

# Contents

## Knowledge Engineering, Knowledge Representation and Probabilistic Reasoning

Towards an Integration of Workflows and Clinical Guidelines: A Case Study . . . . .	3
<i>Paolo Terenziani and Salvatore Femiano</i>	
Anomalies Detection in the Behavior of Processes Using the Sensor Validation Theory . . . . .	14
<i>Pablo H. Ibargüengoytia, Uriel A. García, Alberto Reyes, and Mónica Borunda</i>	
Explanatory Relations Revisited: Links with Credibility-Limited Revision . . .	25
<i>María Victoria León and Ramón Pino Pérez</i>	
Semantic Enrichment of Web Service Operations . . . . .	37
<i>Maricela Bravo, José A. Reyes-Ortiz, Roberto Alcántara-Ramírez, and Leonardo Sánchez</i>	

## Agent Technology and Multi-agent Systems

The ICARO Goal Driven Agent Pattern . . . . .	51
<i>Francisco Garijo and Juan Pavón</i>	
A Study for Self-adapting Urban Traffic Control. . . . .	63
<i>P.S. Rodríguez-Hernández, J.C. Burguillo, Enrique Costa-Montenegro, and Ana Peleteiro</i>	

## Planning and Scheduling

A Constraint-Based Approach for the Conciliation of Clinical Guidelines. . . .	77
<i>Luca Piovesan and Paolo Terenziani</i>	
Intelligence Amplification Framework for Enhancing Scheduling Processes . . .	89
<i>Andrej Dobrkovic, Luyao Liu, Maria-Eugenia Iacob, and Jos van Hilleegersberg</i>	
A Column Generation Approach for Solving a Green Bi-objective Inventory Routing Problem . . . . .	101
<i>Carlos Franco, Eduyn Ramiro López-Santana, and Germán Méndez-Giraldo</i>	

**Natural Language Processing**

Enhancing Semi-supervised Text Classification Using Document Summaries. . . . .	115
<i>Esau Villatoro-Tello, Emmanuel Anguiano, Manuel Montes-y-Gómez, Luis Villaseñor-Pineda, and Gabriela Ramírez-de-la-Rosa</i>	
A Comparison Between Two Spanish Sentiment Lexicons in the Twitter Sentiment Analysis Task . . . . .	127
<i>Omar Juárez Gambino and Hiram Calvo</i>	
Is This a Joke? Detecting Humor in Spanish Tweets . . . . .	139
<i>Santiago Castro, Matías Cubero, Diego Garat, and Guillermo Moncecchi</i>	
Evaluating Topic-Based Representations for Author Profiling in Social Media . . . . .	151
<i>Miguel A. Álvarez-Carmona, A. Pastor López-Monroy, Manuel Montes-y-Gómez, Luis Villaseñor-Pineda, and Ivan Meza</i>	
Using Robustness to Learn to Order Semantic Properties in Referring Expression Generation . . . . .	163
<i>Pablo Ariel Duboue and Martin Ariel Domínguez</i>	
Conditional Random Fields for Spanish Named Entity Recognition Using Unsupervised Features . . . . .	175
<i>Jenny Copara, Jose Ochoa, Camilo Thorne, and Goran Glavaš</i>	

**Machine Learning**

Detection of Fraud Symptoms in the Retail Industry . . . . .	189
<i>Rita P. Ribeiro, Ricardo Oliveira, and João Gama</i>	
A Machine Learning Model for Occupancy Rates and Demand Forecasting in the Hospitality Industry . . . . .	201
<i>William Caicedo-Torres and Fabián Payares</i>	
A Machine Learning Model for Triage in Lean Pediatric Emergency Departments. . . . .	212
<i>William Caicedo-Torres, Gisela García, and Hernando Pinzón</i>	
An Empirical Validation of Learning Schemes Using an Automated Genetic Defect Prediction Framework . . . . .	222
<i>Juan Murillo-Morera, Carlos Castro-Herrera, Javier Arroyo, and Rubén Fuentes-Fernández</i>	

Machine Learning Approaches to Estimate Simulated Cardiac Ejection Fraction from Electrical Impedance Tomography. . . . .	235
<i>Tales L. Fonseca, Leonardo Goliatt, Luciana C.D. Campos, Flávia S. Bastos, Luis Paulo S. Barra, and Rodrigo W. dos Santos</i>	

Machine Learning Models for Early Dengue Severity Prediction. . . . .	247
<i>William Caicedo-Torres, Ángel Paternina, and Hernando Pinzón</i>	

Early Prediction of Severe Maternal Morbidity Using Machine Learning Techniques. . . . .	259
<i>Eugenia Arrieta Rodríguez, Francisco Edna Estrada, William Caicedo Torres, and Juan Carlos Martínez Santos</i>	

### **Big Data, Knowledge Discovery and Data Mining**

Collaborative Filtering with Semantic Neighbour Discovery. . . . .	273
<i>Bruno Veloso, Benedita Malheiro, and Juan C. Burguillo</i>	

Distributed and Parallel Algorithm for Computing Betweenness Centrality. . .	285
<i>Mirlayne Campuzano-Alvarez and Adrian Fonseca-Bruzón</i>	

Principal Curves and Surfaces to Interval Valued Variables. . . . .	297
<i>Jorge Arce G. and Oldemar Rodríguez R.</i>	

In Defense of Online Kmeans for Prototype Generation and Instance Reduction. . . . .	310
<i>Mauricio García-Limón, Hugo Jair Escalante, and Alicia Morales-Reyes</i>	

### **Computer Vision and Pattern Recognition**

In Search of Truth: Analysis of Smile Intensity Dynamics to Detect Deception. . . . .	325
<i>Michał Kawulok, Jakub Nalepa, Karolina Nurzynska, and Bogdan Smolka</i>	

Sign Language Recognition Without Frame-Sequencing Constraints: A Proof of Concept on the Argentinian Sign Language. . . . .	338
<i>Franco Ronchetti, Facundo Quiroga, César Estrebow, Laura Lanzarini, and Alejandro Rosete</i>	

### **Computational Intelligence Soft Computing**

Automatic Generation of Type-1 and Interval Type-2 Membership Functions for Prediction of Time Series Data. . . . .	353
<i>Andréia Alves dos Santos Schwaab, Silvia Modesto Nassar, and Paulo José de Freitas Filho</i>	

Calibration of Microscopic Traffic Flow Simulation Models Using a Memetic Algorithm with Solis and Wets Local Search Chaining (MA-SW-Chains) . . . . .	365
<i>Carlos Cobos, Carlos Daza, Cristhian Martínez, Martha Mendoza, Carlos Gaviria, Cristian Arteaga, and Alexander Paz</i>	
A New Strategy Based on Feature Selection for Fault Classification in Transmission Lines . . . . .	376
<i>Márcia Homci, Paulo Chagas, Brunelli Miranda, Jean Freire, Raimundo Viêgas Jr., Yomara Pires, Bianchi Meiguins, and Jefferson Moraes</i>	
<b>AI in Education, Affective Computing, and Human-Computer Interaction</b>	
Context Ontologies in Ubiquitous Learning Environments . . . . .	391
<i>Gabriela González, Elena Durán, and Analía Amandi</i>	
An Interactive Tool to Support Student Assessment in Programming Assignments . . . . .	404
<i>Lina F. Rosales-Castro, Laura A. Chaparro-Gutiérrez, Andrés F. Cruz-Salinas, Felipe Restrepo-Calle, Jorge Camargo, and Fabio A. González</i>	
Hidden Markov Models for Artificial Voice Production and Accent Modification . . . . .	415
<i>Marvin Coto-Jiménez and John Goddard-Close</i>	
<b>Author Index</b> . . . . .	427

Advances in Artificial Intelligence - IBERAMIA 2016  
15th Ibero-American Conference on AI, San José, Costa  
Rica, November 23-25, 2016, Proceedings  
Montes y Gómez, M.; Escalante, H.J.; Segura, A.; Murillo,  
J. de D. (Eds.)  
2016, XVI, 428 p. 113 illus., Softcover  
ISBN: 978-3-319-47954-5