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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                      Angel Kuri Morales.- ITAM, MEXICO
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                      Gustavo Arroyo Figueroa.– IIE, MEXICO.
                      L. Enrique Sucar.– ITESM–CVA, MEXICO.
TUTORIAL CHAIR:       Carlos Alberto Reyes.– INAOE, MEXICO
WORKSHOP CHAIRS:     Matías Alvarado.– IMP, MEXICO
                      Leonid Sheremetov.– IMP, MEXICO
LOCAL CHAIR:          Alvaro de Albornoz.– ITESM–CCM, MEXICO
# PROGRAM OVERVIEW

## WEEKDAY PROGRAMME

### WEDNESDAY

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:45</td>
<td>Opening ceremony</td>
<td>(Salón de congresos)</td>
</tr>
<tr>
<td>09:00</td>
<td>Invited Talk 1: Dispankar Dasgupta, University of Memphis, USA</td>
<td>(Salón de congresos)</td>
</tr>
<tr>
<td>10:00</td>
<td>Invited Talk 2: René Bahares, Oxford University, U.K.</td>
<td>(Salón de congresos)</td>
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<tr>
<td>11:30</td>
<td>Break</td>
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<tr>
<td>11:55</td>
<td>Robotics, Modelling and Intelligent Control I, RMIC I (Auditorio)</td>
<td></td>
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<tr>
<td>12:00</td>
<td>Knowledge Representation, Logic and Constraint Programming I, KLCP I (Room: EMBA01)</td>
<td></td>
</tr>
<tr>
<td>13:00</td>
<td>Neural Networks &amp; Evolutionary Computation I, NNEC I (Room: EMBA02)</td>
<td></td>
</tr>
<tr>
<td>14:00</td>
<td>Lunch</td>
<td></td>
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<tr>
<td>15:00</td>
<td>RMIC II (Auditorio)</td>
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<tr>
<td>16:00</td>
<td>KLCP II (Room: EMBA01)</td>
<td></td>
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<tr>
<td>17:00</td>
<td>NNEC II (Room: EMBA02)</td>
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<tr>
<td>18:00</td>
<td>Break</td>
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<tr>
<td>18:30</td>
<td>RMIC III (Auditorio)</td>
<td></td>
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<tr>
<td>19:00</td>
<td>KLCP III (Room: EMBA01)</td>
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</tr>
<tr>
<td>20:00</td>
<td>NNEC III (Room: EMBA02)</td>
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### THURSDAY

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<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>09:00</td>
<td>Invited Talk 1: Toby Walsh, University College Cork, Ireland</td>
<td>(Salón de congresos)</td>
</tr>
<tr>
<td>10:00</td>
<td>Invited Talk 2: Carlos Zozaya, GNP, Mexico</td>
<td>(Salón de congresos)</td>
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<tr>
<td>11:00</td>
<td>Break</td>
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</tr>
<tr>
<td>11:25</td>
<td>Vision I (Auditorio)</td>
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<tr>
<td>12:15</td>
<td>Machine Learning and Data Mining I, MLDM I (Room: EMBA01)</td>
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<tr>
<td>13:00</td>
<td>Natural Language, NLI (Room: EMBA02)</td>
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<tr>
<td>14:00</td>
<td>Lunch</td>
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<tr>
<td>15:00</td>
<td>Vision II (Auditorio)</td>
<td></td>
</tr>
<tr>
<td>16:00</td>
<td>MLDM II (Room: EMBA01)</td>
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<tr>
<td>17:00</td>
<td>NL II (Room: EMBA02)</td>
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<tr>
<td>18:00</td>
<td>Break (Auditorio)</td>
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<tr>
<td>18:30</td>
<td>Vision III (Auditorio)</td>
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<tr>
<td>19:00</td>
<td>MLDM III (Room: EMBA01)</td>
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### FRIDAY

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<tr>
<td>09:00</td>
<td>Invited Talk 1: Fernando Mendes de Acevedo, Universidad Federal de Santa Catarina, Brazil</td>
<td>(Salón de congresos)</td>
</tr>
<tr>
<td>10:00</td>
<td>Invited Talk 2: Jorge X. Velazco, IMP, Mexico</td>
<td>(Salón de congresos)</td>
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<tr>
<td>11:00</td>
<td>Break</td>
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<tr>
<td>11:25</td>
<td>Applications and Multiagent Systems I, AMS I (Auditorio)</td>
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<tr>
<td>12:15</td>
<td>Intelligent Interfaces and Speech Processing I, IISP I (Room: EMBA01)</td>
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<tr>
<td>13:00</td>
<td>Uncertainty Reasoning I (Room: EMBA02)</td>
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<tr>
<td>14:00</td>
<td>Lunch</td>
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<tr>
<td>15:00</td>
<td>AMS II (Auditorio)</td>
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<tr>
<td>16:00</td>
<td>IISP II (Room: EMBA01)</td>
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<tr>
<td>17:00</td>
<td>Uncertainty Reasoning II (Room: EMBA02)</td>
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<tr>
<td>18:00</td>
<td>Break</td>
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</tr>
<tr>
<td>18:30</td>
<td>Closing Ceremony</td>
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Wednesday, April 28, 2004.

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

8:45-9:30  Opening Ceremony
           Salón Congresos

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 (MEXICO)

319 Wrapper Components for Distributed Robotic Systems

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 (MEXICO).

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

47  ADM: An Active Deductive XML Database System

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 (MEXICO) 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 (MEXICO) and R. Zapata (FRANCE)

193 Intelligent control algorithm for steam temperature regulation of thermal power plants

7 A Fed-Batch Fementation 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)

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. Chitov, T. Levashova and A. Krizhanovsky (RUSSIA).

204 Knowledge acquisition and management system for an intelligent planner
E. Zenteno-Moreno and P. H. Ibaraguengoytia (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. Ingulfisen (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

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

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

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)

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)

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

Digital Image Processing and Neural Networks for Early Detection of Histological Changes

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)

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

15:00-17:05 Session 14: Machine Learning and Data Mining II, MLDM II
Room: EMBA01
Chair: To be defined

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

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

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

Automatic Case Adaptation with a Hybrid Committee Approach
C. Policastro, A. Carvalho and A. Delbem (BRAZIL)

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

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

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

Automatic multilinguality for Time Expression Resolution

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

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. Martinez-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

285 Strict Valued Preference Relations and Choice Functions in Decision-Maing 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: EMBA01
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. Nolazco 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. Benitez 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-Dominguez (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. Ramirez 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.