

# Table of Contents

## Knowledge Representation and Reasoning

Searching for a Solution to Program Verification=Equation Solving in CCS	1
<i>Raúl Monroy, Alan Bundy, and Ian Green</i>	
Knowledge Representation Using High-Level Non-monotonic Reasoning . . .	13
<i>Mauricio Osorio, Juan Carlos Nieves, Fernando Zacarias, and Erika Saucedo</i>	
Experiments on Information Retrieval Using Case-Based Reasoning . . . . .	25
<i>Carlos Ramírez</i>	
A Probabilistic Exemplar-Based Model for Case-Based Reasoning . . . . .	40
<i>Andrés F. Rodríguez, Sunil Vadera, and L. Enrique Sucar</i>	
Intensification and Diversification Strategies with Tabu Search: One-Machine Problem with Weighted Tardiness Objective . . . . .	52
<i>Ricardo P. Beausoleil</i>	
A Methodology to Parallel the Temperature Cycle in Simulated Annealing	63
<i>Héctor Sanvicente Sánchez and Juan Frausto Solís</i>	
Vertical Fragmentation and Allocation in Distributed Databases with Site Capacity Restrictions Using the Threshold Accepting Algorithm . . . .	75
<i>Joaquín Pérez, Rodolfo Pazos, Juan Frausto, David Romero, and Laura Cruz</i>	
A Practical Approach for Logic Program Analysis and Transformation . . .	82
<i>Wamberto Weber-Vasconcelos and Eudenia Xavier Meneses</i>	
Experiments in Answer Sets Planning . . . . .	95
<i>M. Balduccini, G. Brignoli, G.A. Lanzarone, F. Magni, and A. Provetti</i>	

## Robotics and Computer Vision

Competitive Learning Methods for Efficient Vector Quantizations in a Speech Recognition Environment . . . . .	108
<i>F. Curatelli and O. Mayora-Ibarra</i>	
Facial Expression Recognition and Modeling for Virtual Intelligent Tutoring Systems . . . . .	115
<i>Homero V. Ríos, Ana Luisa Solís, Emilio Aguirre, Lourdes Guerrero, Joaquín Peña, and Alberto Santamaría</i>	

Detection and Tracking of Facial Features in Video Sequences .....	127
<i>Rogério Schmidt Feris, Teófilo Emídio de Campos, and Roberto Marcondes Cesar Junior</i>	
An Application of Behavior-Based Architecture for Mobile Robots Design .	136
<i>Sergio Uribe-Gutierrez and Horacio Martinez-Alfaro</i>	
Cooperative Simulated Annealing for Path Planning in Multi-robot Systems .....	148
<i>Gildardo Sánchez-Ante, Fernando Ramos, and Juan Frausto</i>	
Learning Probabilistic Grid-Based Maps for Indoor Mobile Robots Using Ultrasonic and Laser Range Sensors .....	158
<i>Leonardo Romero, Eduardo Morales, and Enrique Sucar</i>	
Evolving Insect Locomotion Using Cooperative Genetic Programming ....	170
<i>Edgar E. Vallejo and Fernando Ramos</i>	
On the Minimal Cooperative Attitude in Multi-robotics Systems .....	182
<i>Giovani Gómez and Fernando Ramos</i>	
Eigenfaces Versus Eigeneyes: First Steps Toward Performance Assessment of Representations for Face Recognition .....	193
<i>Teófilo Emídio de Campos, Rogério Schmidt Feris, and Roberto Marcondes Cesar Junior</i>	
A Neurocontrol Scheme of a 2-DOF Manipulator Using CMAC .....	202
<i>Raúl Leal Ascencio and Marco Pérez Cisneros</i>	
<b>Machine Learning</b>	
A New Approach for the Solution of Multiple Objective Optimization Problems Based on Reinforcement Learning .....	212
<i>Carlos Mariano and Eduardo Morales</i>	
Automatic Extraction of Logic Program Transformations from Examples ..	224
<i>Wamberto Weber-Vasconcelos and Marcelo A.T. Aragão</i>	
Modifications to the Credit Apportionment Mechanism of a Simple Classifier System .....	235
<i>Carlos Zozaya-Gorostiza and David R. Orellana-Moyao</i>	
A Framework for Interleaving Planning-while-Learning and Execution ....	247
<i>Marcello Balduccini</i>	
Integrated Reinforcement and Evolutionary Learning Algorithm: Application to Alife in a Shared World .....	260
<i>Jianjun Yan, Naoyuki Tokuda, and Juichi Miyamichi</i>	

RuLess: A Method for the Acquisition and Simplification of Rules . . . . .	272
<i>Pablo R. de Buen Rodriguez, Eduardo F. Morales, and Sunil Vadera</i>	
Applying Reinforcement Learning to Improve MCOE, an Intelligent Learning Environment for Ecology . . . . .	284
<i>Daniel Antonio Callegari and Flávio Moreira de Oliveira</i>	
Rapid Fine-Tuning of Computationally Intensive Classifiers . . . . .	294
<i>Stefan Zemke</i>	
Qualitative Knowledge Acquisition for Learning Organizations . . . . .	303
<i>Rafael E. Bourguet and Rogelio Soto</i>	
Applying One-Sided Selection to Unbalanced Datasets . . . . .	315
<i>Gustavo E.A.P.A. Batista, Andre C.P.L.F. Carvalho, and Maria Carolina Monard</i>	

## Neural Networks

NSL/ASL: Distributed Simulation of Modular Neural Networks . . . . .	326
<i>Alfredo Weitzenfeld, Oscar Peguero, and Sebastián Gutiérrez</i>	
Dynamical Behavior of an Electronic Neuron of Commutation . . . . .	338
<i>A. Padrón, J. L. Pérez, A. Herrera, and R. Prieto</i>	
Training Neural Networks Using Non-standard Norms – Preliminary Results . . . . .	350
<i>Angel Kuri Morales</i>	
Extending the Prediction Horizon in Dynamic Bandwidth Allocation for VBR Video Transport . . . . .	365
<i>Armando García-Rodríguez, Ramón M. Rodríguez-Dagnino, and Christos Douligeris</i>	
Constructing a Query Facility for RBS Networks . . . . .	376
<i>Marijke F. Augusteijn and Kelly Shaw</i>	
A Procedure to Select the Vigilance Threshold for the ART2 for Supervised and Unsupervised Training . . . . .	389
<i>P. Rayón Villela and J. H. Sossa Azuela</i>	
Investigation of the One-Armed Bandit by Neural Network . . . . .	401
<i>Frank C. Lin and Xiaojiang Ju</i>	

## Knowledge-Based Systems

Knowledge Base System for Diagnostic Assessment of Doppler Spectrogram . . . . .	405
<i>B. Das, S.K. Mitra, and S. Banerjee</i>	

Using Randomized Algorithms for Digital Mock-Up in Automotive Industry .....	417
<i>Benedikt Bietzker, Oliver Karch, and Hartmut Noltemeier</i>	
Risks Inside-Out .....	426
<i>Oswaldo Cairó, Julio Barreiro, and Francisco Solsona</i>	
A Specificic Domain Translator Application in a Floristic Digital Library .	436
<i>Dulcinea Navarrete, Rogelio Dávila, and Alfredo Sánchez</i>	
A Cooperative, Deductive and Self-Adaptive Web Authoring Environment .....	443
<i>Dominique Decouchant and Ana María Martínez-Enríquez</i>	
Definition of a General Conceptualization Method for the Expert Knowledge .....	458
<i>Almudena Sierra-Alonso</i>	
Segmenting the e-Commerce Market Using the Generative Topographic Mapping .....	470
<i>A. Vellido, P.J.G. Lisboa, and K. Meehan</i>	
<b>Speech Recognition and Natural Language</b>	
Designing a Fast Neuro-fuzzy System for Speech Noise Cancellation .....	482
<i>Anna Esposito, Eugène C. Ezin, and Carlos A. Reyes-García</i>	
Verification of Correct Pronunciation of Mexican Spanish Using Speech Technology .....	493
<i>Ingrid Kirschning and Nancy Aguas</i>	
Explaining Abstract Data Types with Sentential and Diagrammatic Elements .....	503
<i>Agustin A. Araya and Jessica H. Chu</i>	
Dialogue Structure Influence Over Anaphora Resolution .....	515
<i>Patricio Martínez-Barco and Manuel Palomar</i>	
Processing of Spanish Definite Descriptions .....	526
<i>Rafael Muñoz, Manuel Palomar, and Antonio Ferrández</i>	
Syntatic-Conceptual Analysis of Sentences in Spanish Using a Restricted Lexicon for Disambiguation .....	538
<i>Miguel Angel Ibarra Rivera, Jesús Favela Vara, and Aurelio López-López</i>	
Comparison of Conceptual Graphs .....	548
<i>Manuel Montes-y-Gómez, Alexander Gelbukh, and Aurelio López-López</i>	

## Multiagent Systems

Interaction of Purposeful Agents that Use Different Ontologies . . . . .	557
<i>Adolfo Guzmán, Jesús Olivares, Araceli Demetrio, and Carmen Domínguez</i>	
Multi-agent Adaptive Dynamic Programming . . . . .	574
<i>Snehasis Mukhopadhyay and Joby Varghese</i>	
A New Generation of International Databases: A Multi-agent Inspired Approach to Integrate Different Theory-Driven Databases on Conflict Warning . . . . .	586
<i>Monica Lagazio and Evan Govender</i>	
Intelligent Interface Agents Behavior Modeling . . . . .	598
<i>Jorge J. Gómez-Sanz, Juan Pavón, and Francisco Garijo</i>	
Memory Based Reasoning and Agents Adaptive Behavior . . . . .	610
<i>Ana S. Aguera, Alejandro Guerra, and Manuel Martínez</i>	
A Model for Combination of External and Internal Stimuli in the Action Selection of an Autonomous Agent . . . . .	621
<i>Pedro Pablo González Pérez, José Negrete Martínez, Ariel Barreiro García, and Carlos Gershenson García</i>	
Action Selection Properties in a Software Simulated Agent . . . . .	634
<i>Carlos Gershenson García, Pedro Pablo González Pérez, and José Negrete Martínez</i>	
MultiAgent Planning: A Resource Based Approach . . . . .	649
<i>José Juan Palacios Pérez</i>	

## Reasoning Under Uncertainty

Dynamic Fuzzy Logic . . . . .	661
<i>José Luis Pérez-Silva, and Felipe Lara-Rosano</i>	
Generation of a Personal Qualitative Assessment Instrument Using a Fuzzy Expert System . . . . .	671
<i>A. M. Martínez-Enríquez and O. R. Sereno-Peñaloza</i>	
Probabilistic Model-Based Diagnosis . . . . .	687
<i>Pablo H. Ibargüengoytia, L. Enrique Sucar and Eduardo Morales</i>	
Instance Metrics Improvement by Probabilistic Support . . . . .	699
<i>Héctor Jiménez and Guillermo Morales</i>	
EDAS - Event-Disturbance Analysis System for Fossil Power Plants Operation . . . . .	706
<i>G. Arroyo-Figueroa and L. Enrique Sucar</i>	

**Intelligent Tutoring Systems**

A Complete Teamwork Model in a Dynamic Environment ..... 718  
    *M. Goyal and N. Parameswaran*

Towards a Personalized Web-Based Educational System ..... 729  
    *J. G. Boticario and E. Gaudioso*

CASSIEL: Modeling Intelligent Agents for a Lifelong Learning  
Environment ..... 741  
    *Gerardo Ayala and Arlette Hernández*

**Author Index** ..... 749

MICAI 2000: Advances in Artificial Intelligence  
Mexican International Conference on Artificial  
Intelligence Acapulco, Mexico, April 11-14, 2000  
Proceedings  
Cairo, O.; Sucar, E.L.; Cantu, F.J. (Eds.)  
2000, XIV, 750 p., Softcover  
ISBN: 978-3-540-67354-5