras 1859

4:40PM *Robust Stabilization of Recurrent Fuzzy Systems via Switching Control*
Stefan Gering, Wolfgang Krippner and Juergen Adamy 1867

5:00PM *Performance Evaluation of Interval Type-2 and Online Rule Weighing Based Type-1 Fuzzy PID Controllers on a PH Process*
Tufan Kumbasar, Cihan Ozturk, Engin Yesil and Hani Hagras 1875

5:20PM *Observer-Based Indirect Adaptive Supervisory Control for Unknown Time Delay System*
Ting-Ching Chu, Tsung-Chih Lin and Valentina Emilia Balas 1883

5:40PM *Direct Adaptive Fuzzy Tracking Control with Observer and Supervisory Controller for Nonlinear MIMO Time Delay Systems*
Chia-Hao Kuo, Tsung-Chih Lin and Chien-Liang Chen 1891

Friday, July 11, 8:10AM-10:10AM

Special Session: FrF1-1 Handling Uncertainties in Big Data by Fuzzy Systems, Chair: Jie Lu, Room: 201A

8:10AM *A Fuzzy Tree Matching-Based Personalised E-Learning Recommender System*
Dianshuang Wu, Guangquan Zhang and Jie Lu 1898

8:30AM *On the Use of Map-Reduce to Build Linguistic Fuzzy Rule Based Classification Systems for Big Data*
Victoria Lopez, Sara Del Rio, Jose Manuel Benitez and Francisco Herrera 1905

8:50AM *A Trust-Based Performance Measurement Modeling Using DEA, T-Norm and S-Norm Operators*
Ali Azadeh, Saeed Abdolhosseinzadeh, Morteza Saberi, Farookh Khadeer Hussain and Omar Khadeer Hussain 1913

9:10AM *A Novel Evaluation Approach for Power Distribution System Planning Based on Linear Programming Model and ELECTRE III*
Tiefeng Zhang, Guangquan Zhang, Jie Lu and Jianwei Gu 1921

9:30AM *Multicriteria Decision Making with Fuzziness and Criteria Interdependence in Cloud Service Selection*
Le Sun, Hai Dong, Farookh Hussain, Omar Hussain, Jiangang Ma and Yanchun Zhang 1929

9:50AM *Medical Diagnosis by Fuzzy Standard Additive Model with Wavelets*
Thanh Nguyen, Abbas Khosravi, Douglas Creighton and Saeid Nahavandi 1937

Special Session: FrF1-2 Evolutionary Fuzzy Systems, Chair: Yusuke Nojima, Room: 201B

8:10AM *Aeroengine Prognosis through Genetic Distal Learning Applied to Uncertain Engine Health Monitoring Data*
Alvaro Martinez, Luciano Sanchez and Ines Couso 1945

8:30AM *GPFIS-Control: A Fuzzy Genetic Model for Control Tasks*
Adriano Koshiyama, Tatiana Escovedo, Marley Vellasco and Ricardo Tanscheit 1953

8:50AM *Tuning Larger Membership Grades for Fuzzy Association Rules*
Stephen G. Matthews 1960

9:10AM *Embedding Evolutionary Multiobjective Optimization into Fuzzy Linguistic Combination Method for Fuzzy Rule-Based Classifier Ensembles*
Krzysztof Trawinski, Oscar Cordon and Arnaud Quirin 1968

9:30AM *Spectral-Spatial Classification of Remote Sensing Images Using a Region-Based GeneSIS Segmentation Algorithm*
Stelios Mylonas, Dimitris Stavrakoudis, John Theocharis and Paris Mastorocostas 1976

9:50AM *Genetic-Fuzzy Mining with Type-2 Membership Functions*
Yu Li, Chun-Hao Chen, Tzung-Pei Hong and Yeong-Chyi Lee 1985

FrF1-3 Fuzzy Control and Intelligent Systems III, Chair: Shan Xu and Chun-Hsiung Fang, Room: 201C

8:10AM *Local H Infinity Control and Invariant Set Analysis for Continuous-Time T-S Fuzzy Systems with Magnitude- and Energy-Bounded Disturbances*
Dong Hwan Lee, Young Hoon Joo and Myung Hwan Tak 1990

8:30AM *Design of Indirect Adaptive Fuzzy Control (IAFC) for Nonlinear Hysteretic Systems*
Chi-Hsu Wang, Jyun-Hong Wang and Chun-Yao Chen 1998

8:50AM *Optimal Finite-Horizon Control with Disturbance Attenuation for Uncertain Discrete-Time T-S Fuzzy Model Based Systems*
Wen-Ren Horng, Jyh-Horng Chou and Chun-Hsiung Fang 2006

9:10AM *Distributed Fuzzy Proportional-Spatial Integral Control Design for a Class of Nonlinear Distributed Parameter Systems*
Jun-Wei Wang, Huai-Ning Wu, Yao Yu and Chang-Yin Sun 2010

9:30AM *Development and Implementation of Fuzzy, Fuzzy PID and LQR Controllers for an Roll-Plane Active Hydraulically Interconnected Suspension*
Sangzhi Zhu, Nong Zhang and Haiping Du 2017

9:50AM *New Fuzzy Model with Second Order Terms for the Design of a Predictive Control Strategy*
Leonel Gutierrez, Felipe Valencia, Doris Saez and Alejandro Marquez 2025

10:10AM *A Self-Tuning Fuzzy PID Controller Design Using Gamma Aggregation Operator*
Engin Yesil and Cagri Guzay 2032

FrF1-4 Fuzzy Data Mining and Forecasting, Chair: Mika Sato-Ilic and Meng Yuan, Room: 201D

8:10AM *Fuzzy Community Detection in Social Networks Using a Genetic Algortihm*
Jianhai Su and Timothy Havens 2039

8:30AM *A Minimax Model of Portfolio Optimization Using Data Mining to Predict Interval Return Rate*
Meng Yuan and Junzo Watada 2047

8:50AM *Modeling Time Series with Fuzzy Cognitive Maps*
Homenda Wladyslaw, Jastrzebska Agnieszka and Pedrycz Witold 2055

9:10AM *Possibilistic Projected Categorical Clustering via Cluster Cores*
Stephen G. Matthews and Trevor P. Martin 2063

9:30AM *Universal Fuzzy Clustering Model*
Mika Sato-Ilic 2071

9:50AM *Iterative Mixed Integer Programming Model for Fuzzy Rule-Based Classification Systems*
Shahab Derhami and Alice E. Smith 2079

10:10AM *Kernel Non-Local Shadowed C-Means for Image Segmentation*
Long Chen, Jing Zou and C. L. Philip Chen 2085

Friday, July 11, 10:30AM-12:30PM

Special Session: FrF2-1 Recent Advances in Fuzzy-Model-Based Control Design and Analysis I, Chair: Hak-Keung Lam, Room: 201A

10:30AM *Stability Region Analysis for Polynomial Fuzzy Systems by Polynomial Lyapunov Functions*
Ying-Jen Chen, Motoyasu Tanaka, Kazuo Tanaka and H. O. Wang 2091

10:50AM *Dissipativity Analysis for Discrete-Time T-S Fuzzy Systems with Time-Varying Delay and Stochastic Perturbation*
Xiaozhan Yang, Zhong Zheng, Yuxin Zhao and Ligang Wu 2096

11:10AM *A Comparison between T-S Fuzzy Systems and Affine T-S Fuzzy Systems as Nonlinear Control System Models*
Xiao-Jun Zeng 2103

11:30AM *Relaxed Stability Conditions Based on Taylor Series Membership Functions for Polynomial Fuzzy-Model-Based Control Systems*
Chuang Liu, Hak-Keung Lam, Xian Zhang, Hongyi Li and Sai-Ho Ling 2111

11:50AM *Faults Diagnosis Based on Proportional Integral Observer for TS Fuzzy Model with Unmeasurable Decision Variable*
T. Youssef, H. R. Karimi and M. Chadli 2119

12:10PM *Dynamic Output Feedback Controller Design for T-S Fuzzy Plants with Actuator Saturation Using Linear Fractional Transformation*
Yang Liu, Xiaojun Ban, Fen Wu and Hak-Keung Lam 2125

Special Session: FrF2-2 Software for Soft Computing I, Chair: Jesus Alcala-Fdez, Room: 201B

10:30AM *Supervising Classrooms Comprising Children with Dyslexia and Other Learning Problems with Graphical Exploratory Analysis for Fuzzy Data: Presentation of the Software Tool and Case Study*
Ana Palacios and Luciano Sanchez 2133

10:50AM *The Experimenter Environment of the NIP Imperfection Processor*
Raquel Martinez, Jose M. Cadenas and M. Carmen Garrido 2141

11:10AM *Learning from Data Using the R Package frbs*
Lala Septem Riza, Christoph Bergmeir, Francisco Herrera and Jose Manuel Benitez 2149

11:30AM *Parallel Mining of Fuzzy Association Rules on Dense Data Sets*
Michal Burda, Viktor Pavliska and Radek Valasek 2156

11:50AM *Designing a Compact Genetic Fuzzy Rule-Based System for One-Class Classification*
Pedro Villar, Bartosz Krawczyk, Ana M. Sanchez, Rosana Montes and Francisco Herrera 2163

12:10PM *A Method for Hybrid Personalized Recommender Based on Clustering of Fuzzy User Profiles*
Shan Xu and Junzo Watada 2171

Special Session: FrF2-3 Fuzzy Interpolation, Chair: Qiang Shen and Laszlo Koczy, Room: 201C

10:30AM *A New Interval-Based Method for Handling Non-Monotonic Information*
Yi Wen Kerk, Kai Meng Tay and Chee Peng Lim 2178

10:50AM *Closed Form Fuzzy Interpolation with Interval Type-2 Fuzzy Sets*
Longzhi Yang, Chengyuan Chen, Nanlin Jin, Xin Fu and Qiang Shen 2184

11:10AM *Building Fuzzy Inference Systems with Similarity Reasoning: NSGA II-Based Fuzzy Rule Selection and Evidential Functions*
Tze Ling Jee, Kok Chin Chai, Kai Meng Tay and Chee Peng Lim 2192

11:30AM *Genetic Algorithm-Aided Dynamic Fuzzy Rule Interpolation*
Nitin Naik, Ren Diao and Qiang Shen 2198

11:50AM *Antecedent Selection in Fuzzy Rule Interpolation Using Feature Selection Techniques*
Ren Diao, Shangzhu Jin and Qiang Shen 2206

12:10PM *Fuzzy Rule Interpolation Based Fuzzy Signature Structure in Building Condition Evaluation*
Gergely Molnarka, Szilveszter Kovacs and Laszlo Koczy 2214

FrF2-4 Fuzzy Decision Making and Decision Support Systems II, Chair: Vladik Kreinovich and Toshihiko Watanabe, Room: 201D

10:30AM *Multiple Attribute Group Decision Making Using Interval-Valued Intuitionistic Fuzzy Soft Matrix*
Sujit Das, Mohuya B. Kar, Tandra Pal and Samarjit Kar 2222

10:50AM *Towards Data-Driven Environmental Planning and Policy Design -Leveraging Fuzzy Logic to Operationalize a Planning Framework*
Amir Pourabdollah, Christian Wagner, Simon Miller, Michael Smith and Ken Wallace 2230

11:10AM *A New Fuzzy Approach for Multi-Source Decision Fusion*
Farnoosh Fatemipour, Mohammad-R Akbarzadeh-T and Rouhollah Ghasempour 2238

11:30AM *Towards Decision Making under Interval, Set-Valued, Fuzzy, and Z-Number Uncertainty: A Fair Price Approach*
Joe Lorkowski, Rafik Aliev and Vladik Kreinovich 2244

11:50AM *A Fuzzy-Logic-Based Approach for Soft Data Constrained Multiple-Model PHD Filter*
Sepideh Seifzadeh, Bahador Khaleghi and Fakhri Karray 2254

12:10PM *Handling Preferences Under Uncertainty in Recommender Systems*
Samia Boulkrinat, Allel Hadjali and Aicha Aissani-Mokhtari 2262

12:30PM *Flexible Decision Support System Using Dynamic Partial Reconfiguration Technology*
Janos Grantner and Chinh Nguyen 2270

Friday, July 11, 1:30PM-3:30PM

Special Session: FrF3-1 Recent Advances in Fuzzy-Model-Based Control Design and Analysis II, Chair: Hak-Keung Lam, Room: 201A

1:30PM *Discrete-Time Takagi-Sugeno Descriptor Models: Controller Design*
Victor Estrada-Manzo, Thierry Marie Guerra, Zsofia Lendek and Philippe Pudlo 2277

1:50PM *Observer Design for Switching Nonlinear Systems*
Zsofia Lendek, Paula Raica, Jimmy Lauber and Thierry-Marie Guerra 2282

2:10PM *Model Predictive Control for Discrete Fuzzy Systems via Iterative Quadratic Programming*
Carlos Arino, Emilio Perez, Antonio Sala and Andres Querol 2288

2:30PM *A Novel Relaxed Stabilization Condition for a Class of T-S Time-Delay Fuzzy Systems*
Shun-Hung Tsai and Cone-Jie Fang 2294

2:50PM *SOS-Based Fuzzy Stability Analysis via Homogeneous Lyapunov Functions*
Ji-Chang Lo 2300

3:10PM *Fuzzy Disturbance Observer for a Class of Polynomial Fuzzy Control Systems*
Hugang Han, Yuta Higaki and Hak-Keung Lam 2306

Special Session: FrF3-2 Software for Soft Computing II, Chair: Jesus Alcala-Fdez, Room: 201B

1:30PM *Jfcs Tool: A Java Software Tool to Design Fuzzy Color Spaces*
Jose Manuel Soto-Hidalgo, Jesus Chamorro-Martinez, P. Martinez-Jimenez and D. Sanchez 2313

1:50PM *JuzzyOnline: An Online Toolkit for the Design, Implementation, Execution and Sharing of Type-1 and Type-2 Fuzzy Logic Systems*
Christian Wagner, Mathieu Pierfitte and Josie McCulloch 2321

2:10PM *On Modelling Real-World Knowledge to Get Answers to Fuzzy and Flexible Searches without Human Intervention*
Victor Pablos-Ceruelo and Susana Munoz-Hernandez 2329

2:30PM *Specialized Software for Fuzzy Natural Logic and Fuzzy Transform Applications*
Vilem Novak, Viktor Pavliska and Radek Valasek 2337

2:50PM *A WiFi-Based Software for Indoor Localization*
Noelia Hernandez, Manuel Ocana, Sergio Humanes, Pedro Revenga, David P. Pancho and Luis Magdalena 2345

3:10PM *Analyzing Fuzzy Association Rules with Fingrams in KEEL*
David P. Pancho, Jose M. Alonso, Jesus Alcala-Fdez and Luis Magdalena 2352

Special Session: FrF3-3 Theory of Type-2 Fuzzy Systems, Chair: Bob John, Jon Garibaldi and Simon Coupland, Room: 201C

1:30PM *Type-1 or Interval Type-2 Fuzzy Logic Systems - On the Relationship of the Amount of Uncertainty and FOU Size*
Jabran Aladi, Christian Wagner and Jonathan Garibaldi 2360

1:50PM *Building a Type-2 Fuzzy Regression Model Based on Credibility Theory and Its Application on Arbitrage Pricing Theory*
Yicheng Wei and Junzo Watada 2368

2:10PM *Building Linguistic Random Regression Model from the Perspective of Type-2 Fuzzy Set*
Fei Song, Shinya Imai and Junzo Watada 2376

2:30PM *Automatic Learning of General Type-2 Fuzzy Logic Systems Using Simulated Annealing*
Majid Almaraashi, Robert John and Hopgood Adrian 2384

2:50PM *A New Monotonic Type-Reducer for Interval Type-2 Fuzzy Sets*
Simon Coupland, Robert John and Hussam Hamrawi 2391

3:10PM *A Support Vector-Based Interval Type-2 Fuzzy System*
Volkan Uslan, Huseyin Seker and Robert John 2396

Special Session: FrF3-4 Brain and Physiological Computation for Affective Computing, Chair: Toshihiko Watanabe, Room: 201D

1:30PM *An Interactive Evolutionary Computation Framework Controlled via EEG Signals*
Shen Ren, Jiangjun Tang, Michael Barlow and Hussein A. Abbass 2402

1:50PM *Ocular Artifact Removal from EEG Using ANFIS*
Wei Chen, Ze Wang, Ka Fai Lao and Feng Wan 2410

2:10PM *Spatiotemporal Human Brain Activities on Recalling Body Parts*
Takahiro Yamanoi, Yoshinori Tanaka, Mika Otsuki, Hisahsi Toyoshima and Toshimasa Yamazaki 2418

2:30PM *Description of Activity of Living Neuronal Network by Fuzzy Bio-Indicator*
Isao Hayashi and Suguru N. Kudoh 2424

2:50PM *Human Behavioural Analysis with Self-Organizing Map for Ambient Assisted Living*
Kofi Appiah, Andrew Hunter, Ahmad Lotfi, Christopher Waltham and Patrick Dickinson 2430

3:10PM *Analysis and Extraction of Knowledge from Body Motion Using Singular Value Decomposition*
Yinlai Jiang, Isao Hayashi and Shuoyu Wang 2438

Friday, July 11, 4:00PM-6:00PM

Special Session: FrF4-1 Recent Advances in Fuzzy-Model-Based Control Design and Analysis III, Chair: Tadanari Taniguchi, Room: 201A

4:00PM *Non-PDC Controller Design for Takagi-Sugeno Models via Line-Integral Lyapunov Functions*
Abdelmadjid Cherifi, Kevin Guelton and Laurent Arcese 2444

4:20PM *Non-Quadratic Stabilization Of Second Order Continuous Takagi-Sugeno Descriptor Systems via Line-Integral Lyapunov Function*
Raymundo Marquez, Thierry Marie Guerra, Alexandre Kruszewski and Miguel Bernal 2451

4:40PM *Brain Style Control Scheme: Simultaneous Forward and Inverse Model Identification and Controller Design*
Luka Eciolaza, Tadanari Taniguchi and Michio Sugeno 2457

5:00PM *Tracking Control for a Non-Holonomic Car-Like Robot Using Dynamic Feedback Linearization Based on Piecewise Bilinear Models*
Tadanari Taniguchi, Luka Eciolaza and Michio Sugeno 2465

5:20PM *Coordinate Transformation of Takagi-Sugeno Models: Stability Conditions and Observer Canonical Forms*
Horst Schulte and Soeren Georg 2472

5:40PM *Design of Fuzzy Synergetic Controller*
Chi-Hua Liu and Ming-Ying Hsiao 2477

Special Session: FrF4-2 New Frontiers in Clustering and its Applications -Fusion of Clustering and Other Methodologies-, Chair: Yuchi Kanzawa, Room: 201B

4:00PM *A Maximizing Model of Bezdek-Like Spherical Fuzzy C-Means Clustering*
Yuchi Kanzawa 2482

4:20PM *Fuzzy c-Regression Models Combined with Support Vector Regression*
Tatsuya Higuchi and Sadaaki Miyamoto 2489

4:40PM *Incremental Algorithms for Fuzzy Co-Clustering of Very Large Cooccurrence Matrix*
Katsuhiro Honda, Daiji Tanaka and Akira Notsu 2494

5:00PM *Fuzzy Co-Clustering of Vertically Partitioned Cooccurrence Data with Privacy Consideration*
Katsuhiro Honda, Toshiya Oda and Akira Notsu 2500

5:20PM *FCM-Type Fuzzy Co-Clustering by K-L Information Regularization*
Katsuhiro Honda, Shunnya Oshio and Akira Notsu 2505

5:40PM *Stochastic Gradient Descent Based Fuzzy Clustering for Large Data*
Yangtao Wang, Lihui Chen and Jianping Mei 2511

FrF4-3 Fuzzy Logic & Fuzzy Set Theory II, Chair: Fuchun Sun and Plamen Angelov, Room: 201C

4:00PM *Regularization-Based Learning of the Choquet Integral*
Derek Anderson, Stanton Price and Timothy Havens 2519

4:20PM *Uniformly Strongly Prime Fuzzy Ideals*
Flaulles Bergamaschi and Regivan Santiago 2527

4:40PM *Ranking Fuzzy Numbers by Their Expansion Center*
Zhenyuan Wang and Li Zhang-Westman 2533

5:00PM *Rotation of Triangular Numbers via Quaternion*
Ronildo Moura, Flaulles Bergamaschi, Regivan Santiago and Benjamin Bedregal 2538

5:20PM *Ontology-Based Service Matching in Cloud Computing*
Li Liu, Xiaofen Yao, Liangjuan Qin and Miao Zhang 2544

5:40PM *Interval Type-2 Fuzzy Modeling and Chaotic Synchronization of Two Different Memristor-Based Lorenz Circuits*
Tsung-Chih Lin and Fu-Yu Huang 2551

FrF4-4 Fuzzy Models, Chair: Petrica C. Pop and Dimitar Filev, Room: 201D

4:00PM *Learning Fuzzy Rules through Ant Optimization, LASSO and Dirichlet Mixture*
Arturo Garcia-Garcia and Andres Mendez-Vazquez 2558

4:20PM *Prediction of Online Trade Growth Using Search-ANFIS: Transactions on Taobao as Examples*
Jiyuan Wang, Geng Peng and Wei Dai 2566

4:40PM *Granular Cognitive Maps Reconstruction*
Homenda Wladyslaw, Jastrzebska Agnieszka and Pedrycz Witold 2572

5:00PM *Fuzzy Multi-Objective Reliability-Redundancy Allocation Problem*
Ashraf Zubair, Pranab Muhuri, Q. M. Danish Lohani and Rahul Nath 2580

5:20PM *On the Resilience of an Ant-Based System in Fuzzy Environments. An Empirical Study*
Gloria Cerasela Crisan, Camelia-M. Pintea and Petrica C. Pop 2588

5:40PM *An Investigation of Methods of Parameter Tuning For Q-Learning Fuzzy Inference System*
Ahmad Al-Talabi and Howard Schwartz 2594