



Mexican International Conference on Artificial Intelligence

MICAI 2004

April 26 – 30, 2004

México City, MEXICO

CONFERENCE PROGRAM

SPONSORS:

Mexican Society of Artificial Intelligence (SMIA)

Tecnológico de Monterrey:

- Campus Ciudad de México
- Campus Estado de México
- Campus Cuernavaca

Instituto de Investigaciones Electricas (IIE).

Instituto Mexicano del Petróleo (IMP).

Instituto Autónomo de México (ITAM)

Instituto Politécnico Nacional (IPN)

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PROGRAM OVERVIEW

WEDNESDAY

08:45	Opening ceremony (Salón de congresos)			
09:30	Invited Talk 1: Dispankar Dasgupta, University of Memphis, USA (Salón de congresos)			
10:30	Invited Talk 2: René Bañares, Oxford University, U.K. (Salón de congresos)			
11:30	Break			
11:55	Robotics, Modelling and Intelligent Control I, RMIC I (Auditorio)	Knowledge Representation, Logic and Constraint Programming I, KLCP I (Room: EMBA01)	Neural Networks & Evolutionary Computation I, NNEC I (Room: EMBA02)	
02:00	Lunch			
03:30	RMIC II (Auditorio)	KLCP II (Room: EMBA01)	NNEC II (Room: EMBA02)	
05:35	Break			
06:00	RMIC III (Auditorio)	KLCP III (Room: EMBA01)	NNEC III (Room: EMBA02)	

Thursday

09:00	Invited Talk 1: Toby Walsh, University College Cork, Ireland (Salón de congresos)			
10:00	Invited Talk 2: Carlos Zozaya, GNP, Mexico (Salón de congresos)			
11:00	Break			
11:25	Vision I (Auditorio)	Machine Learning and Data Mining I, MLDM I (Room: EMBA01)	Natural Language, NLI (Room: EMBA02)	
01:30	Lunch			
03:00	Vision II (Auditorio)	MLDM II (Room: EMBA01)	NL II (Room: EMBA02)	
05:00	Break (Auditorio)			
05:30	Vision III (Auditorio)	MLDM III (Room: EMBA01)		

Friday

09:00	Invited Talk 1: Fernando Mendes de Acevedo, Universidad Federal de Santa Catarina, Brazil (Salón de congresos)			
10:00	Invited Talk 2: Jorge X. Velazco, IMP, Mexico (Salón de congresos)			
11:00	Break			
11:25	Applications and Multiagent Systems I, AMS I (Auditorio)	Intelligent Interfaces and Speech Processing I, IISP I (Room: EMBA01)	Uncertainty Reasoning I (Room: EMBA02)	
01:30	Lunch			
03:00	AMS II (Auditorio)	IISP II (Room: EMBA01)	Uncertainty Reasoning II (Room: EMBA02)	
05:00	Break			
05:30	Closing Ceremony			

Wednesday, April 28, 2004.

A. Munoz Melendez (MEXICO), A. Drogoul and P. Emmanuel Viel (France).

8:00-9:30 **Registration**
MICAI Staff: Alvaro de Albornoz

8:45-9:30 **Opening Ceremony**
Salón Congressos

9:30-10:30 **Invited Talk 1:**
"Biological Immune System as a
Defense System: Lessons
Learned"

Room: Salón de congresos

Keynote

Speaker: Dispankar Dasgupta, University
of Memphis, USA.

10:30-11:30 **Invited Talk 2:**
"Intelligent identification of
process sections during the
redesign of processes"

Room: Salón de congresos

Keynote

Speaker: René Bañares, Oxford
University, U.K.

11:30-11:55 **Coffee break**

11:55-14:00 **Session 1 - Robotics, Modelling
and Intelligent Control I, RMIC I**

Room: AUDITORIO

Chair: To be defined

13 A Method to Obtain Sensing Requirements
in Robotic Assemblies by Geometric
Reasoning
*S. E. Conant-Pablos (MEXICO), K. Ikeuchi
(JAPAN) and H. Martinez-Alfaro (MEXICO)*

198 Intelligent Task Level Planning for Robotic
Assembly: Issues and Experiments
*J. Corona Castuera and I. Lopez-Juarez
(MÉXICO)*

319 Wrapper Components for Distributed
Robotic Systems
*F. Guedea-Elizalde, R. Morales-Menéndez,
R. Soto (MEXICO), F. Karray and I. Song
(CANADA).*

73 Fuzzy Sliding Mode Control of Robotic
Manipulators Based on Genetic Algorithms
M. Jalili-Kharaajoo and H. Rouhani (IRAN)

108 Collective Behavior as Assembling of Spatial
Puzzles

11:55-14:00 **Session 2 - Knowledge
Representation, Logic and
Constraint Programming I,
KLCP I.**

Room: EMBA01

Chair: To be defined

50 Agent Protocols as Executable Ontologies
M. J. Contreras and A. Smaill (UK)

61 An Evaluation of RDF(S) and DAML+OIL
Import/Export Services within Ontology
Platforms
*A. Gómez-Pérez and C. Suárez-Figueroa
(SPAIN).*

181 Graduated Errors in Approximate Queries
using Hierarchies and Ordered Sets
*A. Guzman-Arenas and S. Levachkine
(MÉXICO).*

163 Finding the Most Similar Concepts in two
Different Ontologies
A. Guzman and J. Olivares (MÉXICO)

47 ADM: An Active Deductive XML Database
System
*O. Olmedo-Aguirre, K. Escobar-Vázquez, G.
Alor-Hernández and G. Morales-Luna
(MÉXICO) .*

11:55-14:00 **Session 3: Neural Networks &
Evolutionary Computation I,
NNEC I**

Room: EMBA02

Chair: To be defined

268 Robust Bootstrapping Neural Networks
H. Allende, R. Ánculef and R. Salas (CHILE)

202 A Kernel Method for Classification
*D. MacDonald, J. Koetsier, E. Corchado, C.
Fyfe (UK) and J. Corchado (SPAIN)*

76 Applying Genetic and Symbolic Learning
Algorithms to Extract Rules from Artificial
Neural Networks
*C. Milare, G. Batista, A. Carvalho and M.
Monard (BRAZIL)*

112 Combining MLP and RBF Neural Networks
for Novelty Detection in Short Time Series
A. Oliveira, F. Neto and S. Meira (BRAZIL)

304 Treatment of Gradual Knowledge using
Sigma-Pi Neural Networks

G. Reyes Salgado (MÉXICO) and B. Amy (FRANCE).

14:00-15:30 Lunch

15:30-17:35 Session 4: Robotics, Modelling and Intelligent Control II, RMIC II

Room: AUDITORIO

Chair: To be defined

299 Towards derandomizing PRM planners
A. Sánchez (MÉXICO) and R. Zapata (FRANCE)

193 Intelligent control algorithm for steam temperature regulation of thermal power plants
A. Sánchez-López, G. Arroyo-Figueroa and A. Villavicencio (MEXICO).

7 A Fed-Batch Fermentation Process Identification and Direct Adaptive Neural Control with Integral Term
I. S. Baruch, J. Barrera-Cortes and Luis A. Hernández (MÉXICO).

10 A Fuzzy-Neural Multi-Model for Mechanical Systems Identification and Control
I. Baruch, R. Beltrán, J. L. Olivares and R. Garrido (MÉXICO)

305 Tuning of Fuzzy Controllers
E. Gomez-Ramirez and A. Chavez-Plascencia (MEXICO)

15:30-17:35 Session 5: Knowledge Representation, Logic and Constraint Programming II, KLCP II.

Room: EMBA01

Chair: To be defined

316 Web-Based Intelligent Service for Coalition Operation Support in Networked Organizations
A. Smirnov, M. Pashkin, N. Chilov, T. Levashova and A. Krizhanovsky (RUSSIA).

204 Knowledge acquisition and management system for an intelligent planner
E. Zenteno-Moreno and P. H. Ibarquengoytia (MEXICO).

279 Stability Analysis for Dynamic Constraint Satisfaction Problems
M. Angles-Domínguez and H. Terashima-Marín (MEXICO).

153 Evaluation-Based Semiring Meta-Constraints
J. Kelleher and B. O'Sullivan (IRELAND)

199 Invariant Patterns for Program Reasoning
A. Ireland, B.I Ellis and T. Ingulfsen (UK).

15:30-17:35 Session 6: Neural Networks & Evolutionary Computation II, NNEC I

Room: EMBA02

Chair: To be defined

39 A Study of the Parallelization of a Coevolutionary Multi-Objective Evolutionary Algorithm
C. A. Coello Coello and M. Reyes-Sierra (MÉXICO).

266 Reactive Agents to Improve a Parallel Genetic Algorithm Solution
A. L. Laureano-Cruces, Manuel de la Cruz-González, J. Ramírez-Rodríguez and J. Solano-González (MEXICO).

275 Simple Feasibility Rules and Differential Evolution for Constrained Optimization
E. Mezura-Montes, C. A. Coello Coello and E.. Tun-Morales (MÉXICO)

288 Symbolic Regression Problems by Genetic Programming with Multi-Branched
C. Oliver and K. Rodríguez (MÉXICO).

A Preprocessing that Combines Heuristic and Surrogate Constraint Analysis to Fix Variables in TSP
M. Osorio Lama and D. Pinto (MÉXICO)

17:35-18:00 Coffee break

18:00-18:50 Session 7: Robotics, Modelling and Intelligent Control III, RMIC III

Room: AUDITORIO

Chair: To be defined

197 Predictive Control of a Solar Power Plant with Neuro-Fuzzy Identification and Evolutionary Programming Optimization
M. Jalili-Kharaajoo (IRAN)

226 Modeling of a Coupled Industrial Tank System with ANFIS
S. Naci Engin, J. Kuvulmaz and V. Emre Omurlu (TURQUIA)

18:00-18:50 **Session 8: Knowledge Representation, Logic and Constraint Programming III, KLCP III.**

Room: **EMBA01**
Chair: **To be defined**

- 105 Closing the gap between the stable semantics and extensions of WFS
M. Osorio, J. Arrazola and V. Borja (MÉXICO).
- 9 A Framework for Agent-based Brokering of Reasoning Services
J. Zimmer (SCOTLAND).

18:00-18:50 **Session 9: Neural Networks & Evolutionary Computation III, NNEC III**

Room: **EMBA02**
Chair: **To be defined**

- 155 An Evolutionary Algorithm for Automatic Spatial Partitioning In Reconfigurable Environments
P. Permandla, S. N. Rao, A. Muthukaruppan, S. Suresh and V. KamaKoti (INDIA)
- 239 GA with exaptation: New algorithms to tackle dynamic problems
L. Torres-T (MÉXICO)

Thursday, April 29, 2004.

8:30-9:00 **Registration**

9:00-10:00 **Invited Talk 3:
“Modelling and Solving with Constraint Programming”**

Room: **Salón de congresos**
Keynote
Speaker: **Toby Walsh, University College Cork, Ireland.**

10:00-11:00 **Invited Talk 4:
“AI in Business: Pitfalls and Lessons Learned”**

Room: **Salón de congresos**
Keynote
Speaker: **Carlos Zozaya, Instituto Autónomo de México, México..**

11:00-11:25 **Coffee break**

11:25-13:30 **Session 10: Vision I.**

Room: **AUDITORIO**
Chair: **To be defined**

- 272 Scene Modeling by ICA and Color Segmentation
J. G. Avina-Cervantes and M. Devy (FRANCE)
- 320 Non-Parametric registration as a Way to Obtain an Accurate Camera Calibration
F. Calderon and L. Romero (MEXICO).
- 25 A Probability-Based Flow Analysis using MV information in Compressed Domain
N. Kim, T. Kim and J. Choi (KOREA)
- 183 How does the Hue contribute to construct better colour features?
G. Gomez-Estrada (GERMANY) and Eduardo Morales Manzanares (MEXICO)
- 230 Morphological Contrast Measure and Contrast Mappings: One Application to the Segmentation of Brain MRI
J. D. Mendiola-Santibañez, I. R. Terol-Villalobos and A. Fernández-Bouzas (MEXICO)

11:25-13:30 **Session 11: Machine Learning and Data Mining I, MLDM I**

Room: **EMBA01**
Chair: **To be defined**

- 329 Faster Proximity Searching in Metric Data
E. Chavez and K. Figueroa (MEXICO)
- 127 Data Mining with Decision Trees and Neural Networks for Calcification Detection in Mammograms
B. Flores and J. Gonzalez (MEXICO).
- 68 An Optimization Algorithm Based on Active and Instance-Based Learning
O. Fuentes and T. Solorio (MEXICO)
- 234 MultiGrid-Based Fuzzy Systems for Function Approximation
L. J. Herrera, H. Pomares, I. Rojas, V. Olga and A. Mohamed (SPAIN).
- 325 Inducing Classification Rules from Highly-structured Data with Composition
R. Mac Kinney Romero (MEXICO) and C. Giraud Carrier (FRANCE).

11:25-13:30 **Session 12: Natural Language, NLI**

Room: **EMBA02**

Chair: To be defined

3 A Biologically Motivated and Computationally Efficient Natural Language Processor
J. L. G. Rosa (BRAZIL)

27 A Question-Answering System Using Argumentation
E. Moreale and M. Vargas-Vera (UK)

85 Automatic Building of a Machine Translation Bilingual Dictionary Using Recursive Chain-link-type Learning from a Parallel Corpus
H. Echizen-ya, K. Araki, Y. Momouchi and K. Tochinai (KOREA)

57 Recognition of Named Entities in Spanish Texts
S. Galicia-Haro, A. Gelbukh and I. Bolshakov (MEXICO).

Automatic Enrichment of Very Large Dictionary of Word Combinations on the Basis of Dependency Formalism
A. Gelbukh, G. Sidorov (MEXICO), S. Y. Han (KOREA) and E. Hernandez-Rubio (MEXICO)

13:30-15:00 Lunch

15:00-17:05 Session 13: Vision II.

Room: AUDITORIO

Chair: To be defined

172 Gaze Detection by Dual Camera and Dual IR-LED Illuminators
K. Ryoung Park and J. Kim (KOREA)

137 Digital Image Processing and Neural Networks for Early Detection of Histological Changes
J. Ramírez-Niño, M. Flores, C. Ramírez and V. M. Castaño (MEXICO).

64 An Improved ICP Algorithm Based on the Sensor Projection for Automatic 3D Registration
S. H. Kim, Y. H. Hwang, H. K. Hong (KOREA) and M. H. (USA)

286 Structure and Motion Recovery Using Two Step Sampling for 3D Match Move
J. K. Seo, Y. H. Hwang and H. K. Hong (KOREA)

235 Multiscale Image Enhancement and Segmentation Based on Morphological Connected Contrast Mappings
I. R. Terol-Villalobos (MEXICO)

15:00-17:05 Session 14: Machine Learning and Data Mining II, MLDM II

Room: EMBA01

Chair: To be defined

115 Comparing Techniques for Multiclass Classification using Binary SVM Predictors
A. C. Lorena and A. C. Carvalho (BRAZIL).

69 Analysing Spectroscopic Data Using Hierarchical Cooperative Maximum Likelihood Hebbian Learning
D. MacDonald, E. Corchado and C. Fyfe (UK).

162 Feature Selection-Ranking Methods In a Very Large Electric Database
M. Mejia-Lavalle, G. Rodríguez-Ortiz, Gustavo Arroyo and E. F. Morales (MEXICO)

87 Automatic Case Adaptation with a Hybrid Committee Approach

C. Policastro, A. Carvalho and A. Delbem (BRAZIL)

104 Class imbalances versus class overlapping: an analysis of a learning system behavior
R. Prati, G. Batista and M. Carolina Monard (BRAZIL)

15:00-17:05 Session 15: Natural Language II, NLII

Room: EMBA02

Chair: To be defined

298 Towards an Efficient Evolutionary Decoding Algorithm for Statistical Machine Translation
E. Otto and María-Cristina Riff (CHILE).

293 The Role of Imperatives in Inference, Agents and Actions
M. Pérez-Ramírez (MEXICO) Chris Fox (UK).

94 Automatic multilinguality for Time Expression Resolution
E. Saquete, R. Muñoz and P. Martínez-Barco (SPAIN).

78 AQUA - Ontology-based Question Answering System

— *M. Vargas-Vera and E. Motta (UK)*

255 Phrase Chunking for Efficient Parsing in Machine Translation System

J. Yang (KOREA)

17:05-17:30 Coffee break

17:30-18:20 Session 16: Vision III.

Room: AUDITORIO

Chair: To be defined

43 Active object recognition using mutual information

F. Trujillo-Romero, V. Ayala-Ramirez, (MEXICO), A. Marin-Hernandez and M. Devy (FRANCE).

137 An approach to Automatic Morphing of Face Images in Frontal View

V. Zanella and O. Fuentes (MEXICO).

17:30-18:20 Session 17: Machine Learning and Data Mining III, MLDM III

Room: EMBA01

Chair: To be defined

48 Advanced Clustering Technique for Medical Data Using Semantic Information

K.I Shin, S.Yong Han (KOREA) and A. Gelbukh (MEXICO).

19:00 Dinner Banquet

Friday, April 30, 2004.

8:30-9:00 Registration

**9:00-10:00 Invited Talk 5:
“Intelligent Tutoring Systems:
Formalization and Interface
Design”**

Room: Salón de congresos

Keynote

**Speaker: Fernando Mendes de Azevedo,
Universidade Federal de Santa
Catarina, Brazil**

**10:00-11:00 Invited Talk 6:
“Could we eradicate HIV by
widespread usage of
antiretroviral therapy?”**

Room: Salón de congresos

Keynote

**Speaker: Jorge X. Velasco, Instituto
Mexicano del Petróleo, Mexico.**

11:00-11:25 Coffee break

**11:25-13:30 Session 18: Applications and
Multiagent Systems I, AMS I**

Room: AUDITORIO

Chair: To be defined

251 Pattern-based Data Compression

A. Kuri and J. Galaviz (MEXICO)

248 Using Simulated Annealing for Paper Cutting Optimization

H. Martínez-Alfaro and M. Valenzuela-Rendón. (MEXICO).

334 Extracting Temporal Patterns from Time Series Data Bases for Prediction of Electrical Demand

J. J. Rico Melgoza, J. J Flores, C. Sotomane and F. Calderon (MEXICO)

294 The synergy between classical and soft-computing techniques for Time Series Prediction

I. Rojas, F. Rojas, H. Pomares, L. J. Herrera, J. González and O. Valenzuela (SPAIN).

285 Strict Valued Preference Relations and Choice Functions in Decision-Making Procedures

I. Batyrshin (MEXICO), N. Shajdullina (RUSSIA) and L. Sheremetov (MEXICO)

**11:25-13:30 Session 19: Intelligent
Interfaces and Speech
Processing I, IISP I**

Room: EMB01

Chair: To be Defined

106 A Naïve Geography Analyst System with Cognitive Support of Imagery Exploitation

S. Baik, J. Bala, A. Hadjarian and P. Pachowicz (KOREA).

144 Don't you escape! I'll tell you my story

J. Ibañez (SPAIN), C. Delgado-Mata, R. Aylett (UK) and R. Ruiz (MEXICO)

265 Querying Virtual Worlds. A Fuzzy Approach

J. Ibañez, A. F. Gomez-Skarmeta and J. Blat (SPAIN)

190 Infant Cry Classification to Identify Hypoacoustics and Asphyxia with Neural Networks

O. F. Reyes Galaviz and C. A. Reyes García (MEXICO).

237 N-Best List Rescoring using Syntactic Trigrams

L. R. Salgado-Garza, R. Stern (USA) and J. A. Nolasco F. (MEXICO)

11:25-13:30 Session 20: Uncertainty Reasoning I

Room: EMBA02

Chair: To be defined

- 231 Motion Planning Based on Geometric Features
A. Benítez and D. Vallejo (MEXICO)
- 114 Comparative Evaluation of Temporal Nodes Bayesian Networks and Networks of Probabilistic Events in Discrete Time
S. Galán (SPAIN), G. Arroyo-Figueroa (MEXICO), J. Díez (SPAIN) and E. Sucar (MEXICO)
- 167 Function Approximation through Fuzzy Systems Using Taylor Series Expansion-Based Rules: Interpretability and Parameter Tuning
L. J. Herrera, H. P., I. Rojas, J. González and O. Valenzuela (SPAIN)
- 102 Causal Identification in Design Networks
A. M. Madrigal and J. Q. Smith (UK)
- 99 Bayes-N: An algorithm for Learning Bayesian Networks From Data Using Local Measures of Information Gain Applied to Classification Problems
M. Martínez-Morales, N. Cruz-Ramírez, J. L. Jiménez-Andrade and R. Garza-Domínguez (MEXICO)

13:30-15:00 Lunch

15:00-17:05 Session 21: Applications and Multiagent Systems II, AMS II

Room: AUDITORIO

Chair: To be defined

- 328 Adaptation in the Presence of Exogeneous Information in an Artificial Financial Market
J. L. Gordillo, J. P. Pardo-Guerra and C. R. Stephens (MEXICO)
- 248 Design Patterns for Multiagent Systems Design
S. Sauvage (FRANCE-SWITZERLAND)
- 6 A Faster Optimal Allocation Algorithm in Combinatorial Auctions
J. W. Song and S. B. Yang (KOREA)
- 56 An Agent Based Framework for Modelling Neuronal Regulators of the Biological Systems

A. Soriano Payá, J. M. García Chamizo and F. Maciá Pérez (SPAIN).

- 257 Possibilistic reasoning and privacy/efficiency tradeoffs in multi-agent systems
R. Wallace, E. Freuder (IRELAND).

15:00-17:05 Session 22: Intelligent Interfaces and Speech Processing II, IISP II

Room: EMBA01

Chair: To be defined

- 122 Continuants Based Neural Speaker Verification System
T. S. Lee and B. W. Hwang (KOREA).

15:00-17:05 Session 23: Uncertainty Reasoning II

Room: EMBA02

Chair: To be defined

- 220 Methodology for Handling Uncertainty by Using Interval Type-2 Fuzzy Logic Systems
G. Montalvo and R. Soto (MEXICO)
- 245 On-line Diagnosis using Influence Diagrams
B. Morales and P. H. Ibarguengoytia (MEXICO).
- 269 Toward a New Approach for Online Fault Diagnosis Combining Particle Filtering and Parametric Identification
R. Morales-Menéndez, R. Ramírez Mendoza (MEXICO), J. Mutch and F. Guedea Elizalde (CANADA)

- 258 Power Plant Operator Assistant: An Industrial Application of Factored MDPs
A. Reyes Ballesteros, P. H. Ibarguengoytia and L. E. Sucar (MEXICO)

17:30 Closing

Please Note

Paper Presentations
20 minutes + 5 minutes for questions.

The only audiovisual equipment provided for presentations will be an overhead projector, computer and digital projector. Any other equipment, if need, will have to be supplied by the presenter.