



# Conference Program

## TUESDAY, May 20th 2008

**Time: 8:30AM - 8:50AM**

Opening and Conference Information

Location: **Area 1**

**Time: 9:00AM - 9:50AM**

Plenary Talk:

**Is There a Need for Fuzzy Logic?**

Lotfi A. Zadeh

Location: **Area 1**

**Time: 9:50AM - 10:10AM**

Coffee Break

**Time: 10:10AM - 12:10PM**

**Special Session 1.1: Type 2 Fuzzy Sets and Systems**

Location: **Area 1**

- **Fuzzy Subsethood for Fype-n Fuzzy Sets**  
John T. Rickard, Janet Aisbett, Greg Gibbon, David Morgenthaler
- **Generating Maximal Entropy Probability Density From an Interval-Valued Fuzzy Set**  
Carol Walker, Elbert Walker, Ronald R. Yager
- **Tutorial on the Uses of the Interval Type-2 Fuzzy Set's *Wavy Slice Representation Theorem***  
Jerry M. Mendel
- **Parametric Design of Stable Type-2 TSK Fuzzy Systems**  
Mohammad Biglar Begian, William Melek, Jerry M. Mendel
- **Linear Programming with Interval Type-2 Fuzzy Right Hand Side Parameters**  
Juan Carlos Figueroa Garcia
- **Towards Fast Algorithms for Processing Type-2 Fuzzy Data: Extending Mendel's Algorithms from Interval-valued to a More General Case**  
Vladik Kreinovich, Gang Xiang

**Special Session 1.2: Rough Sets and Granular Computing - Part I**

Location: **Area 2**

- **Granular Computing: Category Theory Based Models**  
T. Y. Lin
- **Mixed Fuzzy Functions**  
I. Burhan Turksen
- **Descriptive Data Mining: a Granular Model**  
Anita Wasilewska
- **Examining Granular Computing from a Modeling Perspective**  
Ying Xie, Jayasimha Katukuri, Vijay V. Raghavan, Tom Johnsten
- **Data Integration with Granules**  
Eric Louie
- **High Frequency Rough Set Model based on Database Systems**  
Kartik Vaithyanath, T. Y. Lin

**TUESDAY, May 20th 2008**

**Time: 10:10AM - 12:10PM**

**Session 1.3: Classification, Segmentation and Clustering**

Location: **Area 3**

- **Online Fuzzy C Means**  
Prodip Hore, Larry Hall, Dmitry Goldgof, Weijian Cheng
- **A Fuzzy Classifier to Taxonomically Group DNA Fragments within a Metagenome**  
Sara Nasser, Adrienne Breland, Frederick Harris Jr, Monica Nicolescu
- **A Visual Explanation System for Explaining Fuzzy Reasoning Results by Fuzzy Rule-based Classifiers**  
Hisao Ishibuchi, Yutaka Kaisho, Yusuke Nojima
- **On Filling-in Missing Attribute Values for Bayes and Fuzzy Classifiers**  
Anca Ralescu, Sofia Visa
- **Aided Image Understanding System**  
Ana Del Amo, Michael Farmer
- **Multiple Views for Ontology-based Formal Concept Lattices**  
Valerie Cross, Wenting Yi

**Special Session 1.4: Generalized Information Theory - Part I**

Location: **Area 4**

- **Measures of Uncertainty and Uncertainty-Based Information in GIT: A Historical Overview**  
George J. Klir, Andrey Bronevich
- **Axioms for Uncertainty Measures on Belief Functions and Credal Sets**  
Andrey Bronevich, George J. Klir
- **Measuring Total Uncertainty in Dempster-Shafer Theory of Evidence: Properties and Behaviors**  
Joaquin Abellan, Serafin Moral
- **On the Measure of Specificity of Intuitionistic Fuzzy Sets**  
Ronald R. Yager
- **Probability Boxes as in Info-Gap Models**  
Scott Ferson, Troy Tucker
- **Sensitivity Analysis Through Random and Fuzzy Sets**  
Michael Oberguggenberger, Bernhard Schmelzer, Wolfgang Fellin

**TUESDAY, May 20th 2008**

**Time: 12:10PM - 1:30PM**

Break

**Time: 1:30PM - 3:30PM**

**Session 2.1: Fuzzy Regression, Relations and Probability**

Location: **Area 1**

- **An Ultra-fuzzy Model of Aggregate Growth in Catastrophic Risk Potentials**  
Mark Jablonowski
- **Multiple Hybrid Regression for Fuzzy Observed Data**  
Olga Poleshuk, Evgeniy Komarov
- **Compositions of Fuzzy Relations With Hedges II**  
Eduard Bartl, Radim Belohlavek, Vilem Vychodil
- **Integrating Linguistic Fuzzy Knowledge and a Probabilistic Approach**  
Anna Walaszek-Babiszewska

**Special Session 2.2: Rough Sets and Granular Computing - Part II**

Location: **Area 2**

- **Statistical Independence of Three Variables and Contingency Matrix**  
Shusaku Tsumoto, Shoji Hirano, Hidenao Abe
- **Use of Fuzzy Ontologies in Generalization of Knowledge Tree Results**  
Fred Petry, Ronald R. Yager
- **Granular Computing: Information Hiding and Integration**  
T. Y. Lin
- **A Model for Protein Secondary Structure Prediction Meta - Classifiers**  
Anita Wasilewska
- **A Personalized Context-Dependent Web Search Agent Using Semantic Trees**  
Yan Chen, HaiLong Hou, Yan-Qing Zhang
- **Granular Computing on Covering from the Aspects of Knowledge Theory**  
Rushing Barot, T. Y. Lin

**TUESDAY, May 20th 2008**

**Time: 1:30PM - 3:30PM**

**Special Session 2.3: Inter-Relation between Interval and Fuzzy Techniques - Part I**

Location: **Area 3**

- **Applications of 1-D Versions of Image Referencing Techniques to Hydrology and to Patient Rehabilitation**  
Roberto Araiza, Martine Ceberio, Naga Suman Kanagala, Vladik Kreinovich, Gang Xiang
- **Towards an Optimal Placement of Sensors in Wireless Sensor Networks with Dynamic Routing**  
Dante E. Barragan, Virgilio Gonzalez
- **Towards a More Realistic Representation of Uncertainty: An Approach Motivated by Info-Gap Decision Theory**  
Daniel J. Berleant, Karen Villaverde, Olga M. Kosheleva
- **Interval-based Multi-Criteria Decision Making: Strategies to Order Intervals**  
Tanja Magoc, Martine Ceberio, Francois Modave
- **How to Measure a Degree of Mismatch Between Probability Models, p-Boxes, etc.: A Decision Theory-Motivated Utility-Based Approach**  
Scott Ferson, Luc Longpre, W. Troy Tucker
- **Potential Application of Fuzzy Techniques to Math Education: Emphasizing Paradoxes as a (Seemingly Paradoxical) Way to Enhance the Learning of (Strict) Mathematics**  
Olga Kosheleva

**Special Session 2.4a: Generalized Information Theory - Part II**

Location: **Area 4**

- **Partitions and Pignistic Distributions in GIT**  
Mark Wierman
- **The Class of Nearest Belief Functions to a Given Probability Measure**  
A.E. Lepskiy

**Session 2.4b: Possibility Theory and its Applications - Part I**

- **Possibilistic Risk Assessment**  
Thomas Whalen, Carl Bronn
- **Possibility Measures through a Probabilistic Inferential Process**  
Giulianella Coletti, Romano Scozzafava, Barbara Vantaggi

**TUESDAY, May 20th 2008**

**Time: 3:30PM - 3:50PM**

Coffee Break

**Time: 3:50PM - 5:50PM**

**Special Session 3.1: Artificial Adaptive Systems in Medicine**

Location: **Area 1**

- **Four New Adaptive Systems for Four Medical Applications - Part 1**  
Massimo Buscema
- **Four New Adaptive Systems for Four Medical Applications - Part 2**  
Massimo Buscema
- **Is Information Being Denied to the Scientific Community by the Reductionist Approach to Data Analysis in Stroke Related Clinical Trials?**  
Cathy Helgason, Massimo Buscema, Enzo Grossi
- **J-Net System: a new paradigm for Artificial Neural Networks applied to Diagnostic Imaging**  
Enzo Grossi, Massimo Buscema
- **Powerful Computerized Spatial Epidemiology and Semantics Through the Use of Novel Mathematical Objects: Can Artificial Intelligence Systems Identify Outbreak Sources?**  
Tom Jefferson, Enzo Grossi, Massimo Buscema
- **The Transferal of Evidences Derived from Clinical Research to Single Patient Level: Automatic Distinction of Normal Elderly vs. Mild Cognitive Impairment Subjects by Resting EEG Data Processed by IFAST, a Novel Intelligent System**  
Paolo M. Rossini, Massimo Buscema, Enzo Grossi

**Session 3.2: Fuzzy Control**

Location: **Area 2**

- **Deriving Analytical Structure of a Type-2 Fuzzy PD/PI Controller**  
Xinyu Du, Hao Ying
- **A Multi-Level Fuzzy Control Design for General Nonlinear Multi-Input Single-Output Systems**  
Chengying Xu, Yung Shin
- **Fuzzy Assignable Cause Diagnosis of Control Chart Patterns**  
Kudret Demirli, Sujikumar Vijayakumar
- **A TS-Type Fuzzy Automaton for Software Agents**  
Janos Grantner, George Fodor
- **A Simple Multi-Chromosome Genetic Algorithm Optimization of a Proportional-plus-Derivative Fuzzy Logic Controller**  
Nicholas Baine
- **Optimized Neuro-Fuzzy Multivariable PID Controller Based on IMC Using Genetic Algorithm**  
Shervin Kermanshachi

**TUESDAY, May 20th 2008**

**Time: 3:50PM - 5:50PM**

**Session 3.3: Databases and Human-computer Interaction**

Location: **Area 3**

- **Exceptions and Resemblance: Two Keys for Tolerant Division Operators**  
Patrick Bosc, Allet Hadjali, Olivier Pivert
- **Preferences and Bipolarity in Query Languages**  
Ludovic Lietard, Daniel Rocacher, Salah-eddine Tbahriti
- **An Experimental Comparison of Various Aggregation Operators in a Fuzzy Information Retrieval Model**  
Katarzyna Nowacka, Slawomir Zadrozny, Janusz Kacprzyk
- **Learning Fitts' Law with Imprecise Regression**  
Mathieu Serrurier, Mathieu Raynal

**Session 3.4: Student Session**

Location: **Area 4**

- **T-norm and Uninorm-Based Combination of Belief Functions**  
Frederic Pichon, Thierry Denoeux
- **High Order Type-2 TSK Fuzzy Logic System**  
Qun Ren, Luc Baron, Marek Balazinski
- **Discovering Structure in Labeled Data**  
Daniel Graves, Witold Pedrycz
- **Handling Disjunctions in Open World Relational Databases**  
Navin Viswanath, Rajshekhar Sunderraman
- **On Perception of Size: Comparing Gigantic Mice and Tiny Elephants**  
Julia Taylor, Lawrence Mazlack
- **Learning Fuzzy Measure Parameters by Logistic LASSO**  
Andres Mendez-Vazquez, Paul Gader

**Time: 7:00PM - 10:00PM**

Reception

Location: **Stout, 133 W. 33rd St.**

## **WEDNESDAY, May 21st 2008**

**Time: 9:00AM - 9:50AM**

Plenary Talk:

**Scalable Fuzzy Clustering Algorithms**

Lawrence O. Hall

Location: **Area 1**

**Time: 9:50AM - 10:10AM**

Coffee Break

**Time: 10:10AM - 12:10PM**

**Session 4.1: Fuzzy Logic, Reasoning and Defuzzification**

Location: **Area 1**

- **New Defuzzification Method based on Weighted Intervals**  
Olga Poleshuk, Evgeniy Komarov
- **Motivated Defuzzification in Totally Fuzzy Inference**  
Joseph Barone
- **A Cost Function for Backward Chaining Inference**  
Alexander Karkishchenko
- **Logical Definition of Analogical Proportion and its Fuzzy Extensions**  
Laurent Miclet, Henri Prade
- **Functional Independence of Elements and Perceptual Confidence Factors**  
Kankana Chakrabarty

**Session 4.2: Applications in Medicine**

Location: **Area 2**

- **Biomedical Data Analysis Using Dispersion-Adjusted Fuzzy Quantile Encoding**  
Nick Pizzi
- **A Fuzzy Logic Approach to Modeling Physical Activity Levels of Obstructive Sleep Apnea Patients**  
Michelle Broadway, Mila Kwiatkowska, Les Matthews
- **Fuzzy Modeling of Medical Diagnosis through a Service-oriented Architecture**  
Giuseppe Fenza, Vincenzo Loia, Sabrina Senatore
- **Fuzzy Classification of Metabolic Brain Diseases Utilizing MR Spectroscopy Signals**  
Sina Zarei Mahmoodabadi, Javad Alirezaie, Paul Babyn
- **A Multi-system Model for Interventions in Continuous Positive Airway Pressure Treatment: A Fuzzy Logic Approach**  
Mila Kwiatkowska, Andrew Idzikowski, Les Matthews
- **Neuromuscular Discrimination by Aggregating Information in Motor Unit Potentials**  
Andrew Hamilton-Wright, Linda McLean, Daniel W. Stashuk, Kristina Calder



**WEDNESDAY, May 21st 2008**

**Time: 10:10AM - 12:10PM**

**Special Session 4.3: Fuzziness in Biosciences - Part I**

Location: **Area 3**

- **Fuzziness in Evolutionary Biology**  
Rudolf Seising
- **Fuzzy Concepts in Human Biology**  
Julia Limberg
- **Causality and Clinical Medicine: Using Fuzzy Measures for Patient Prediction and Experimental Design**  
Cathy Helgason, Thomas H. Jobe
- **A Symbolic Approach to Evidence Code Mapping for Biological Data Integration and Subjective Analysis for Reference Associations for Metabolic Pathways**  
Shubha Kher, Jianling Peng, Eve Syrkin Wurtele, Julie Dickerson
- **Fuzzy Cluster Analysis of Bioinformatics Data Composed of Microarray Expression Data and Gene Ontology Annotations**  
Timothy C. Havens, James M. Keller, Erin MacNeal Rehrig, Heidi M. Appel, Mihail Popescu, Jack C. Schultz, James C. Bezdek
- **Monitoring the Fuzziness of Human Vital Parameters**  
Christian Schuh

**Session 4.4: Mathematical Foundations and Analysis**

Location: **Area 4**

- **A Note on Supp-preincave Fuzzy Sets**  
Yu-Ru Syau, Stanley Lee
- **Perfect and Precisely Perfect Fuzzy Graphs**  
Premchand Nair
- **Operators and Spaces Associated to Matrices with Grades and their Decompositions**  
Radim Belohlavek, Jan Konecny
- **Cycle-transitivity is All Around**  
Benrard De Baets, Hans De Meyer
- **The Central Role of Discrete Mathematics in the Context of Information Technology and Communications**  
Eugene Roventa, Tiberiu Spiricu

**WEDNESDAY, May 21st 2008**

**Time: 12:10PM - 1:30PM**

Break

**Time: 1:30PM - 3:30PM**

**Session 5.1: Data Analysis and Processing**

Location: **Area 1**

- **Imprecise Causality in Large Data Sets**  
Lawrence Mazlack
- **Fuzzy Confidence Estimation of the Parameter Involving in the Distribution of the Total Time on Test for Censored Data**  
Shih-Chuan Cheng, John N Mordeson
- **A Multi-criteria News Filtering Model**  
Gloria Bordogna, Gabriella Pasi
- **Fuzzy Order-equivalence for Similarity Measures**  
Maria Rifqi, Marie-Jeanne Lesot, Marcin Detyniecki
- **Identifying Temporal Trajectories of Association Rules with Fuzzy Descriptions**  
Matthias Steinbrecher, Rudolf Kruse

**Special Session 5.2: Hybrid Intelligent Systems - Part I**

Location: **Area 2**

- **Extension of the Sugeno Integral with Interval Type-2 Fuzzy Logic**  
Olivia Mendoza, Patricia Melin
- **Topology Optimization of Fuzzy Systems for Response Integration in Ensemble Neural Networks: The Case of Fingerprint Recognition**  
Miguel Lopez, Patricia Melin
- **Neural Network Optimization with a Hybrid Evolutionary Method that Combines Particle Swarm and Genetic Algorithms with Fuzzy Rules**  
Fevrier Valdez, Patricia Melin
- **Hybrid Neural-Based Guiding System for Mobile Robots**  
Patricia Sanchez, Patricia Melin, Miguel Lopez
- **Comparative Study of Fuzzy Methods in Breast Cancer Diagnosis**  
Jaime Fuentes-Uriarte, Mario Garcia, Oscar Castillo

**WEDNESDAY, May 21st 2008**

**Time: 1:30PM - 3:30PM**

**Special Session 5.3a: Fuzziness in Biosciences - Part II**

Location: **Area 3**

- **A Choquet Integral-based Multi-Class Classifier and its Applications on the Prediction of Membrane Proteins Type**  
Carlos Campos, Lourdes Pelayo
- **Fuzzy Modeling and Simulation of Purse-seine Fishing Skippers Behavior**  
Joao Paulo Carvalho, Laura Wise, Alberto Murta

**Special Session 5.3b: Fuzzy Systems and Quantum Systems**

- **From Principles of Mechanics to Quantum Mechanics - A Survey on Fuzziness in Scientific Theories**  
Rudolf Seising
- **Square Root of "Not": A Major Difference Between Fuzzy and Quantum Logics**  
Vladik Kreinovich, Ladislav J. Kohout, Eunjin Kim
- **Quantum Computations Techniques for Gauging Reliability of Interval and Fuzzy Data**  
Luc Longpre, Christian Servin
- **Towards Quantum Logic based Multimedia Retrieval**  
Ingo Schmitt, David Zellhofer, Andreas Nurnberger

**Special Session 5.4a: Inter-Relation between Interval and Fuzzy Techniques - Part II**

Location: **Area 4**

- **Sloth-NFS and the Possibility of using Fuzzy Control to Optimize Cache Management**  
Ryan C. Spring, Eric Freudenthal
- **Using Gradual Numbers to Analyze Non-Monotonic Functions of Fuzzy Intervals**  
Elizabeth Untiedt, Weldon Lodwick
- **Beyond Intervals: Phase Transitions Lead to More General Ranges**  
Karen Villaverde, Gilbert Ornelas

**Session 5.4b: Type 2 Fuzzy Systems**

- **General Interval Type-2 Mamdani Fuzzy Systems Are Universal Approximators**  
Hao Ying
- **Improved Iterative Algorithm for Computing the Generalized Centroid of an Interval Type-2 Fuzzy Set**  
Karina Duran, H. Bernal, Miguel Melgarejo

**WEDNESDAY, May 21st 2008**

**Time: 3:30PM - 3:50PM**

Coffee Break

**Time: 3:50PM - 5:50PM**

**Session 6.1a: Possibility Theory and its Applications - Part II**

Location: **Area 1**

- **Impact of [0,1]-valued Weights and Weighted Aggregation Operators for Possibilistic Truth Values**  
Antoon Bronselaer, Guy De Tre
- **Inconsistency Degree Computation for Possibilistic Description Logic: an Extension of the Tableau Algorithm**  
Olivier Couchariere, Marie-Jeanne Lesot, Bernadette Bouchon-Meunier, Jean-Luc Rogier

**Special Session 6.1b: Fuzzy Optimization**

- **Market-based Multiagent Fuzzy Control**  
Marcelo Silva, Fernando Gomide
- **Linear Programming with Fuzzy Joint Parameters: A Cumulative Membership Function Approach**  
Juan Carlos Figueroa-Garcia, Cesar Amilcar Lopez Bello
- **An Algorithm for Solving Optimization Problems using Interval Valued Probability**  
Phantipa Thipwiwatpotjana, Weldon Lodwick

**Special Session 6.2a: Hybrid Intelligent Systems - Part II**

Location: **Area 2**

- **A Hybrid Learning Algorithm for Interval Type-2 Fuzzy Neural Networks in Time Series Prediction for the Case of Air Pollution**  
Juan R. Castro, Oscar Castillo, Patricia Melin, Antonio Rodriguez-Diaz
- **Simple Tuned Fuzzy Controller Embedded into an FPGA**  
Oscar Montiel, Yazmin Maldonado, Roberto Sepulveda, Oscar Castillo
- **A Cognitive Map-Fuzzy Logic Controller Model: Experiments on Control Objectives Sensibility**  
Jose L. Gonzalez, Oscar Castillo, Luis T. Aguilar
- **Reactive Control of a Mobile Robot in a Distributed Environment using Fuzzy Logic**  
Abraham Melendez, Oscar Castillo, Jose Soria

**Session 6.2b: Possibility Theory and its Applications - Part III**

- **Possibilistic Optimization Problems with Mutually t-related Parameters**  
Ilija Soldatenko, Alexander Yazenin

**WEDNESDAY, May 21st 2008**

**Time: 3:50PM - 5:50PM**

**Session 6.3: Applications to Engineering and Robotics**

Location: **Area 3**

- **Joint Friction Identification for Robots Using TSK Fuzzy System Based on Subtractive Clustering**  
Zhongkai Qin, Qun Ren, Marek Balazinski, Lionel Birglen
- **3D CMM Strain-Gauge Triggering Probe Error Characteristics Modeling Using Fuzzy Logic**  
Sofiane Achiche, Adam Wozniak, Zhun Fan, Marek Balazinski, Luc Baron, Torben Sorensen
- **A Practical Approach to Individual Thermal Comfort and Energy Optimization Problem**  
Seckin Ari, Peter Wilcoxon, Ezzat Khalifa, John Dannenhoffer, Can Isik
- **Autonomous Safety Decision-making in Intelligent Robotic Systems in the Uncertain Environments**  
Rahee Agate, Derek Seward
- **Real Time Advisory System for Fuel Economy Improvement in a Hybrid Electric Vehicle**  
Fazal Syed, Dimitar Filev, Hao Ying
- **Graphical Estimation of Permeability using RST&NFIS**  
Hamed Owladeghaffari, K. Shahriar, Witold Pedrycz

**Special Session 6.4: Fuzziness and the Humanities**

Location: **Area 4**

- **Fuzzy Epistemology: The Fuzziness of Experimental Systems**  
Rudolf Seising
- **Fuzzy-Logic for Sociology**  
Thomas Kron
- **On Some Features of Fuzzy Logics**  
Enric Trillas

**Time: 6:00PM - 7:00PM**

NAFIPS General Meeting

Location: **Area 1**

**Time: 7:30PM - 10:00PM**

Banquet

Presentation: **Game-theoretic Probability**

Glenn Shafer

Location: **Shanghai Dynasty,  
511 Lexington Avenue (at 48th St.)**

**THURSDAY, May 22nd, 2008**

**Time: 9:00AM - 9:50AM**

Plenary Talk:

**The General Philosophy of Artificial Adaptive Systems**

Massimo Buscema

Location: **Area 1**

**Time: 9:50AM - 10:10AM**

Coffee Break

**Time: 10:10AM - 12:10PM**

**Special Session 7.1: Inter-Relation between Interval and Fuzzy Techniques - Part III**

Location: **Area 1**

- **Asymmetric Paternalism: Description of the Phenomenon, Explanation based on Decisions under Uncertainty, and Possible Applications to Education**  
Olga Kosheleva, Francois Modave
- **A Comparison of Interval Analysis Using Constraint Interval Arithmetic and Fuzzy Interval Analysis Using Gradual Numbers**  
Weldon Lodwick, Elizabeth Untiedt
- **Everything Is a Matter of Degree: A New Theoretical Justification of Zadeh's Principle**  
Hung T. Nguyen, Vladik Kreinovich
- **Fast Algorithms for Uncertainty Propagation, and their Applications to Structural Integrity**  
Andrzej Pownuk, Jakub Cervený, Jerald J. Brady
- **Design of Truss and Frame Structures with Interval and Fuzzy Parameters**  
M. V. Rama Rao, Andrzej Pownuk
- **Program Synthesis from Workflow-Driven Ontologies**  
Leonardo Salayandia, Steve Roach, Ann Q. Gates

**Session 7.2: Applications to Business and Decision Making**

Location: **Area 2**

- **Using Fuzzy Logic Based Evidence for Bulgarian Winery Market Competitiveness**  
Margaret F. Shipley, David Olson, Andre de Korvin
- **Models for Consensus in Multiperson Decision Making**  
Antonio Maturo, Aldo G. S. Ventre
- **A New Approach to Measuring Group Consensus in MADM with Preference Information on Alternatives**  
Quan Zhang, D. C. Luo
- **Using Fuzzy Techniques in Business Performance Management**  
Martin Spott, Torsten Sommerfeld, Raphael Dorne
- **Agreement, Agreement Distributions, and Distance**  
William Tastle, Mark Wierman
- **Supplier Selection in a Multi-item/Multi-supplier Environment**  
Soheil Davari, Mohammad Hossein Fazel Zarandi, I. Burhan Turksen

**THURSDAY, May 22nd, 2008**

**Time: 10:10AM - 12:10PM**

**Session 7.3: Fuzziness and Soft Computing Techniques**

Location: **Area 3**

- **Performance Enhancement in Solving Traveling Salesman Problem using Hybrid Genetic Algorithm**  
Devinder Kaur, Meyyappan Murugappan
- **Identification of Fuzzy Takagi-Sugeno (TS) Model with Evolutionary Parallel Gradient Search**  
Zhongyu Zhao, Wenfang Xie, Herry Hong
- **Improve Neuro-Fuzzy Learning by Attribute Reduction**  
Fengming Chang, Chien-Chung Chan
- **Immune-Inspired Algorithm to Find the Set of  $k$ -SpanningTrees with Lowest Costs in Graphs with Fuzzy Parameters**  
Tiago Almeida, Akebo Yamakami
- **Genetic Type-2 Fuzzy Classifier Functions**  
Asli Celikyilmaz, I. Burhan Turksen
- **Genetic Fuzzy Programs**  
Isaac Sledge, Jim Keller

**Special Session 7.4a: Fuzzy Differential Equations**

Location: **Area 4**

- **Set-valued Characterizations of Periodic Density for Discrete Systems**  
H. Roman-Flores, Y. Chalco-Cano
- **On Shortest Paths in Free Spaces Including Obstacles with Fuzzy Boundaries**  
S. Saito, H. Ishii, K.-Y. Yeh, H.-C. Hsia
- **Fuzzy Differential Equations with Generalized Derivative**  
Y. Chalco-Cano, H. Roman-Flores, M.A. Rojas-Medar
- **Solving Differential Equations with Fuzzy Parameters**  
Flores-Franulic, Y. Chalco-Cano, H. Roman-Flores

**Session 7.4b: Fuzzy Hardware**

- **Performance Evaluation of Fuzzy Operators for FPGA Technology**  
Sebastian Iregui, Daniel Linares, Miguel Melgarejo
- **Bit-Serial Arithmetic: A Novel Approach to Fuzzy Hardware Implementation**  
Scott Dick, Vincent Gaudet, Huiqing Bai