Table of Contents

15th International Conference on Computing
CIC 2006

Preface........................................................................................................................................................................x
Program Committee..................................................................................................................................................xiii
Additional Reviewers..............................................................................................................................................xiv
Organizing Committee...........................................................................................................................................xv

ARTIFICIAL INTELLIGENCE

Knowledge Management, Reasoning, Neural Networks, and Evolutionary Programming
ccT: A Tool for Checking Advanced Correspondence Problems in Answer-Set Programming .......................3
Johannes Oetsch, Martina Seidl, Hans Tompits, and Stefan Woltran
Improving Wavelet-Networks Performance with a New Correlation-Based Initialisation Method and Training Algorithm.................................................................................................................................11
Edgar S. García-Treviño and Vicente Alarcon-Aquino, and José F. Ramírez-Cruz
Discrete Graphic Markov Model Selection by Multiobjective Genetic Algorithm (GMS-MGA) ......................18
Eunice Esther Ponce de León Sentí and Elva Díaz Díaz
Assembly Line Reconfiguration Under Disturbances: An Evolutionary Approach to Decision Making..........24
Sergio M. Ramírez-Campos, Luis M. Torres Treviño, M. Gastón Cedillo Campos, and Jorge Villegas Leza

Image Processing and Pattern Recognition
Analyzing Video Object-Motion Focusing on Non-Planar Rotation for Two Video Applications......................33
A.A. Ramírez Acosta and M.S. García Vázquez
*Robust Estimation of Background for Fixed Cameras .........................................................................................37
Aristodemos Pnevmatikakis and Lazaros Polymenakos
RM L-Filters for Real-Time Imaging..........................................................................................................................43
Jose Luis Varela-Benitez, Francisco Javier Gallegos-Funes, and Volodymyr Ponomaryov

* Best Paper Award, 3rd Place
Machine Learning and Data Mining

Instance Selection and Feature Weighting Using Evolutionary Algorithms ...............................................................73
José-Federico Ramírez-Cruz, Olac Fuentes, Vicente Alarcón-Aquino, and Luciano García-Banuelos

A Reversible Automata Approach to Modeling Birdsongs .................................................................80
Kazutoshi Sasahara, Yasuki Kakishita, Tetsuro Nishino, Miki Takahasi, and Kazuo Okanoya

Modelling the Human Values Scale from Consumers Transactional Data Bases ..................................................86
Javier Guzmán-Obando, Gustavo González, Josep L. De la Rosa, Ronald U. Ruiz, and José A. Castán

Using Grammatical Inference for Structure Induction ........................................................................................92
Alexandre S. Saidi

Natural Language Processing and Speech Recognition

Combined Lesk-Based Method for Words Senses Disambiguation ........................................................................105
Yoel Ledo-Mezquita, Grigori Sidorov, and Vicente Cubells
†A Maximum Entropy Model Application on Recognition of Metaphor Phenomena ............................................109
Yang Xu

Recognition of Vowel Segments in Spanish Esophageal Speech Using Hidden Markov Models ..........................115
Alfredo Mantilla, Héctor Pérez-Meana, Daniel Mata, Carlos Angeles, Jorge Alvarado, and Laura Cabrera

Vocal Stability Parameters for Identification of Voices from Deaf People ..................................................121
Julia Calderón-Sambarino and Sergio Suárez-Guerra

Feature Selection for a Fast Speaker Detection System with Neural Networks and Genetic Algorithms ..........126
Rocio Quixtiano-Xicohtíencatl, Leticia Flores-Puldo, and Orion Fausto Reyes-Galaviz

Information Retrieval

A Universal Full Text Index with Access Control and Annotation Driven Information Retrieval .......................135
Edgar Chávez and Eric Sadit Téllez

Document Retrieval from Multiple Collections by Using Lightweight Ontologies ........................................141
Maria Auxilio Medina, J. Alfredo Sánchez, and Jaime A. Paz

Comparison of Hanson Intervallic Representations for Music Information Retrieval ........................................147
Johnny F. Serrano and José M. Iñesta

† Best Paper Award, 2nd Place
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Music Motive Extraction Through Hanson Intervallial Analysis</td>
<td>154</td>
</tr>
<tr>
<td>Johnny F. Serrano and José M. Iñesta</td>
<td></td>
</tr>
<tr>
<td>Multi-Agent Systems and Ontologies</td>
<td></td>
</tr>
<tr>
<td>Statistic Analysis for the Tiancalli Agents on TAC SCM 2005 and 2006</td>
<td>161</td>
</tr>
<tr>
<td>Daniel Macias Galindo, Darnes Vilariño Ayala, and Fabiola López y López</td>
<td></td>
</tr>
<tr>
<td>Modelling a Knowledge Management System Architecture with INGENIAS Methodology</td>
<td>167</td>
</tr>
<tr>
<td>‡ Juan P. Soto, Aurora Vizcaino, Javier Portillo, and Mario Piattini</td>
<td></td>
</tr>
<tr>
<td>Agent Based Autonomous Scheduling Mechanism Using Availability in Desktop Grid Systems</td>
<td>174</td>
</tr>
<tr>
<td>HongSoo Kim, SeockIn Kim, EunJoung Byun, ChongSun Hwang, and JangWon Choi</td>
<td></td>
</tr>
<tr>
<td>A Language and Algorithm for Automatic Merging of Ontologies</td>
<td>180</td>
</tr>
<tr>
<td>Alma Delia Cuevas Ragsdo and Adolfo Guzman Arenas</td>
<td></td>
</tr>
<tr>
<td>Query Division and Reformulation in Ontology-Based Heterogeneous Information Integration</td>
<td>186</td>
</tr>
<tr>
<td>Li Jian and Jin Beihong</td>
<td></td>
</tr>
<tr>
<td>Bioinformatics and Medical Applications</td>
<td></td>
</tr>
<tr>
<td>Analysis of DNA-Dimer Frequency in Retroviral Genomes with a Fuzzy Itemsets</td>
<td>197</td>
</tr>
<tr>
<td>Pattern Induction Strategy</td>
<td></td>
</tr>
<tr>
<td>R. Garza-Dominguez, E. Bautista-Thompson, and A. Quiroz-Gutiérrez</td>
<td></td>
</tr>
<tr>
<td>MAPK Signaling Pathways and their Recursive Modularization</td>
<td>203</td>
</tr>
<tr>
<td>Rajat K. De and losiana Nayak</td>
<td></td>
</tr>
<tr>
<td>Control System of Artificial Chemico-Mechanical Muscle. Medical Robotics Application</td>
<td>209</td>
</tr>
<tr>
<td>Sergio Diaz Zagal and Bertrand Tondu</td>
<td></td>
</tr>
<tr>
<td>Extended Kalman Filter Neurocontrol for Neonate Incubator</td>
<td>215</td>
</tr>
<tr>
<td>V. Ortiz, D. Angeles, I. Chairez, and A. Cabrera</td>
<td></td>
</tr>
<tr>
<td>Intelligent Tutoring Systems</td>
<td></td>
</tr>
<tr>
<td>Architecture for Development of WBES Based on Components and Agents</td>
<td>223</td>
</tr>
<tr>
<td>Alejandro Canales Cruz, Rubén Peredo Valderrama, Oscar Fabela Cano, and Humberto Sossa</td>
<td></td>
</tr>
<tr>
<td>A LCMS Rendering Intelligent Tutoring Modules for the Provision of Study Skills Training</td>
<td>229</td>
</tr>
<tr>
<td>C. Bermingham and A.E. Mahdi</td>
<td></td>
</tr>
<tr>
<td>An Intelligent Collaborative Virtual Environment for Team Training —A Preliminary Report</td>
<td>236</td>
</tr>
<tr>
<td>Raúl A. Aguilar, Angélica de Antonio, and Ricardo Imbert</td>
<td></td>
</tr>
<tr>
<td>Enhancing Modularity and Feedback in Computer Aided Assessment</td>
<td>240</td>
</tr>
<tr>
<td>P. Duarte, I. Nunes, J.P. Neto, and T. Chambel</td>
<td></td>
</tr>
<tr>
<td>COMPUTER SCIENCE</td>
<td></td>
</tr>
<tr>
<td>Formal Languages and Automations</td>
<td></td>
</tr>
<tr>
<td>Removing Timed Delays in Stochastic Automata</td>
<td>247</td>
</tr>
<tr>
<td>Fida Kamal Dankar and Gregor V. Bocmann</td>
<td></td>
</tr>
</tbody>
</table>

‡ Best Student Paper Award
Software Engineering and Data Warehousing

Improving the Preciseness of Dependence Analysis Using Exception Analysis .......................................................... 277
Shujuan Jiang, Shengwu Zhou, Yuqin Shi, and Yuanpeng Jiang

Intelligent Framework for Web Design Modeling based on Automatas and Agents ....................................................... 283
César Octavio Maguey Peña

Consistency Checking of UML Dynamic Models Based on Petri Net Techniques ......................................................... 289
Shuzhen Yao and Sol M. Shatz

A Fuzzy Logic Model Based Upon Reused and New&Changed Code for Software Development Effort Estimation at Personal Level .......................................................... 298
Cuauhtemoc Lopez-Martín, Cornelio Yañez-Marquez, and Agustín Gutiérrez-Tornes

An Auxiliary Tool for Usability and Design Guidelines Validation of Web Sites .......................................................... 304
Ricardo Ruiz-Rodríguez

A Model and Language for Btemporal Schema Versioning in Data Warehouses .......................................................... 309
Ericka-Janet Rechy-Ramírez and Edgard Benítez-Guerrero

Rule Management in Active Database Systems ............................................................................................................ 315
Sidney Viana, Judith Pavón, and Jorge Rady de Almeida

Cryptography and Security

Oblivious Transfer Using Elliptic Curves .......................................................................................................................... 323
Abhishek Parakh

A Genetic Algorithm Approach for Doing Misuse Detection in Audit Trail Files .......................................................... 329
Pedro A. Díaz-Gómez and Dean F. Hougen

Computer Networks and Distributed Systems

The Role of Admission Control in Assuring Multiple Services Quality ........................................................................ 339
Solange Rito Lima, Paulo Carvalho, and Vasco Freitas

A Model-based Awareness Tool for Synchronous Collaborative Sessions ................................................................. 347
L.M. Rodríguez Peralta and A.M. Gonçalves Silva

A MPLS and VPN Based eGovernment System ............................................................................................................. 355
Yongming Wei, Zhiyi Fang, Zhiming Dai, Xiao Han, and Fengyuan Xu

A Tool for Long-Range Dependent Analysis via the R/S Statistic ............................................................................. 361
Julio C. Ramírez Pacheco and Dení Torres Román

A Self-Adapted Wavelet-Based Fuzzy Predictor of Network Traffic ........................................................................ 367
Wenxuan Guo and Hanping Hu

Representing Process-Based Ontology Using Topic Maps for Web Services .............................................................. 373
Jeong-Youn Yu, Yun-Young Hwang, and Kyu-Chul Lee

§ Best Paper Award, 1st Place
Accuracy of Time-Domain Algorithms for Self-Similarity: An Empirical Study ................................................................. 379
Julio C. Ramirez Pacheco and Deni Torres Román
Graphical Specification Language for Distributed Systems .................................................................................................. 385
Jorge Cortes Galicia and Felipe Rolando Menchaca García
Performance Evaluation of JXTA Based P2P Distributed Computing System ................................................................. 391
Zhiming Dai, Zhiyi Fang, Xiao Han, Fengyuan Xu, and Hongjun Yang

Mobile Computing
MoviWeb: Platform to Solve the Web Content Visualization Problem on Heterogeneous Mobile Devices ................. 399
J. Carlos Olivares R., J. Gabriel González S., Victor J. Sosa S., and Azucena Montes R.
Plugging 3G Mobile Networks into the Internet: A Prototype-Based Evaluation ................................................................. 406
Adetola Oredope and Antonio Liotta
Reaching Outside the Smart Space: The Memory Jog Gateway .................................................................................... 412
Nikolaos Dimakis, Vasileios Mylonakis, John Soldatos, and Lazaros Polymenakos

Control
On recovering the Duffing System Based on a Modified Gradient Algorithm ................................................................. 421
Carlos Aguilar-Ibañez, Jorge Sánchez H., and Ruben Garrido Moctezuma

Author Index ........................................................................................................................................................................... 425