



# IFSA 2007

## Cancun, Mexico June, 18-21, 2007

### FINAL PROGRAM



TIME	Sunday JUNE 17, 2007	Monday JUNE 18, 2007	Tuesday JUNE 19, 2007	Wednesday JUNE 20, 2007	Thursday JUNE 21, 2007
7:30-8:00		Registration	Registration	Registration	
8:00-8:15		Opening Ceremony			
8:15-9:00		<b>Plenary Speaker</b> <b>LOTFI ZADEH</b> University of California at Berkeley, USA <b>“Fuzzy Logic as the Logic of Natural Languages”</b>	<b>Plenary Speaker</b> <b>KAORU HIROTA</b> Tokyo Institute of Technology, Japan <b>“Control/Robotics Applications based on Soft Computing Technology”</b>	<b>Plenary Speaker</b> <b>WITOLD PEDRYCZ</b> University of Alberta, Canada <b>“Dynamic and Distributed (D<sup>2</sup>) Fuzzy Modeling”</b>	<b>Plenary Speaker</b> <b>GUOQING CHEN</b> Tsinghua University, Beijing, China <b>“Uncertainty and Fuzziness in Knowledge Discovery from Large Databases”</b>
9:00-10:30		<b>Parallel Sessions</b> PS1, PS2, 1SS, 6SS	<b>Parallel Sessions</b> PS7, PS8, 3SS, 12SS	<b>Parallel Sessions</b> PS13, PS14, 3SS 8SS,	<b>Parallel Sessions</b> PS16, PS17, 9SS, 10SS
10:30-11:00		Coffee Break	Coffee Break	Coffee Break	Coffee Break
11:00-12:30		<b>Parallel Sessions</b> PS3, PS4, PS21, 2SS,	<b>Parallel Sessions</b> PS9, PS10, 3SS, 12SS	<b>Parallel Sessions</b> 5SS, 13SS, PS15, PS24	<b>Parallel Sessions</b> PS18, PS19, 11SS, 15SS
12:30-13:00		Lunch	Lunch	Lunch	Lunch
13:00-14:15		on your own	on your own	on your own	on your own
14:15-15:00		<b>Plenary Speaker</b> <b>RONALD YAGER</b> Iona College, New Rochelle, USA <b>“Computing with Words and Granules”</b>	<b>Plenary Speaker</b> <b>JANUSZ KACPRZYK</b> Polish Academy of Sciences, Warsaw, Poland <b>“Computing with words, usuality qualification and linguistic quantifiers: tools for human-centric computing?”</b>	<b>Plenary Speaker</b> <b>JERRY MENDEL</b> University of Southern California, USA <b>“Novel Weighted Averages as a Computing With Words Engine”</b>	<b>Parallel Sessions</b> PS20, PS22 PS25, PS26
15:00-15:30		Coffee Break	Coffee Break	Coffee Break	
15:30-17:00	Registration	<b>Parallel Sessions</b> PS5, PS6, 2SS, 4SS	<b>Parallel Sessions</b> PS11, PS12, 7SS, PS23	<b>Parallel Sessions</b> 5SS, 8SS, 9SS, 13SS	<b>Invited Lecture</b> <b>JAMES KELLER</b> University of Missouri, USA <b>“OWA Operators for Gene Product Similarity, Clustering, and Knowledge Discovery”</b>
17:00-18:30	Welcome Reception	<b><u>Panel 1</u> : A GLIMPSE INTO THE FUTURE</b> Moderator: Masoud Nikravesh	<b><u>Panel 2</u>: FUZZY SETS IN INFORMATION SYSTEMS</b> Moderator: Masoud Nikravesh	<b><u>Panel 3</u>: SOFT COMPUTING: PAST, PRESENT, FUTURE (GLOBAL ISSUE)</b> Moderators: Janusz Kacprzyk, Vesa A. Niskanen	

# Parallel Sessions

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## Monday, June 18, 2007

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Session	Parallel Sessions
<b>1SS</b>	<b>Relation between interval and fuzzy techniques</b> <b>Chair:</b> Vladik Kreinovich and Hung T. Nguyen <b>Room:</b> Luna
<b>9:00-10:30</b>	<b>Estimating Variance under Interval and Fuzzy Uncertainty: Case of Hierarchical Estimation</b> <i>Gang Xiang and Vladik Kreinovich</i> <b>Testing stochastic arithmetic and CESTAC method via polynomial computation</b> <i>Rene Alt, Jean-Luc Lamotte, and Svetoslav Markov</i> <b>Friction model by using fuzzy differential equations</b> <i>Barnabas Bede, Imre J. Rudas, and Janos Fodor</i> <b>From Interval Computations to Constraint-Related Set Computations: Towards Faster Estimation of Statistics and ODEs under Interval, p-Box, and Fuzzy Uncertainty</b> <i>Martine Ceberio, Vladik Kreinovich, Andrzej Pownuk, and Barnabas Bede</i> <b>Non-commutative System of Fuzzy Interval Logic Generated by the Checklist Paradigm Measure <math>m_3</math> Containing Early Zadeh Implication</b> <i>Eunjin Kim and Ladislav J. Kohout</i> <b>Points With Type-2 Operations</b> <i>Carol L. Walker and Elbert A. Walker</i>
<b>6SS</b>	<b>Fuzzy Trees</b> <b>Chair:</b> Zhiheng Huang and Masoud Nikraves <b>Room:</b> Mar
<b>9:00-10:30</b>	<b>Weighted Pattern Trees: A Case Study with Customer Satisfaction Dataset</b> <i>Zhiheng Huang, Masoud Nikraves, Ben Azvine, and Tamas D. Gedeon</i> <b>Decision-Based Questionnaire Systems</b> <i>M. Nikraves</i> <b>Fuzzy Signature and Cognitive Modelling for Complex Decision Model</b> <i>K. Wai Wong, T. D. Gedeon, L. T. Kóczy</i> <b>Fuzziness and Performance: An Empirical Study with Linguistic Decision Trees</b> <i>Zengchang Qin and Jonathan Lawry</i>
<b>PS1</b>	<b>Fuzzy Logic Theory I</b> <b>Chair:</b> Beloslav Riecan <b>Room:</b> Arena
<b>9:00-10:30</b>	<b>A Causal Model with Uncertain Time-series Effect Based on Evidence Theory</b> <i>V. Kimala, K. Yamada</i> <b>Cognitive Map Learning Strategy for Fuzzy Logic Control Fine-Tuning</b> <i>Jose Luis Gonzalez, Luis T. Aguilar, Oscar Castillo</i> <b>Lattice Ordered Monoids and Left Continuous Uninorms and t-norms</b> <i>M. Takacs</i> <b>Discrete fuzzy numbers defined on a subset of natural numbers</b> <i>J. Casasnovas, J. Vicente Riera</i> <b>On the Probability Theory on IF-events</b> <i>Beloslav Riecan</i>
<b>PS2</b>	<b>Fuzzy Logic Applications I</b> <b>Chair:</b> Zen Bien <b>Room:</b> Brisa
<b>9:00-10:30</b>	<b>Fuzzy Flip-Flops Revisited</b> <i>L. T. Kóczy, R. Lovassy</i> <b>Customized query response for an improved Web Search</b>

*V. Loia and S. Senatore*

**An Effective Inductive Learning Structure to Extract Probabilistic Fuzzy Rule Base from Inconsistent Data Pattern**

*H.E. Lee, Z. Z. Bien*

**Robust Stability Analysis of a Fuzzy Vehicle Lateral Control System Using Describing Function Method**

*J.W. Perng, B.F. Wu, T.Y. Liao, T.T. Lee*

**An Adaptive Location Service on the basis of Fuzzy Logic for MANETs**

*I.H. Bae, Y.J. Kim*

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**2SS**

**Philosophical and Human-scientific aspects of Soft Computing I**

**Chair:** Vesa A. Niskanen

**Room:** Mar

**11:00-12:30**

**Between Empiricism and Rationalism: A Layer of Perception Modeling Fuzzy Sets as Intermediary in Philosophy of Science**

*R. Seising*

**Ontological and Epistemological Grounding of Fuzzy Theory**

*I. Burhan Türkşen*

**Designing representative bodies when the voter preferences are fuzzy**

*Hannu Nurmi and Janusz Kacprzyk*

**Possibility Based Modal Semantics for Graded Modifiers**

*Jorma K. Mattila*

**PS3**

**Fuzzy Logic Theory II**

**Chair:** Luis Martinez

**Room:** Arena

**11:00-12:30**

**How to construct formal systems for fuzzy logics**

*S. Wang, Z. Lu*

**A logical framework for fuzzy quantifiers Part I: Basic properties**

*S. Wang, B. Zhao, P. Wang*

**The Compositional Rule of Inference and Zadeh's Extension Principle for Non-normal Fuzzy Sets**

*P. Broek, J. Noppen*

**Satisfiability in a Linguistic-Valued Logic and Its Quasi-Horn Clause Inference Framework**

*J. Liu, L. Martinez, Y. Xu, Z. Lu*

**Coordination Uncertainty of Belief Measures in Information Fusion**

*Zhenyuan Wang and George J. Klir*

**PS4**

**Fuzzy Logic Applications II**

**Chair:** J. Chamorro-Martinez

**Room:** Brisa

**11:00-12:30**

**Self-Tunable Fuzzy Inference System: A comparative study for a drone**

*H. Maaref, K. Meguenni Zemalache, L. Beji*

**A Kind of Embedded Temperature Controller Based on Self-tuning PID for Texturing Machine**

*T. Dapeng, L. Peiyu, P. Xiaohong*

**Trajectory Tracking Using Fuzzy-Lyapunov Approach: Application to a Servo Trainer**

*J. A. Ruz-Hernandez, J. L. Rullan-Lara, R. Garcia-Hernandez, E. Reyes-Pacheco, E. Sanchez*

**Using Fuzzy Sets for Coarseness Representation in Texture Images**

*J. Chamorro-Martinez, E. Galvan-Perales, J.M. Soto-Hidalgo, B. Prados-Suarez*

**Pattern Classification Model with  $T$ -fuzzy Data**

*Cao Bing-yuan*

**PS21**

**Neural Networks Theory**

**Chair:** Eduardo Gomez-Ramirez

**Room:** Luna

**11:00-12:30**

**The Game of Life using Polynomial Discrete Time Cellular Neural Networks**

*Eduardo Gomez-Ramirez, Giovanni Egidio Pazienza*

**Reinforcement Learning in Continuous Systems: Wavelet Networks Approach**

*I. S. Razo-Zapata, J. Waissman-Vilanova and L. E. Ramos-Velasco*

**Support Vector Machine-Based ECG Compression**

*S. M. Szilágyi, L. Szilágyi, Z. Benyó*

**Tuning FCMP to Elicit Novel Time Course Signatures in fMRI Neural Activation Studies**

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<b>2SS</b>	<b>Philosophical and Human-scientific aspects of Soft Computing II</b> <b>Chair:</b> Vesa A. Niskanen <b>Room:</b> Mar
<b>15:30-17:00</b>	<b>Application of Fuzzy Cognitive Maps to Business Planning Models</b> <i>V. A. Niskanen</i> <b>New Perspective for Structural Learning Method of Neural Networks</b> <i>Junzo Watada</i> <b>Perceptions for making sense, Description Language for Meaning Articulation</b> <i>T. Joronen</i>
<b>PS5</b>	<b>Neural Networks</b> <b>Chair:</b> Bernard De Baets <b>Room:</b> Luna
<b>15:30-17:00</b>	<b>New Method of Learning and Knowledge Management in Type-I Fuzzy Neural Networks</b> <i>T. A. Jilani, S. M. Aqil Burney</i> <b>Gear Fault Diagnosis in Time Domains by Using Bayesian Networks</b> <i>Y. Kang, C.C. Wang, Y.P. Chang</i> <b>Improving a Fuzzy ANN Model using Correlation Coefficients</b> <i>Y. Rodriguez, B. De Baets, M. M. Garcia Ricardo Grau, C. Morell, R. Bello</i> <b>A Method for Creating Ensemble Neural Networks using a Sampling Data Approach</b> <i>Miguel Lopez, Patricia Melin and Oscar Castillo</i> <b>Real Time Automatic Recognition of Automobile's Plates using Neural Networks</b> <i>Patricia Melin, Melchor Carranza, Mario Gracia</i>
<b>PS6</b>	<b>Pattern Recognition I</b> <b>Chair:</b> Bogusaw Cyganek <b>Room:</b> Arena
<b>15:30-17:00</b>	<b>Rotated Coin Recognition Using Neural Networks</b> <i>Adnan Khashman, Boran Sekeroglu, Kamil Dimililer</i> <b>3-D Object Recognition Using an Ultrasonic Sensor Array and Neural Networks</b> <i>Keeseong Lee</i> <b>Characterize the parameters of genetic algorithms based on Zernike polynomials for recovery of the phase of interferograms of closed fringes using hybrid technique</b> <i>Luis Ernesto Mancilla Espinosa, Juan Martin Carpio Valadez, F.J Cuevas</i> <b>Soft System for Road Sign Detection</b> <i>Bogusaw Cyganek</i> <b>Nonlinear Neuro-Fuzzy Network for Channel Equalization</b> <i>Rahib Abiyev, Fakhreddin Mamedov, Tayseer Al-shanableh</i>
<b>4SS</b>	<b>Fuzzy Multi-Objective Programming/ Fuzzy Logic Applications</b> <b>Chair:</b> Irfan Ertugrul <b>Room:</b> Brisa
<b>15:30-17:00</b>	<b>Generalized Reinforcement Learning Fuzzy Control with Vague States</b> <i>Mohammad Hossein Fazel Zarandi, Javid Jouzdani, Ismail Burhan Turksen</i> <b>New Cluster Validity Index with Fuzzy Functions</b> <i>Asli Celikyilmaz, I. Burhan Türksen</i> <b>A Fuzzy Model for Supplier Selection and Development</b> <i>M. H. Fazel Zarandi, Mahmood Rezaei Sadrabadi, and I. Burhan Turksen</i> <b>A Neuro-Fuzzy Multi-Objective Design of Shewhart Control Charts</b> <i>Mohammad Hossein Fazel Zarand, Adel Alaeddini, I. Burhan Turksen, Mahdi Ghazanfari</i> <b>Fuzzy Multi-Criteria Decision Making Method for Machine Selection</b> <i>Irfan Ertugrul, Mustafa Günes</i> <b>Fuzzy Goal Programming and an Application Of Production Process</b> <i>Irfan Ertugrul, Mustafa Günes</i> <b>The Usage of Fuzzy Quality Control Charts to Evaluate Product Quality and an Application</b> <i>Irfan Ertugrul, Mustafa Günes</i>

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**Tuesday, June 19, 2007**

<b>PS7</b>	<b>Fuzzy Logic Theory III</b> <b>Chair:</b> Esko Turunen <b>Room:</b> Arena
<b>9:00-10:30</b>	<b>Semi-Boolean and Hyper-Archimedean BL-algebras</b> <i>Esko Turunen</i> <b>A Fuzzy Hahn-Banach Theorem</b> <i>Wesley Kotze and Andrew Pinchuck</i> <b>The algebraic properties of linguistic value "Truth" and its reasoning</b> <i>Zheng Pei</i> <b>Fuzzy Subgroups with Meet Operation in the connection of Mobius Transformations</b> <i>Paavo Kukurainen</i> <b>A Method for Automatic Membership Function Estimation Based on Fuzzy Measures</b> <i>Grzegorz Nieradka and Bohdan Butkiewicz</i> <b>How to Solve a System of Linear Equations with Fuzzy Numbers</b> <i>Rostislav Horcik</i>
<b>PS8</b>	<b>Fuzzy Logic Applications III</b> <b>Chair:</b> Sankar K. Pal <b>Room:</b> Brisa
<b>9:00-10:30</b>	<b>An Approach to Theory of Fuzzy Discrete Signals</b> <i>Bohdan S. Butkiewicz</i> <b>A Fuzzy Model for Olive Oil Sensory Evaluation</b> <i>Luis Martinez, Luis G. Perez, Jun Liu, and Macarena Espinilla</i> <b>Fuzzy Cognitive Layer in RoboCupSoccer</b> <i>Susana Muñoz-Hernandez and Wiratna Sari Wiguna</i> <b>Using gradual numbers for solving fuzzy-valued combinatorial optimization problems</b> <i>Adam Kasperski and Pawel Zielinski</i> <b>Rough-fuzzy Case Generation, Rough-fuzzy Clustering and Image Segmentation</b> <i>Sankar K. Pal</i>
<b>3SS</b>	<b>The application of fuzzy logic and soft computing in flexible querying I</b> <b>Chair:</b> Guy DeTre and Slawomir Zadrozny <b>Room:</b> Mar
<b>9:00-10:30</b>	<b>Towards Vague Query Answering in Logic Programming for Logic-based Information Retrieval</b> <i>Umberto Straccia</i> <b>On Browsing Domain Ontologies for Information Base Content</b> <i>Troels Andreassen and Henrik Bulskov</i> <b>Algorithm for Interpretation of Multi-Valued Taxonomic Attributes in Similarity-Based Fuzzy Databases</b> <i>M. Shahriar Hossain, R. A. Angryk</i> <b>Fuzzy Tree Mining: Go soft on your nodes</b> <i>Federico Del Razo Lopez, Anne Laurent, Pascal Poncelet, and Maguelonne Teisseire</i> <b>Flexible Location-Based Spatial Queries</b> <i>G. Bordogna M. Pagani G. Pasi G. Psaila</i> <b>Numerical Properties of Fuzzy Regions: Surface Area</b> <i>Jorg Verstraete and Axel Hallez</i>
<b>12 SS</b>	<b>Soft Computing in Petroleum Applications I</b> <b>Chair:</b> Leonid Sheremetov and Masoud Nikraves <b>Room:</b> Luna
<b>9:00-10:30</b>	<b>Estimating Monthly Production of Oil Wells</b> <i>R. Goteti, A. Tamilarasan, R.S. Balch, S. Mukkamala, A. H. Sung</i> <b>IRESC: Reservoir Characterization</b> <i>M. Nikraves</i> <b>A Fuzzy Approach to the Study of Human Reliability in the Petroleum Industry</b> <i>J. Domech More, R. Tanscheit, M.M. Vellasco, M.A. Pacheco, D.M. Swarcman</i> <b>Evolutionary Computation for Valves Control Optimization in Intelligent Wells under Uncertainties</b> <i>L. Faletti Almeida, Y. J. Túpac Valdivia, J. G. Lazo Lazo, M. A. C. Pacheco, M. M.B.R. Vellasco</i> <b>A Genetic Algorithm for the Pickup and Delivery Problem: an Application to the Helicopter</b>

<b>PS9</b>	<b>Fuzzy Logic Theory IV</b> <b>Chair:</b> Martina Dankova <b>Room:</b> Arena
<b>11:00-12:30</b>	<b>Counting Finite Residuated Lattices</b> <i>Radim Belohlavek and Vilem Vychodil</i> <b>On Proofs and Rule of Multiplication in Fuzzy Attribute Logic</b> <i>Radim Belohlavek and Vilem Vychodil</i> <b>Graded fuzzy rules</b> <i>Martina Dankova</i> <b>On External Measures for Validation of Fuzzy Partitions</b> <i>Alessandro G. Di Nuovo and Vincenzo Catania</i> <b>Coherence Index of Radial Conjunctive Fuzzy Systems</b> <i>David Coufal</i> <b>Bags and Data Clustering: Relations and Differences with Traditional Methods</b> <i>Sadaaki Miyamoto</i>
<b>PS10</b>	<b>Fuzzy Logic Applications IV</b> <b>Chair:</b> Jim Baldwin <b>Room:</b> Brisa
<b>11:00-12:30</b>	<b>Fuzzy Classifier with Probabilistic IF-THEN Rules</b> <i>Hexin Lv, Bin Zhu, and Yongchuan Tang</i> <b>A Fuzzy Approach for the Sequencing of Didactic Resources in Educational Adaptive Hypermedia Systems</b> <i>M. Garcia, G. Licea Sandoval, O. Castillo, A. Alanis</i> <b>Fuzzy Controller for Robot Manipulators</b> <i>Basil M. Al-Hadithi, Fernando Matia, and Agustin Jimenez</i> <b>Collaboration between Hyperheuristics to solve Strip-Packing Problems</b> <i>Pablo Garrido and Maria Cristina Riff</i> <b>Conditional Dempster-Shafer Theory for Uncertain Knowledge Updating</b> <i>Hexin Lv, Bin Zhu, and Yongchuan Tang</i>
<b>3SS</b>	<b>The application of fuzzy logic and soft computing in flexible querying II</b> <b>Chair:</b> Guy DeTre and Slawomir Zadrozny <b>Room:</b> Mar
<b>11:00-12:30</b>	<b>Qualification of Fuzzy Statements under Fuzzy Certainty</b> <i>A. Gonzalez, N. Marin, O. Pons, and M.A Vila</i> <b>Complex Quantified Statements Evaluated using Gradual Numbers</b> <i>Ludovic Liétard Daniel Rocacher</i> <b>Properties of Local Andness/Orness</b> <i>J. J. Dujmovic</i> <b>Weighted Conjunctive and Disjunctive Aggregation of Possibilistic Truth Values</b> <i>Tom Matthe, Guy De Tre and Axel Hallez</i> <b>Bipolar queries using various interpretations of logical connectives :</b> <i>Slawomir Zadrozny and Janusz Kacprzyk</i> <b>A hierarchical approach to object comparison</b> <i>Axel Hallez and Guy De Tre</i>
<b>12 SS</b>	<b>Soft Computing in Petroleum Applications II</b> <b>Chair:</b> Leonid Sheremetov and Masoud Nikravesh <b>Room:</b> Luna
<b>11:00-12:30</b>	<b>Real Options and Genetic Algorithms to Approach of the Optimal Decision Rule for Oil field Development under Uncertainties</b> <i>J. G. Lazo Lazo, M. A. C. Pacheco, M. M. B. R. Vellasco</i> <b>Documenting Visual Quality Controls on the Evaluation of Petroleum Reservoir-rocks through Ontology-based Image Annotation</b> <i>F. I. Victoreti, M. Abel, L. F. De Ros, M. M. Oliveira</i> <b>Event Ordering Reasoning Ontology applied to Petrology and Geological Modelling</b> <i>L. S. Mastella, M. Abel, L. F. De Ros, M. Perrin, Jean-François Rainaud</i> <b>Optimization to manage supply chain disruptions using the NSGA-II</b> <i>V. Serrano, M. Alvarado, C. A. Coello Coello</i>

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<b>PS11</b>	<b>Intelligent agents, knowledge and ant colony</b>
	<b>Chair:</b> Joao M. C. Sousa
	<b>Room:</b> Arena
<b>15:30-17:00</b>	<b>On fuzzy projection-based utility decomposition in compound multi-agent negotiations</b>
	<i>Jakub Brzostowski and Ryszard Kowalczyk</i>
	<b>Ant colony optimization applied to feature selection in fuzzy classifiers</b>
	<i>Susana M. Vieira, Joao M. C. Sousa, and Thomas A. Runkler</i>
	<b>Artificial Bee Colony (ABC) Optimization Algorithm for Solving Constrained Optimization Problems</b>
	<i>Dervis Karaboga and Bahriye Basturk</i>
	<b>Beam-ACO Distributed Optimization Applied to Supply-Chain Management</b>
	<i>Joao Caldeira, Ricardo Azevedo, Carlos A. Silva and Joao M. C. Sousa</i>
	<b>A Cultural Algorithm with Operator Parameters Control for Solving Timetabling Problems</b>
	<i>Carlos Soza, Ricardo Landa, Maria Cristina Riff, and Carlos Coello</i>
	<b>On control for agents formation</b>
	<i>Rafael Kelly, Eusebio Bugarin and Carmen Monroy</i>
<b>PS12</b>	<b>Neural networks and control</b>
	<b>Chair:</b> Debrup Chakraborty
	<b>Room:</b> Brisa
<b>15:30-17:00</b>	<b>Discrete-time Recurrent High Order Neural Observer for Induction Motors</b>
	<i>Edgar N. Sanchez, Alma Y. Alanis, and Alexander G. Loukianov</i>
	<b>Strict Generalization in Multilayered Perceptron Networks</b>
	<i>Debrup Chakraborty and Nikhil R. Pal</i>
	<b>Fault tolerant control of a three tank benchmark using weighted predictive control</b>
	<i>L. F. Mendonca, J.M.C. Sousa, and J.M.G. Sa da Costa</i>
	<b>Synchronization in Arrays of Chaotic Neural Networks</b>
	<i>C. Posadas-Castillo and C. Cruz-Hernandez R.M. Lopez-Gutierrez</i>
<b>7SS</b>	<b>Perception Based Data Mining and Decision Making</b>
	<b>Chair:</b> I. Batyrshin, J. Kacprzyk, R. Yager
	<b>Room:</b> Mar
<b>15:30-17:00</b>	<b>Extracting fuzzy linguistic summaries based on including degree theory and FCA</b>
	<i>Li Zhang, Zheng Pei, and Honghua Chen</i>
	<b>Linguistic summarization of time series by using the Choquet integral</b>
	<i>Janusz Kacprzyk, Anna Wilbik, and Slawomir Zadrozny</i>
	<b>Looking for dependencies in short time series using imprecise statistical data</b>
	<i>O. Hryniewicz</i>
	<b>Perception Based Time Series Data Mining for Decision Making</b>
	<i>I. Batyrshin and L. Sheremetov</i>
	<b>Visualization of Possibilistic Potentials</b>
	<i>Matthias Steinbrecher and Rudolf Kruse</i>
	<b>Data mining for fuzzy relational data servers</b>
	<i>A.P. Velmisov, A.A. Stetsko, N.G. Yarushkina</i>
	<b>Computational Intelligence Models of the Distributed Technological Complexes</b>
	<i>A. Sadovnychyy, S. Sadovnychiy, V. Ponomaryov</i>
<b>PS23</b>	<b>Intelligent Agents and Fuzzy Logic</b>
	<b>Chair:</b> Joao P. Carvalho
	<b>Room:</b> Luna
<b>15:30-17:00</b>	<b>An Intelligent Belief-Desire-Intention Agent for Digital Game-Based Learning</b>
	<i>Christian Anthony L. Go and Won-Hyung Lee</i>
	<b>Improved Scheme for Telematics Fault Tolerance with Agents</b>
	<i>Woonsuk Suh, Seunghwa Lee, and Eunseok Lee</i>
	<b>Multi-agent based Integration of Production and Distribution Planning using Genetic Algorithm in the Supply Chain Management</b>
	<i>Byung Joo Park, Hyung Rim Choi and Moo Hong Kang</i>
	<b>Two-Input Fuzzy TPE Systems</b>
	<i>Joao P. Carvalho, Jose Tome, Daniel Chang-Yan</i>
	<b>Intelligent Decision Support System</b>
	<i>Janos L. Grantner, George A. Fodor, Ramakrishna Gottipati, Norali Pernaletе and Sandra</i>

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## Wednesday, June 20, 2007

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**PS13**

### **Fuzzy Logic Theory V**

**Chair:** Etienne Kerre

**Room:** Arena

**9:00-10:30**

#### **Topology in Fuzzy Class Theory: Basic Notions**

*Libor Behounek and Tomas Kroupa*

#### **Features of Mathematical Theories in Formal Fuzzy Logic**

*Libor Behounek and Petr Cintula*

#### **A new method to compare Dynamical Systems**

*Juan Moreno-Garcia, Jose Jesus Castro-Sanchez, Luis Jimenez*

#### **Advances in the Geometrical Study of Rotation-Invariant T-norms**

*Koen C. Maes and Bernard De Baets*

#### **Fuzzy Reversed Posynomial Geometric Programming and Its Dual Form**

*Bing-yuan Cao*

#### **Posynomial Fuzzy Relation Geometric Programming**

*Ji-hui Yang and Bing-yuan Cao*

**PS14**

### **Type-2 Fuzzy Logic**

**Chair:** Oscar Castillo

**Room:** Brisa

**9:00-10:30**

#### **A Vector Similarity Measure for Type-1 Fuzzy Sets**

*Dongrui Wu and Jerry M. Mendel*

#### **On Approximate Representation of Type-2 Fuzzy Sets using Triangulated Irregular Network**

*Long Thanh Ngo, Long Pham The, Phuong Hoang Nguyen, and Kaoru Hirota*

#### **Fuzzy Subsethood for Type-2 Fuzzy Sets**

*John T. Rickard, Janet Aisbett, Greg Gibbon*

#### **Hybrid Control for an Autonomous Wheeled Mobile Robot under Perturbed Torques**

*Leslie Astudillo, Oscar Castillo, Luis T. Aguilar, and Ricardo Martinez*

#### **Type-2 Fuzzy Logic for Improving Training Data and Response Integration in Modular Neural Networks for Image Recognition**

*Olivia Mendoza, Patricia Melin, Oscar Castillo, and Guillermo Licea*

#### **A Method for Response Integration in Modular Neural Networks with Type-2 Fuzzy Logic for Biometric Systems**

*Jérica Urias, Denisse Hidalgo, Patricia Melin, Oscar Castillo*

**3SS**

### **The application of fuzzy logic and soft computing in flexible querying III**

**Chair:** Guy DeTre and Slawomir Zadrozny

**Room:** Mar

**9:00-10:30**

#### **FuzzyXPath: using fuzzy logic an IR features to approximately query XML documents.**

*Ernesto Damiani, Stefania Marrara, and Gabriella Pasi*

#### **A New Approach for Boolean Query Processing in Text Information Retrieval**

*L. Baird and D. H. Kraft*

#### **Multi-objective Evolutionary Algorithms in the Automatic Learning of Boolean Queries. A Comparative Study**

*A.G. Lopez-Herrera, E. Herrera-Viedma, F. Herrera, C. Porcel, and S. Alonso*

#### **Interactions between Decision Goals Applied to the Calculation of Context Dependent Re-Rankings of Results of Internet Search Engines**

*R. Felix*

#### **Using fuzzy logic to handle the users' semantic descriptions in a music retrieval system**

*M. Lesaffre and M. Leman*

#### **Optimized Algorithm of Discovering Functional Dependencies with Degrees of Satisfaction based on Attribute Pre-scanning Operation**

*Qiang Wei, Guoqing Chen, Xiaocang Zhou*



<b>8SS</b>	<b>Fuzzy /Possibilistic Optimization</b> <b>Chair:</b> Masahiro Inuiguchi and Weldon A. Lodwick <b>Room:</b> Luna
<b>9:00-10:30</b>	<b>Possibilistic Worst Case Distance and applications to circuit sizing</b> <i>E. Sciacca, S. Spinella, A. Marcello Anile</i> <b>An Algorithm to Solve Two-person Non-zero Sum Fuzzy Games</b> <i>W. Amaral, F. Gomide</i> <b>One-Shot Decision with Possibilistic information</b> <i>P. Guo</i> <b>Portfolio selection problem based on possibility theory using the scenario model with ambiguous future returns</b> <i>T. Hasuike, H. Ishii</i> <b>Optimization of Fuzzy Objective Functions in Fuzzy (Multicriteria) Linear Programs - a Critical Survey</b> <i>H. J. Rommelfanger</i>
<b>5SS</b>	<b>Intuitionistic fuzzy sets and their applications I</b> <b>Chair:</b> Eulalia Szmidt and Janusz Kacprzyk <b>Room:</b> Mar
<b>11:00-12:30</b>	<b>Atanassov's intuitionistic fuzzy sets as a classification model</b> <i>J. Montero, D. Gomez, and H. Bustince</i> <b>Classification with nominal data using intuitionistic fuzzy sets</b> <i>Eulalia Szmidt and Janusz Kacprzyk</i> <b>Intuitionistic Fuzzy Histograms of an Image</b> <i>Ioannis K. Vlachos, George D. Sergiadis</i> <b>Image Threshold using A-IFSs based on Bounded Histograms</b> <i>P.Couto, H.Bustince, V.Filipe, E.Barrenechea, M.Pagola, P.Melo-Pinto</i>
<b>13SS</b> <b>FLINT</b>	<b>Search Engine and Information Processing and Retrieval I</b> <b>Chair:</b> Masoud Nikravesch <b>Room:</b> Luna
<b>11:00-12:30</b>	<b>FCBIR: A Fuzzy Matching Technique for Content-Based Image Retrieval</b> <i>V.. S. Tseng, J.H. Su, and W.J. Huang</i> <b>Web Usage Mining via Fuzzy Logic Techniques</b> <i>Victor H. Escobar-Jeria, Maria J. Martin-Bautista, Daniel Sanchez and Maria-Amparo Vila</i> <b>Computing with Words Using Fuzzy Logic: Possibilities for Application in Automatic Text Summarization</b> <i>S. Liu</i> <b>Concept-Based Questionnaire System</b> <i>M. Nikravesch</i> <b>Deduction Engine Design for PNL-based Question Answering System</b> <i>Zengchang Qin, Marcus Thint and M.M. Sufyan Beg</i>
<b>PS15</b>	<b>Type-2 Fuzzy Logic: Theory and Applications</b> <b>Chair:</b> Patricia Melin <b>Room:</b> Arena
<b>11:00-12:30</b>	<b>Evolving Type-2 Fuzzy Logic Controllers for Autonomous Mobile Robots</b> <i>Christian Wagner and Hani Hagras</i> <b>Adaptive Type-2 Fuzzy Logic for Intelligent Home Environment</b> <i>Sunghoi Huh, Seung-Eun Yang, Kwang-Hyun Park, JunHyeong Do, Hyoyoung Jang, and Z. Zenn Bien</i> <b>Interval Type-1 Non-Singleton Type-2 TSK Fuzzy Logic Systems Using the Hybrid Training Method RLS-BP</b> <i>G. M. Mendez</i> <b>An Efficient Computational Method to Implement Type-2 Fuzzy Logic in Control Applications</b> <i>Roberto Sepúlveda, Oscar Castillo, Patricia Melin, Oscar Montiel</i> <b>Building Fuzzy Inference Systems with the Interval Type-2 Fuzzy Logic Toolbox</b> <i>J.R. Castro, Oscar Castillo, Patricia Melin, L.G. Martínez, S. Escobar, I. Camacho</i> <b>Intelligent Control for a Perturbed Autonomous Wheeled Mobile Robot using a Type-2 Fuzzy Logic and Genetic Algorithms</b>

<b>PS24</b>	<i>Ricardo Martinez, Luis Tupak Aguilar, Oscar Castillo</i>
	<b>Evolutionary Computation I</b>
	<b>Chair:</b> Hisao Ishibuchi
	<b>Room:</b> Brisa
<b>11:00-12:30</b>	<b>An Ant Colony Optimization <i>plug-in</i> to enhance the interpretability of fuzzy rule bases with exceptions</b>
	<i>P. Carmona, J.L. Castro</i>
	<b>Performance Improvement of the Attitude Estimation System using Fuzzy Inference and Genetic Algorithms</b>
	<i>Min-Soo Kim</i>
	<b>Multi Objective Optimization in Machining Operations</b>
	<i>Orlando Durán, Roberto Barrientos, Luiz Airtton Consalter</i>
	<b>Use of Pareto-Optimal and Near Pareto-Optimal Candidate Rules in Genetic Fuzzy Rule Selection</b>
	<i>Hisao Ishibuchi, Isao Kuwajima, and Yusuke Nojima</i>
	<b>Evolutionary Computing for the Optimization of Mathematical Functions</b>
	<i>Fevrier Valdez, Patricia Melin and Oscar Castillo</i>
	<b>Providing Intelligence to Evolutionary Computational Methods</b>
	<i>Oscar Montiel, Oscar Castillo, Patricia Melin, Roberto Sepúlveda</i>
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<b>5SS</b>	<b>Intuitionistic fuzzy sets and their applications II</b>
	<b>Chair:</b> Eulalia Szmidt and Janusz Kacprzyk
	<b>Room:</b> Mar
<b>15:30-17:00</b>	<b>The Role of Entropy in Intuitionistic Fuzzy Contrast Enhancement</b>
	<i>Ioannis K. Vlachos, George D. Sergiadis</i>
	<b>On Imprecision Intuitionistic Fuzzy Sets &amp; OLAP – The Case for KNOLAP</b>
	<i>E. Rogova, P. Chountas</i>
	<b>Representation of rough sets based on intuitionistic fuzzy special sets</b>
	<i>Zheng Pei, Li Zhang, and Honghua Chen</i>
<b>8SS</b>	<b>Fuzzy possibilistic optimization</b>
	<b>Chair:</b> Masahiro Inuiguchi and Weldon A. Lodwick
	<b>Room:</b> Arena
<b>15:30-17:00</b>	<b>On Possibilistic/Fuzzy Optimization</b>
	<i>Masahiro Inuiguchi</i>
	<b>The Use of Interval-Valued Probability Measures in Optimization Under Uncertainty for Problems Containing a Mixture of Fuzzy, Possibilistic, and Interval Uncertainty :</b>
	<i>Weldon A. Lodwick and K. David Jamison</i>
	<b>On selecting an algorithm for fuzzy optimization</b>
	<i>Elizabeth Untiedt and Weldon Lodwick</i>
	<b>A Risk-Minimizing Model under Uncertainty in Portfolio</b>
	<i>Yuji Yoshida</i>
<b>9SS</b>	<b>Algebraic Foundations of Soft Computing I</b>
	<b>Chair:</b> Irina Perfilieva, Vilém Novák
	<b>Room:</b> Brisa
<b>15:30-17:00</b>	<b>On Extension of LI-ideal in Lattice Implication Algebra</b>
	<i>L. Jiajun, X. Yang, J. Ma</i>
	<b>Congruence Relations Induced by Filters and LI-ideals</b>
	<i>Z. Chang, Y. Xu</i>
	<b>Sub-Algebras of Finite Lattice Implication Algebra</b>
	<i>Y. Xu, J. Ma, J. Lai</i>
	<b>Semantics Properties of Compound Evaluating Syntagms</b>
	<i>Z. Pei, B. Jiang, L. Yi, Y. Xu</i>
	<b>Characteristic morphisms and models of fuzzy logic in a category of sets with similarities</b>
	<i>J. Mockor</i>
<b>13SS</b>	<b>Search Engine and Information Processing and Retrieval II</b>
<b>FLINT</b>	<b>Chair:</b> Masoud Nikraves
	<b>Room:</b> Luna
<b>15:30-17:00</b>	<b>Granular Computing and Modeling the Human Thoughts in Web Documents</b>

Tsau Young Lin

**A Hybrid Model for Document Clustering based on a Fuzzy Approach of Synonymy and Polysemy**

*F. P. Romero, A. Soto, J. A. Olivas*

**Morphic Computing**

*G. Resconi and M. Nikraves*

**Morphic Computing: Web and Agents**

*G. Resconi and M. Nikraves*

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## Thursday, June 21, 2007

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**PS16**

**Fuzzy Clustering: Theory and Applications**

**Chair:** Frank Chung-Hoon Rhee

**Room:** Luna

**9:00-10:30**

**Comparison of the Performance of Seven Classifiers as Effective Decision Support Tools for the Cytodiagnosis of Breast Cancer: a Case Study**

*Nicandro Cruz-Ramírez, Héctor-Gabriel Acosta-Mesa, Humberto Carrillo-Calve, Rocío-Erandi Barrientos-Martínez*

**MFCM for Nonlinear Blind Channel Equalization**

*Soowhan Han, Sungdae Park, and Witold Pedrycz*

**Fuzzy Rules Extraction from Support Vector Machines for Multi-class Classification**

*Adriana da Costa F. Chaves, Marley Maria B. R. Vellasco, Ricardo Tanscheit*

**Density based Fuzzy Support Vector Machines for Multicategory Pattern Classification**

*Frank Chung-Hoon Rhee, Jong Hoon Park and Byung In Choi*

**A Modified FCM Algorithm for Fast Segmentation of Brain MR Images**

*L. Szilágyi, S. M. Szilágyi, Z. Benyó*

**Incorporation of Non-Euclidean Distance Metrics into Fuzzy Clustering on Graphics Processing Units**

*Derek Anderson, Robert H. Luke, and James M. Keller*

**PS17**

**Intelligent Identification and Control**

**Chair:** Fernando Gomide

**Room:** Mar

**9:00-10:30**

**A Fuzzy-Neural Hierarchical Multi-Model for Systems Identification and Direct Adaptive Control**

*Ieroham Baruch, Jose-Luis Olivares G., Carlos-Roman Mariaca-Gaspar, and Rosalíba Galvan Guerra*

**A Sliding Mode Control Using Fuzzy-Neural Hierarchical Multi-Model Identifier**

*I. Baruch, J. O. Guzman, C.R. Mariaca-Gaspar, R. Galvan-Guerra*

**Robust Speed Controller Design Method Based on Fuzzy Control for Torsional Vibration Suppression in Two-Mass System**

*Eun-Chul Shin, Tae-Sik Park, Ji-Yoon Yoo and Dong-Sik Kim*

**Self-Organizing Fuzzy Controller Based on Fuzzy Neural Network**

*Seongwon Cho, Jaemin Kim and Sun-Tae Chung*

**Decision Making Strategies for Real-Time Train Dispatch and Control**

*Alexandre Tazoniero, Rodrigo Gonçalves and Fernando Gomide*

**Soft Margin Training for Associative Memories Implemented by Recurrent Neural Networks**

*Jose A. Ruz-Hernandez, Edgar N. Sanchez and Dionisio A. Suarez*

**9SS**

**Algebraic Foundations of Soft Computing II**

**Chair:** Irina Perfilieva, Vilém Novák

**Room:** Brisa

**9:00-10:30**

**Fixed points and Solvability of Systems of Fuzzy Relation Equations**

*I. Perfilieva*

**Towards a proof theory for Basic Logic**

*T. Vetterlein*

**MV-algebras with the Cantor–Bernstein property**

*A. Di Nola, M. Navara*

**On Lukasiewicz logic with truth constants**

	<p><i>R. Cignoli, F. Esteva, L. Godo</i>  <b>EQ-algebras in progress</b>  <i>V. Novak</i>  <b>Weak Completeness of Resolution in a Linguistic Truth-Valued Propositional Logic</b>  <i>Y. Xu, S. Chen, J. Liu, D. Ruan</i></p>
<b>10SS</b>	<p><b>Joint model-based and data-based learning: The fuzzy logic approach</b>  <b>Chair:</b> Joseph Aguilar-Martin and Julio Waissman Vilanova  <b>Room:</b> Arena</p>
<b>9:00-10:30</b>	<p><b>Selection Criteria for Fuzzy Unsupervised Learning: Applied to Market Segmentation</b>  <i>German Sanchez, Nuria Agell, Juan Carlos Aguado, Monica Sanchez, and Francesc Prats</i>  <b>Fuzzy backpropagation neural networks for nonstationary data prediction</b>  <i>Ramon Soto C.</i>  <b>Fuzzy model based iterative learning control for phenol biodegradation</b>  <i>Marco Marquez, Julio Waissman, and Olivia Gutu</i>  <b>Process Monitoring Using Residuals and Fuzzy Classification with Learning Capabilities</b>  <i>J. Aguilar-Martin, C. Isaza, E. Diez-Lledo, M. Veronique LeLann, J. Waissman Vilanova</i>  <b>Fuzzy Modelling Methodologies for Large Database</b>  <i>Virgilio Lopez Morales, Julio Cesar Ramos Fernandez, Gilles Enea and Jean Duplaix</i></p> <hr/>
<b>PS19</b>	<p><b>Time Series Prediction</b>  <b>Chair:</b> Eduardo Gomez Ramirez  <b>Room:</b> Brisa</p>
<b>11:00-12:30</b>	<p><b>Clustering and Classification of Agricultural Production Historical Data of Tomato in Mexico to Identificate Zones with Similar Behavior</b>  <i>Patricia Melin, Wendy Lizeth Trujillo, Alejandra Mancilla</i>  <b>M-Factor High Order Fuzzy Time Series Forecasting for Road Accident Data</b>  <i>Tahseen Ahmed Jilani and Syed Muhammad Aqil Burney</i>  <b>Optimization of Artificial Neural Networks Architectures for Time Series Prediction using Paralel Genetic Algorithms</b>  <i>Salvador Gonzalez, Oscar Castillo, Patricia Melin,</i>  <b>Fuzzy Time Series: A Realistic Method To Forecast Gross Domestic Capital Of India</b>  <i>Mrinalini Shah</i>  <b>Intelligent System for Forecasting Tomato Prices in Mexico using Artificial Neural Networks</b>  <i>Jose Cota, Patricia Melin, Roberto Sepulveda</i></p>
<b>PS18</b>	<p><b>Fuzzy Modeling</b>  <b>Chair:</b> J.L.Verdegay  <b>Room:</b> Luna</p>
<b>11:00-12:30</b>	<p><b>Representing fuzzy numbers for fuzzy calculus</b>  <i>Luciano Stefanini and Laerte Sorini</i>  <b>Fuzzy Parallel Processing of Hydro Power Plants – Why Not?</b>  <i>Dimitar Vasilev Lakov</i>  <b>A Dynamic Method of Experiment Design of Computer Aided Sensory Evaluation</b>  <i>Bin Luo</i>  <b>Measure of Uncertainty in Regional Grade Variability</b>  <i>Bulent Tutmez, Uzey Kaymak</i>  <b>PC-TOPSIS method for the selection of a cleaning system for engine maintenance</b>  <i>M<sup>a</sup> Socorro Garcia, M<sup>a</sup> Teresa Lamata, J.L.Verdegay</i></p>
<b>11SS</b>	<p><b>Soft Computing in Medical Sciences</b>  <b>Chair:</b> Rudolf Seising, and Christian Schuh  <b>Room:</b> Mar</p>
<b>11:00-12:30</b>	<p><b>Similarity and distance – their paths from crisp to fuzzy concepts and an application in medical philosophy</b>  <i>R. Seising, J. Limberg</i>  <b>The Choquet and Sugeno Integral as Measures of Total Effectiveness of Medicines</b>  <i>E. Rakus-Andersson, C. Jogleus</i>  <b>Adjusting an Environment to Human Behaviors Based on Biopsy Information</b>  <i>J. Watada, Z. Binti Musa</i>  <b>Managing Uncertainty with Fuzzy- Automata and Control in an Intensive Care Environment</b></p>

**15SS**

**Fuzzy Logic and Soft Computing in Distributed Computing**

**Chair:** Lifeng Xi and Kun Gao

**Room:** Arena

**11:00-12:30**

**A Framework to Support Distributed Data Mining on Grid**

*K. Gao, L. Xi, J. Li*

**Adaptive Processing Scheme of Overflowed Buckets for Bucket Sort Algorithm**

*P. Liu, Y. Ma, J. Dong*

**A Novel Fractal Image Coding Based on Quadtree Partition of the Adaptive Threshold Value**

*L. Zhang, L. Xi*

**Towards the Application of Distributed Database in University MIS**

*X. Wang, Y. Fang*

**Fractal Interpolation Fitness Based on BOX Dimension's Pretreatment**

*Q. Wang, M. Jin, L. Xi, Z. Meng*

**A Statistical Spam Filtering Scheme Based on Grid Platform**

*P. Liu, J. Dong, W. Zhao*

**An Approach to Web Prefetching Agent Based on Web Ontology with Hidden Markov Model**

*X. Jin*

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**PS20**

**Intelligent Manufacturing and Scheduling**

**Chair:** Eduardo Gomez Ramirez

**Room:** Brisa

**14:00-15:30**

**Enhanced Genetic Algorithm-based Fuzzy Multiobjective Strategy to Multiproduct Batch Plant Design**

*Alberto A. Aguilar-Lasserre, Catherine Azzaro-Pantel, Luc Pibouleau, Serge Domenech*

**Fuzzy Logic based Replica Management Infrastructure for Balanced Resource Allocation and Efficient Overload Control of the Complex Service-Oriented Applications**

*Jun Wang, Di Zheng, Huai-Min Wang, Quan-Yuan Wu*

**Applying Genetic-Fuzzy Approach to Model Polyester Dyeing**

*Maryam Nasiri, S. Mahmoud Taheri, Hamed Tarkesh*

**Gear Fault Diagnosis in Time Domains by Using Bayesian Networks**

*Yuan Kang, Chun-Chieh Wang, Yeon-Pun Chang*

**PS22**

**Robotics and Manufacturing**

**Chair:** Hichem Maaref

**Room:** Arena

**14:00-15:30**

**Moving Object Tracking using the Particle Filter and SOM in Robotic Space with Network Sensors**

*TaeSeok Jin, JinWoo Park*

**Robust Stability Analysis of a Fuzzy Vehicle Lateral Control System Using Describing Function Method**

*Jau-Woei Perng, Bing-Fei Wu, Tien-Yu Liao, Tsu-Tian Lee*

**Self-Tunable Fuzzy Inference System: A comparative study for a drone**

*Hichem Maaref, Kadda Meguenni Zemalache and Lotfi Beji*

**Modeling and Simulation by Petri Networks of a Fault Tolerant Agent Node**

*Arnulfo Alanis Garza, Juan José Serrano, Rafael Ors Carot, José Mario García Valdez*

**PS25**

**Pattern Recognition II**

**Chair:** S. M. Szilágyi

**Room:** Luna

**14:00-15:30**

**On the Possibility of Reliably Constructing a Decision Support System for the Cytodiagnosis of Breast Cancer**

*Nicandro Cruz-Ramírez, Héctor-Gabriel Acosta-Mesa, Humberto Carrillo-Calvet, Rocío-Erandi Barrientos-Martínez*

**Spatial Heart Simulation and Analysis Using Unified Neural Network**

*S. M. Szilágyi, L. Szilágyi, Z. Benyó*

**Fuzzy C-Means, Gustafson-Kessel FCM, and Kernel-based FCM: A Comparative Study**

*Daniel Graves, Witold Pedrycz*

**Improved Fuzzy c-means Segmentation Algorithm for Images with Intensity Inhomogeneity**

*Qingjie Zhao, Jingjing Song, Yueyin Wu*

**PS26**

**Evolutionary Computation II**

**Chair:** Luciano Stefanini

**Room:** Mar

**14:00-15:30**

**A Differential Evolution Algorithm for Fuzzy Extension of Functions**

*Luciano Stefanini*

**Integration of Production and Distribution Planning using a Genetic Algorithm in Supply Chain Management**

*Byung Joo Park, Hyung Rim Choi and Moo Hong Kang*

**Optimal Path Planning for Autonomous Mobile Robot Navigation Using Ant Colony**

**Optimization and a Fuzzy Cost Function Evaluation**

*M.A. Porta García, Oscar Montiel, Oscar Castillo, Roberto Sepúlveda*

**Bacteria Swarm Foraging Optimization for Dynamical Resource Allocation in a Multizone Temperature Experimentation Platform**

*Mario A. Muñoz, Jesús A. López, Eduardo Caicedo*

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