

Table of Contents

Invited Speakers

Toward Web Intelligence	1
<i>Ning Zhong</i>	
From Search Engines to Question-Answering Systems – The Need for New Tools	15
<i>Lotfi A. Zadeh</i>	
Artificial Intelligence Techniques in Retrieval of Visual Data Semantic Information	18
<i>Ryszard Tadeusiewicz, Marek R. Ogiela</i>	

General Session

A Framework to Integrate Business Goals in Web Usage Mining	28
<i>E. Hochsztain, S. Millán, B. Pardo, J.M. Peña, E. Menasalvas</i>	
Clustered Organized Conceptual Queries in the Internet Using Fuzzy Interrelations	37
<i>Pablo J. Garcés, José A. Olivas, Francisco P. Romero</i>	
Collaborative Filtering Using Interval Estimation Naïve Bayes	46
<i>V. Robles, P. Larrañaga, J.M. Peña, O. Marbán, J. Crespo, M.S. Pérez</i>	
DJ-Boids: Flocks of DJ's to Program Internet Multichannel Radio Stations	54
<i>Jesus Ibanez, Antonio Gomez-Skarmeta, Josep Blat</i>	
Evaluating the Informative Quality of Web Sites by Fuzzy Computing with Words	62
<i>Enrique Herrera-Viedma, Eduardo Peis, María Dolores Olvera, Juan Carlos Herrera, Yusef Hassan Montero</i>	
Mining Association Rules Using Fuzzy Inference on Web Data	73
<i>Mariluz Martínez, Gelver Vargas, Andrés Dorado, Marta Millán</i>	
The “Who Is It?” Problem Application for Customizable Web Sites	83
<i>Pierre-Emmanuel Jouve, Nicolas Nicoloyannis</i>	

Using Case-Based Reasoning to Improve Information Retrieval in Knowledge Management Systems	94
<i>Norbert Gronau, Frank Laskowski</i>	

Web Page Classification: A Soft Computing Approach	103
<i>Angela Ribeiro, Víctor Fresno, María C. Garcia-Alegre, Domingo Guinea</i>	

Special Session: Web Security

Content-Based Methodology for Anomaly Detection on the Web	113
<i>Mark Last, Bracha Shapira, Yuval Elovici, Omer Zaafrany, Abraham Kandel</i>	

Designing Reliable Web Security Systems Using Rule-Based Systems Approach	124
<i>Grzegorz J. Nalepa, Antoni Ligeza</i>	

Secure Intelligent Agents Based on Formal Description Techniques	134
<i>L. Mengual and C. de la Puente</i>	

Special Session: Semantic Web

A Natural Language Interface for Information Retrieval on Semantic Web Documents	142
<i>Paulo Quaresma, Irene Pimenta Rodrigues</i>	

Conceptual User Tracking	155
<i>Daniel Oberle, Bettina Berendt, Andreas Hotho, Jorge Gonzalez</i>	

Coping with Web Knowledge	165
<i>J.L. Arjona, R. Corchuelo, J. Peña, D. Ruiz</i>	

Formalization of Web Design Patterns Using Ontologies	179
<i>Susana Montero, Paloma Díaz, Ignacio Aedo</i>	

Special Session: Web Authoring and Design

A Multi-agent System for Web Document Authoring	189
<i>M. Pérez-Coutiño, A. López-López, M. Montes-y-Gómez, L. Villaseñor-Pineda</i>	

On the Vague Modelling of Web Page Characteristics Regarding Usability	199
<i>Elena García Barriocanal, Miguel A. Sicilia Urbán, J. Antonio Gutiérrez</i>	
Semantic Interoperability Based on Ontology Mapping in Distributed Collaborative Design Environment	208
<i>Jingyi Zhang, Shensheng Zhang, Chun Chen, Bo Wang</i>	
The Use of Data Mining Techniques to Classify Styles and Types of Web-Based Information: Generation of Style Sheets Using Data Mining	218
<i>Kathryn E.B. Thornton, Mark Carrington</i>	

Special Session: Web Information Retrieval

Building Topic Profiles Based on Expert Profile Aggregation	230
<i>Miguel Delgado, María J. Martín-Bautista, Daniel Sánchez, José M. Serrano, María-Amparo Vila</i>	
Carrot ² and Language Properties in Web Search Results Clustering	240
<i>Jerzy Stefanowski, Dawid Weiss</i>	
Practical Evaluation of Textual Fuzzy Similarity as a Tool for Information Retrieval	250
<i>Piotr S. Szczepaniak, Marcin Gil</i>	
Rough – Fuzzy Reasoning for Customized Text Information Retrieval	258
<i>Shailendra Singh, P. Dhanalakshmi, Lipika Dey</i>	

Special Session: Agents for the Web

A Machine Learning Based Evaluation of a Negotiation between Agents Involving Fuzzy Counter-Offers	268
<i>Javier Carbo, Agapito Ledezma</i>	
Autonomous Agents to Support Interoperability and Physical Integration in Pervasive Environments	278
<i>Marcela Rodríguez, Jesus Favela</i>	
Feature Selection Algorithms to Improve Documents' Classification Performance	288
<i>Pedro A.C. Sousa, João Paulo Pimentão, Bruno René D. Santos, Fernando Moura-Pires</i>	
ROSA – Multi-agent System for Web Services Personalization	297
<i>Przemysław Kazienko, Maciej Kiewra</i>	

Supporting Software Maintenance in Web Repositories through a
Multi-agent System 307
Aurora Vizcaino, Jesús Favela, Mario Piattini, Felix García

Special Session: User Behavior

A Hybrid Method for Patterns Mining and Outliers Detection in the
Web Usage Log 318
Mikhail Petrovskiy

Analysis of User’s Behaviour in Very Large Business Application Systems with
Methods of the Web Usage Mining – A Case Study on SAP® R/3® 329
Jorge Marx Gómez, Gamal Kassem, Claus Rautenstrauch, Markus Melato

Automation of the Deep Web with User Defined Behaviours 339
*Vicente Luque Centeno, Carlos Delgado Kloos, Peter T. Breuer,
Luis Sánchez Fernández, Ma. Eugenia Gonzalo Cabellos,
Juan Antonio Herráiz Pérez*

Author Index 349