

Proceedings

**Fifth Mexican International Conference
on Artificial Intelligence**

MICAI 2006

**13-17 November 2006
Apizaco, Mexico**

Fifth Mexican International Conference on Artificial Intelligence

MICAI 2006

Table of Contents

Preface.....	x
Organization.....	xiv

Knowledge Representation and Reasoning

Knowledge Based Verification of Aggregate Specifications	3
<i>Henrikas Pranevicius and Regina Miseviciene</i>	
Structural Error Verification in Active Rule-Based Systems Using Petri Nets.....	12
<i>Lorena Chavarria-Báez and Xiaou Li</i>	
Skolem Functions and Herbrand Universes in a Tree Generalization of First Order Logic.....	22
<i>Roger Villemaire, Sylvain Hallé, Rudy Deca, and Omar Cherkaoui</i>	
Update Sequences in Generalised Answer Set Programming Based on Structural Properties.....	32
<i>J. C. Acosta Guadarrama, Jürgen Dix, and Mauricio Osorio Galindo</i>	
A New Approach for an Artificial Evolving System.....	42
<i>M. Angélica Pinnighoff, Ricardo Contreras, Andreas Polyméris, and Esteban Osses</i>	

Computer Vision

Gabor Binary Codes for Face Recognition.....	53
<i>Lianghua He, Die Hu, and Changjun Jiang</i>	
Tracking Facial Feature Points with Statistical Models and Gabor Wavelet.....	61
<i>Mian-Shui Yu and Shao-Fa Li</i>	

Detection of Biological Cells in Phase-Contrast Microscopy Images.....	68
<i>F. Ambriz-Colín, M. Torres-Cisneros, J. G. Aviña-Cervantes, J. E. Saavedra-Martínez, O. Debeir, and J.J. Sánchez-Mondragón</i>	
A Decision-Theoretic Assistant Based on Gesture Recognition.....	78
<i>José Antonio Montero and Luis Enrique Sucar</i>	

Pattern Recognition

Finding Qualitative Patterns in Ozone Behavior	91
<i>Angela Nebot and Violeta Mugica</i>	
Novel Cursive Character Recognition System.....	101
<i>Karina Toscano, Gabriel Sanchez, Mariko Nakano, Héctor Perez, and Makoto Yasuhara</i>	
Image Retrieval Based on Color and Texture.....	111
<i>Xiaoying Tai, Chengyu Wu, Fuji Ren, and Kenji Kita</i>	
Computing Similarity of Square Matrices by Eigenconjugation.....	121
<i>V. Ortega-González, A. Angeles-Yreta, J. Medina-Apodaca, V. Landassuri-Moreno, and J. Figueroa-Nazuno</i>	

Machine Learning and Classification

Markov Chain Inference from Microarray Data.....	133
<i>Ígor Lorenzato Almeida, Denise Regina Pechmann, and Adelmo Luis Cechin</i>	
Fast Feature Selection Method for Continuous Attributes with Nominal Class.....	142
<i>Manuel Mejía-Lavalle, Eduardo F. Morales, and Guillermo Rodríguez</i>	
Feature Selection Using a Hybrid Associative Classifier with Masking Techniques.....	151
<i>M. Aldape-Pérez, C. Yáñez-Márquez, and L.O. López Leyva</i>	
Multiple Classifiers Combination Based on Specialists' Fields.....	161
<i>Pengtao Jia, Huacan He, and Wei Lin</i>	
On Clustering Validity Measures and the Rough Set Theory.....	168
<i>Leticia Arco, Rafael Bello, and María M. García</i>	
An Approach to Support Vector Regression with Genetic Algorithms.....	178
<i>Oscar Herrera and Ángel Kuri</i>	

Alternative Strategies to Explore the SNNB Algorithm Performance	187
<i>Laura Cruz R., Joaquín Pérez O., Rodolfo A. Pazos R., Vanesa Landero N., Víctor M. Álvarez H., and Claudia G. Gómez S.</i>	

Evolutionary and Genetic Algorithms

Markov Structure Random Sampler (MSRS) Algorithm from Unrestricted Discrete Graphic Markov Models	199
<i>Elva Díaz Díaz and Eunice Esther Ponce de León Sentí</i>	
GA-Gammon: A Backgammon Player Program Based on Evolutionary Algorithms	207
<i>Oscar Irineo-Fuentes, Nareli Cruz-Cortés, Francisco Rodríguez-Henríquez, Daniel Ortiz-Arroyo, and Henrik Legind Larsen</i>	
When Are Building Blocks Useful?.....	217
<i>Christopher R. Stephens, Edgar Arenas, Jorge Cervantes, Beatriz Peralta, Esteban Ricalde, and Christian Segura</i>	

Neural Networks

Ensembles of Multilayer Perceptron and Modular Neural Networks for Fast and Accurate Learning	229
<i>R.M. Valdovinos and J.S. Sánchez</i>	
Neuro-fuzzy Network for Adaptive Channel Equalization	237
<i>Rahib H. Abiyev and Tayseer Al-shanableh</i>	
Convergence of BP Algorithm with Variable Learning Rates for FNN Training	245
<i>Hongmei Shao and Wei Wu</i>	

Natural Language Processing and Ontologies

Semi-automatic Derivation of Specific-Domain Ontologies for the Semantic Web	253
<i>JRG Pulido, MA Aréchiga, R Acosta, PD Reyes, and S Legrand</i>	
Mapping FrameNet and SUMO with WordNet Verb: Statistical Distribution of Lexical-Ontological Realization	262
<i>Ian C. Chow and Jonathan J. Webster</i>	
Towards a Semi-automatic Ontology Mapping - An Approach Using Instance Based Learning and Logic Relation Mining	269
<i>Xi-Juan Liu, Ying-Lin Wang, and Jie Wang</i>	

Optimization

A Heuristic Algorithm for the Offline One-Dimensional Bin Packing Problem Inspired by the Point Jacobi Matrix Iterative Method.....	281
<i>Carlos D. Toledo Suárez, Ernesto Palma González, and Manuel Valenzuela Rendón</i>	
A Comparison between Scatter Search and the RAND Method for Solving the Joint Replenishment Problem.....	287
<i>Miguel A. Gutiérrez A., S. de-los-Cobos, and J. Goddard</i>	
Product-Form Solutions for Integrated Services Packet Networks.....	296
<i>Wanyang Dai</i>	

Robotics

Local Reference Frames vs. Global Reference Frame for Mobile Robot Localization and Path Planning.....	309
<i>M. Alencastre-Miranda, L. Muñoz-Gómez, R. Murrieta-Cid, and R. Monroy</i>	
Path Planning Optimization Using Bio-Inspired Algorithms.....	319
<i>Beatriz A. Garro, Humberto Sossa, and Roberto A. Vázquez</i>	

Bioinformatics and Medical Applications

Finding DNA Motifs Using Genetic Algorithms.....	331
<i>Carlos Reyes-Rico</i>	
Modeling and Analysis of Risk Factors for <i>Salmonella</i> Typhimurium DT104 and non-DT104 Infections: A Comparison of Logistic Regression and Neural Networks.....	340
<i>Simon X. Yang, Lixu Qin, Frank Pollari, Kathryn Dore, Aamir Fazil, Rafiq Ahmed, Jane Buxton, Karen Grimsrud, and Dean Middleton</i>	
Risk Factor Analysis of West Nile Virus Using Structural Learning with Forgetting Method.....	350
<i>Leilei Pan, Simon X. Yang, and Lixu Qin</i>	
Supermarket Game: An Adaptive Intelligent Computer Game for Attention Deficit/Hyperactivity Disorder Diagnosis.....	359
<i>Leila Cristina Vasconcelos de Andrade, Luís Alfredo Vidal Carvalho, Cabral Lima, Adriano Cruz, Paulo Mattos, Carlos Franco, Adriana Soares, and Bruno Grieco</i>	

Applications

Matlab-C++ Interface for a Flexible Arm Manipulator Simulation Using Multi-language Techniques.....	369
<i>Maricela Gamiño, J. Carlos Pedraza, Juan M. Ramos, and Efrén Gorrostieta</i>	
A Computer-Games-Based AI Research Environment.....	379
<i>Francisco Gallego, Abel Bernabeu, Juan Reverte, Rosana Satorre, and Faraon Llorens</i>	
Adaptive Wavelet Neural Network Controller for AQM Router in TCP Network.....	388
<i>Jae Man Kim, Jin Bae Park, and Yoon Ho Choi</i>	
Predictive Causal Approach for Student Modeling.....	398
<i>Alejandro Peña, Humberto Sossa, and Agustín Gutiérrez</i>	

Philosophical and Methodological Issues of AI

From Information to Knowledge: The Continuous Need to Teach AI	411
<i>Antonio Sanchez and Pablo Noriega</i>	
Author Index	421