## Table of Contents

### Eighth International Conference on Tools with Artificial Intelligence

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Chair's Foreword</td>
<td>xii</td>
</tr>
<tr>
<td>Program Co-Chairs' Foreword</td>
<td>xiii</td>
</tr>
<tr>
<td>Proceedings Editor's Foreword</td>
<td>xv</td>
</tr>
<tr>
<td>Conference Committees</td>
<td>xvi</td>
</tr>
<tr>
<td>Reviewers</td>
<td>xvii</td>
</tr>
<tr>
<td>Keynote Addresses</td>
<td>xix</td>
</tr>
<tr>
<td>Panels</td>
<td>xx</td>
</tr>
</tbody>
</table>

### Session 1: Genetic Algorithms

*Session Chairs: Ph. Collard, Université de Nice-Sophia Antipolis and TBA*

- An Evolutionary Approach for Time Dependent Optimization... 2
  - P. Collard, C. Escazut, and A. Gaspar
- A Genetic Algorithm for Automatic Generation of Test Logic
  for Digital Circuits... 10
  - F. Corno, P. Prinetto, and M. Sonza Reorda
- Applying a Mutation-Based Genetic Algorithm to Processor
  Configuration Problems... 17
  - T.L. Lau, and E.P.K. Tsang
- A New Genetic Algorithm Using Large Mutation Rates and
  Population-Elitist Selection (GALME)... 25
  - H. Shimodaira

### Session 2: Reasoning Under Uncertainty

*Session Chairs: A. Hunter, Imperial College and TBA*

- Intelligent Text Handling Using Default Logic... 34
  - A. Hunter
- Incremental Markov-Model Planning... 41
  - R. Washington
- Strategy of Perception and Temporal Representation of Beliefs... 48
  - P.J. Fabiani
- GESIA: Uncertainty-Based Reasoning for a Generic Expert System
  Intelligent User Interface... 52

### Session 3: Natural Language Processing

*Session Chairs: R. Gaizauskas, The University of Sheffield and TBA*

- GATE: An Environment to Support Research and Development in
  Natural Language Engineering... 58
  - R. Gaizauskas, H. Cunningham, Y. Wilks,
    P. Rodgers, and K. Humphreys
A Hypothetical Reasoning-Based Framework for NL Processing .............................................. 67
   V. Dahl, A. Fall, S. Rochefort, and P. Tarau

An Empirical Text Categorizing Computational Model Based on Stylistic Aspects ...................... 71
   S.E. Michos, E. Stamatatos, N. Fakotakis, and G. Kokkinakis

A Comparative Evaluation of a Natural Language Exploration Tool within a Hypermedia Environment .................................................. 480
   M.A. Edwards, H. Powell, and D. Palmer-Brown

Session 4: Knowledge Base Technology I

   Session Chairs: M. Staudt, RWTH Aachen and TBA

   TASK: From the Specification to the Implementation ......................................................... 80
   X. Talon and C. Pierrat-Golbreich

   Clustering Knowledge in Tabular Knowledge Bases ...................................................... 88
   J. Vanthienen, E. Dries, and J. Keppens

   Active Change Notification in Advanced Knowledge Base Servers ..................................... 96
   M. Staudt, M. Jarke, and C. Quix

Session 5: Knowledge Acquisition & Machine Learning I

   Session Chairs: C. Reynaud, Université Paris-Sud and TBA

   ADHOC: A Tool for Performing Effective Feature Selection ............................................ 102
   M. Richeldi and P.L. Lanzi

   Use of Expertise Ontologies in the Knowledge Engineering Process .................................. 106
   C. Reynaud and F. Tort

   Knowledge Acquisition for Classification Systems .......................................................... 110
   T. Miura and I. Shioya

Session 6: AI Applications I

   Session Chairs: M. Henz, DFKI and TBA

   COMPOzE: Intention-Based Music Composition through Constraint Programming .................. 118
   M. Henz, S. Lauer, and D. Zimmermann

   Incorporating Functionalities of Expert Medical Critiquing Dialogues in the Design of a Graphical Interface .......................................... 122
   M. Baker, L. Charnay, M. Joab, B. Lemaire, B. Safar, and D. Schlienger

Session 7: Constraint Satisfaction I

   Session Chairs: J. Würz, DFKI and TBA

   Nogood Recording for Valued Constraint Satisfaction Problems ........................................ 132
   P. Daug and G. Verfaillie
<table>
<thead>
<tr>
<th>Session 8: Qualitative Reasoning</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Session Chairs:</strong> F. Bouali, Université Paris XI-Orsay and TBA</td>
<td></td>
</tr>
<tr>
<td>Merging Test and Verification for Rule Base Debugging</td>
<td>166</td>
</tr>
<tr>
<td>F. Bouali, S. Loiseau, and M.C. Rousset</td>
<td></td>
</tr>
<tr>
<td>An Improved Critical Diagnosis Reasoning Method</td>
<td>170</td>
</tr>
<tr>
<td>Y. Xu and C. Zhang</td>
<td></td>
</tr>
<tr>
<td>Enhancing Qualitative Relative Orientation with Qualitative Distance for Robot Path Planning</td>
<td>174</td>
</tr>
<tr>
<td>M.T.E. Monferrer and F.T. Lobo</td>
<td></td>
</tr>
<tr>
<td>Order in Space: A General Formalism for Spatial Reasoning</td>
<td>183</td>
</tr>
<tr>
<td>B.A. El-Geresey and A.I. Abdelmoty</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Session 9: Neural Networks I</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Session Chairs:</strong> C. Koutsougeras, Tulane University and TBA</td>
<td></td>
</tr>
<tr>
<td>Refinements in Training Schemes for the Coulomb Energy Network</td>
<td>194</td>
</tr>
<tr>
<td>J.F. Vassilopoulos and C. Koutsougeras</td>
<td></td>
</tr>
<tr>
<td>Optimization of Neural Network Structure and Learning Parameters Using Genetic Algorithms</td>
<td>200</td>
</tr>
<tr>
<td>S.-S. Han and G.S. May</td>
<td></td>
</tr>
<tr>
<td>Artificial Neurogenesis: An Application to Autonomous Robotics</td>
<td>207</td>
</tr>
<tr>
<td>O. Michel and P. Collard</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Session 10: Knowledge Base Technology II</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Session Chairs:</strong> D. Moldovan, Southern Methodist University and TBA</td>
<td></td>
</tr>
<tr>
<td>PARIS: A Parallel Inference System</td>
<td>216</td>
</tr>
<tr>
<td>S.M. Harabagiu and D.I. Moldovan</td>
<td></td>
</tr>
<tr>
<td>Knowledge Bases and Agents for Domain Knowledge Representation</td>
<td>224</td>
</tr>
<tr>
<td>M.-P. Chouvet and F. Le Ber</td>
<td></td>
</tr>
<tr>
<td>Correction of Dynamic Knowledge</td>
<td>228</td>
</tr>
<tr>
<td>C. Pietre-Golbreich</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Session 11: Knowledge Acquisition &amp; Machine Learning II</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Session Chairs:</strong> R. Kohavi, Silicon Graphics and TBA</td>
<td></td>
</tr>
<tr>
<td>Data Mining Using MLiC++: A Machine Learning Library in C++</td>
<td>234</td>
</tr>
<tr>
<td>R. Kohavi, D. Sommerfield, and J. Dougherty</td>
<td></td>
</tr>
</tbody>
</table>
Attribute-Oriented Induction Using Domain Generalization Graphs ................................................................. 246
H. J. Hamilton, R. J. Hilderman, and N. Cercone

Effects of Different Types of New Attribute on Constructive Induction ........................................................... 254
Z. Zheng

Session 12: Neural Networks II

Session Chairs: P. W. Ilott, University of Wales and TBA

Application of a Hybrid Neural Network for the Discrimination of Seeds by Artificial Vision ............................... 485
Y. Chtioui, D. Bertrand, M.-F. Devaux, and D. Barba

Development of a Pumping System Decision Support Tool Based on Artificial Intelligence ............................ 260
P. W. Ilott and A. J. Griffiths

Applying Logic Neural Networks to Hand-Written Character Recognition Tasks ................................................... 268
G. Tambouratzis

Neural Networks with Long-Range Feedback: Design for Stable Dynamics ....................................................... 272
R. Braham

Session 13: Constraint Satisfaction II

Session Chairs: M. J. Dent, University of Western Ontario and TBA

An Empirical Investigation of the Forward Checking Algorithm and Its Derivatives ............................................ 278
M. J. Dent and R. E. Mercer

Two New Constraint Propagation Algorithms Requiring Small Space Complexity ............................................... 286
A. Chmeiss and P. Jégou

Minimal Forward Checking with Backmarking and Conflict-Directed Backjumping ......................................... 290
A. C. M. Kwan and E. P. K. Tsang

Arc-Consistency in Dynamic CSPs is No More Prohibitive ............................................................................... 299
R. Debruyne

Session 14: Automated Reasoning

Session Chairs: F. Massacci, University of Cambridge and TBA

Approximate Reasoning for Contextual Databases ............................................................................................... 308
F. Massacci

Resolution Strategies for Focusing a Reason Maintenance System ................................................................. 316
R. Yacoub, M. Dumas, and G. Arnaud

Forward-Tracking: A Technique for Searching Beyond Failure ........................................................................ 324
E. Marchiori, M. Marchiori, and J. N. Kok

Computing Prime Implicants by Integer Programming ..................................................................................... 332
C. Pizzuti
### Session 15: Planning

**Session Chairs: T.L. McCluskey, University of Huddersfield and TBA**

Opportunistic Behavior and Its Automatic Adjustment in Dynamic Task Domains ........................................... 338

B. Hamidzadeh and A. Afshar

Object-Centered Planning: Lifting Classical Planning from the Literal Level to the Object Level .................................. 346

T.L. McCluskey, D.E. Kitchin, and J.M. Porteous

Global Path Planning for Autonomous Qualitative Navigation ................................................................. 354

N.A. Vlassis, N.M. Sgouros, G. Efthivoulidis, G. Papakonstantinou, and P. Tsanakas

Incremental Algorithms for Managing Temporal Constraints ................................................................. 360

A. Gerevini, A. Perini, and F. Ricci

### Session 16: Knowledge Representation

**Session Chairs: M. Hess, University of Zurich and TBA**

First Order C-Cubes for the Interpretation of Petri Nets: An Application to Dynamic Scene Understanding .......... 366

C. Castel, L. Chaudron, and C. Tessier

On Managing Nonmonotonic Transitive Relationships .................................................................................. 374

B. Boutsinas

Deduction Over Mixed-Level Logic Representations for Text Passage Retrieval ........................................ 383

M. Hess

### Session 17: Non-Standard Logics

**Session Chairs: L. Amgoud, IRIT Universite' Paul Sabatier and TBA**

Automatic Diagnoses for Properly Stratified Knowledge-Bases ....................................................................... 392

O. Arieli and A. Avron

Comparing Arguments Using Preference Orderings for Argument-Based Reasoning ...................................... 400

L. Amgoud, C. Cayrol, and D. Le Berre

A Local Approach to Reasoning with Conditional Knowledge Bases ............................................................ 404

S. Benferhat and L. Garcia

### Session 18: AI Applications II

**Session Chairs: J. Glasgow, University of Toronto and TBA**

Case-Based Classification Using Similarity-Based Retrieval ........................................................................... 410

I. Jurisica and J. Glasgow

Nestor: A Trail Blazer for Hypertexts ............................................................................................................. 420

Y. Marchand, and J.-L. Guérin
Session 19: Poster Session I

Computation of Prime Implicates and Prime Implicants by a Variant of the Davis and Putnam Procedure .......................... 428
T. Castell
Dynamic Properties of Higher Order Random Neural Networks .................................................. 430
H. Miyajima, L. Ma, and H. Suwa
Le Salon, Where Agents Meet Actors .................................................................................. 432
F. Van Aeken
Implementing Empirical Modeling Techniques with Recurrent Neural Networks ............................ 434
T. Catfoldis and K. Meert
A Deliberative and Reactive Diagnosis Agent Based on Logic Programming ........................................ 436
M. Schroeder, I. de Almeida Mora, and L. Moniz Pereira
AI Tools in Scheduling Problem Solving: A Solver Based on a “Well-Behaved” Restriction of TCSPs ..................................................... 438
S. Belhadji and A. Isli
Reasonable Conclusions in Fuzzy Reasoning .......................................................................... 440
B. Lazzarinini and F. Marcelloni
Integrating Agents and Objects to Develop Distributed AI Systems ........................................ 443
A. Poggi
Composing Approximated Algorithms Based on Hopfield Neural Network for Building a Resource-Bounded Scheduler ........................................................................... 445
J.-M. Gallone and F. Charpillet
A Task-Based Production Environment for Intelligent Learning/Teaching Systems: The ‘NGE’ Kernel ......................................................... 447
M.-F. Canut and M. Eloi
Computer Generated Intelligent Companions for Distributed Virtual Environments .................. 450
M. Edwards, E. Santos Jr., S.B. Banks, and M.R. Stytz

Session 20: Poster Session II

A Distributed Algorithm Solving CSPs with a Low Communication Cost ........................................ 454
N. Procovic
Assistant Agents for Creation and Management of Distributed Applications ............................. 456
M. Girard
A Boolean Approach to Construct Neural Networks for Non-Boolean Problems ......................... 458
G. Thimm and E. Fiesler
Named Disjunctions and Lazy Evaluation for Syntactic Ambiguities ......................................................... 460
P. Blache
Binary CSP Solving as an Inference Process ........................................................................................................ 462
C. Castro
Recognizing a Scenario by Calculating a Temporal Proximity Index between Constraint Graphs .......... 464
N. Ramaux and D. Fontaine
Conflict Analysis in Search Algorithms for Satisfiability .......................................................... 467
J.P. Marques Silva and K.A. Sakallah
A Practical Approach to Knowledge Representation and Reasoning in Relational Databases...................... 470
J. Cheng, D.A. Bell, and W. Liu
Perceptrons with Polynomial Post-Processing ................................................................................................. 472
L. Sanzogni, R.F. Bonner, and R. Chan
Natural Language Edit Controls: Constrained Natural Language Devices in User Interfaces ................. 475
G. Hall, F. Popowich, and D. Fass
Meta Updater: An Interactive Tool for Minimal View Updates in Knowledge Bases.......................... 478
G. Trajecevski, J. Lobo, and N. Grover

Keynote Address III:
Automatic Scale Selection as a Pre-Processing Stage to Interpreting Real-World Data .................. 490
Tony Lindeberg, KTH, Sweden

Author Index .................................................................................................................................................................... 491