

# CONFERENCE PROGRAMME

11<sup>th</sup> International Conference on Hybrid Artificial Intelligence Systems  
HAIS 2016

<http://hais2016.upo.es>

Seville, Spain 18<sup>th</sup>-20<sup>th</sup> April



## PARTNERS



## DETAILED PROGRAMME

### **Session HAIS S1: Data Mining and Knowledge Discovery I**

Date: Monday 18<sup>th</sup>, 08:30–10:30

Room: Salón de Grados, Building 7

Chairs: **M. Rahoman**

<b>Id paper</b>	<b>TITLE</b>	<b>Authors</b>
<b>2</b>	Screening a Case Base for Stroke Disease Detection	J. Neves, N. Gonçalves, R. Oliveira, S. Gomes, J. Neves, J. Macedo, A. Abelha, J. Machado, M. F. Santos and H. Vicente
<b>14</b>	SemSynX: Flexible Similarity Analysis of XML Data via Semantic and Syntactic Heterogeneity/Homogeneity Detection	J. M. Almendros-Jimenez and A. Cuzzocrea
<b>18</b>	Towards automatic composition of multicomponent predictive systems	M. M. Salvador, M. Budka and B. Gabrys
<b>23</b>	LiCord: Language Independent Content Word Finder	M. Rahoman, T. Nasukawa, H. Kanayama and R. Ichise
<b>26</b>	Mining Correlated High-Utility Itemsets using the Bond Measure	P. Fournier-Viger, J. Chun-Wei Lin, T. Dinh and H. Bac Le
<b>61</b>	An HMM-based multi-view co-training framework for single-view text corpora	E. Lorenzo, A. Seara and L. Borrajo
<b>67</b>	Does sentiment analysis help in bayesian spam filtering?	E. Ezpeleta, U. Zurutuza and J. M. Gómez
<b>78</b>	A Context-aware Keyboard Generator for Smartphone Using Random Forest and Rule-based System	Sang-Muk Jo and Sung-Bae Cho

### **Session HAIS S2: Data Mining and Knowledge Discovery II**

Date: Monday 18<sup>th</sup>, 13:00–14:00

Room: Salón de Grados, Building 7

Chairs: **P. Andruszkiewicz, F. Divina**

<b>Id paper</b>	<b>TITLE</b>	<b>Authors</b>
<b>82</b>	Privacy Preserving Data Mining for Deliberative Consultations	P. Andruszkiewicz
<b>89</b>	Feature selection using approximate multivariate Markov blankets	R. Arias, M. García Torres, C. Schaerer and F. Divina
<b>99</b>	Student Performance Prediction Applying Missing Data Imputation in Electrical Engineering Studies Degree	C. Crespo-Turrado, J. L. Casteleiro-Roca, F. Sánchez-Lasheras, J. A. López-Vázquez, F. J. de Cos Juez, J. L. Calvo Rolle and E. Corchado
<b>101</b>	Accuracy increase on evolving product unit neural networks via feature subset selection	A. J. Tallón-Ballesteros, J. C. Riquelme and R. Ruiz

**Session HAIS S3: Time Series Analysis**Date: Monday 18<sup>th</sup>, 13:00–14:00

Room: Salón de Grados, Building 7

Chairs: **R. L. Talavera-Llames, R. Pérez-Chacón**

<b>Id paper</b>	<b>TITLE</b>	<b>Authors</b>
<b>43</b>	Rainfall prediction: a Deep Learning approach	E. J. Hernández, V. Sanchez-Anguix, V. Julián, J. Palanca and N. D. Duque Méndez
<b>59</b>	Time series representation by a novel hybrid segmentation algorithm	A.M. Durán-Rosal, P. A. Gutiérrez-Peña, F. J. Martínez-Estudillo and C. Hervás-Martínez
<b>60</b>	A nearest neighbours-based algorithm for big time series data forecasting	R. L. Talavera, R. Pérez, M. Martínez-Ballesteros, A. Troncoso and F. Martínez-Álvarez
<b>110</b>	Active Learning Classifier for Streaming Data	M. Wozniak, B. Cyganek, A. Kasprzak, P. Ksieniewicz and K. Walkowiak

**Session HAIS S4: Video and Image Analysis**Date: Monday 18<sup>th</sup>, 16:00-17:00

Room: Salón de Grados, Building 7

Chairs: **M. Guijarro Mata-García, A. Vlachynská**

<b>Id paper</b>	<b>TITLE</b>	<b>Authors</b>
<b>50</b>	Identification of plant textures in agricultural images by Principal Component Analysis	M. Montalvo Martínez, M. Guijarro, J. M. Guerrero Hernández and A. Ribeiro
<b>72</b>	Automatic Image-based Method for Quantitative Analysis of Photosynthetic Cell Cultures	A. Vlachynska and J. Cerveny
<b>76</b>	Fall Detection Using Body-worn Accelerometer and Depth Maps Acquired by Active Camera	M. Kepski and B. Kwolek
<b>86</b>	Classification of melanoma presence and thickness based on computational image analysis	J. Sánchez-Monedero, A. Sáez, M. Pérez Ortiz, P. A. Gutierrez and C. Hervas

**Session HAIS S5: Learning Algorithms**Date: Tuesday 19<sup>th</sup>, 08:30–10:30

Room: Salón de Grados, Building 7

Chairs: **M. Fischer, J. M. López-Guede**

<b>Id paper</b>	<b>TITLE</b>	<b>Authors</b>
<b>1</b>	Evaluating the Difficulty of Instances of the Travelling Salesman Problem in the Nearby of the Optimal Solution Based on Random Walk Exploration	M. Cárdenas Montes
<b>31</b>	A nearest hyperrectangle monotonic learning method	J. García, J. R. Cano and S. García
<b>36</b>	Knowledge modeling by ELM in RL for SRHT problem	J. M. Lopez-Guede, A. Garmendia and M. Graña
<b>51</b>	Can metalearning be applied to transfer on heterogeneous datasets?	C. Felix, C. Soares and A. M. Jorge
<b>53</b>	Smart Sketchpad: Using Machine Learning to Provide Contextually Relevant Examples to Artists	M. Fischer and M. Lam
<b>54</b>	An analysis of the hardness of two novel TSP instances	G. C. Crisan, C. Pinteá, P. Pop and O. Matei
<b>69</b>	Speeding-up machine learning algorithms on massive datasets	F. Padillo, J. M. Luna, A. Cano and S. Ventura
<b>74</b>	A Sensory Control System for Adjusting Group Emotion using Bayesian Networks and Reinforcement Learning	J.-H. Kim, K.-H. Kim and S.-B. Cho

**Session HAIS S6: Bio-Inspired Models and Evolutionary Computation**Date: Tuesday 19<sup>th</sup>, 12:00-14:00

Room: Salón de Grados, Building 7

Chairs: **C. J. Carmona, R. Hagnazar**

<b>Id paper</b>	<b>TITLE</b>	<b>Authors</b>
<b>17</b>	Application of Genetic Algorithms and heuristic techniques for the identification and classification of the information used by a recipe recommender	C. Peñaranda, S. Valero, J. Palanca and V. Julian
<b>20</b>	A New Visualization Tool in Many-Objective Optimization Problems	R. Hagnazar Koochaksaraei, R. Enayatifar and F. Gadelha Guimaraes
<b>21</b>	An Adaptive Genetic Algorithm For Hybrid Mobility Management In Cellular Networks	Z. A. El Moiz Dahi, C. Mezioud and E. Alba
<b>28</b>	On Preference-based Interactive MOEAs: Novel Approaches and Performance Assessment	D. Cinalli, L. Martí, N. Sanchez-Pi and A. C. Bicharra
<b>37</b>	Assessment of Multi-Objective Optimization Algorithms for Parametric Identification of a Li-Ion Battery Model	Yuviny Echevarría, Luciano Sánchez and Cecilio Blanco

<b>39</b>	Comparing ACO approaches in epilepsy seizures	P. Vergara, J. R. Villar, E. De La Cal Marín, M. Menéndez and J. Sedano
<b>107</b>	Estimating the maximum power delivered by concentrating photovoltaics technology through atmospheric conditions using a differential evolution approach	C. J. Carmona, F. J. Pulgar Rubio, A. J. Rivera Rivas, M. J. del Jesus and J. Aguilera
<b>112</b>	A Hybrid Bio-Inspired ELECTRE Approach for Decision Making in Purchasing Agricultural Equipment	D. Simić, J. Gajić, V. Ilin, V. Svirčević and S. Simić

### **Session HAIS S7: Hybrid Artificial Intelligent Systems with Applications**

Date: Tuesday 19<sup>th</sup>, 16:00-17:00

Room: Salón de Grados, Building 7

Chairs: **P. López-García**

<b>Id paper</b>	<b>TITLE</b>	<b>Authors</b>
<b>5</b>	A hybrid approach to closeness in the framework of order of magnitude qualitative reasoning	A. Burrieza, E. Muñoz-Velasco and M. Ojeda-Aciego
<b>27</b>	Hybrid algorithm for floor detection using GSM signals in indoor localisation task	M. Luckner and R. Górak
<b>113</b>	Hybrid Optimization Method Applied to Adaptive Splitting and Selection Algorithm	Pedro López-García, M. Wozniak, E. Onieva and A. Perallos
<b>98</b>	Hybrid intelligent model for fault detection of a Lithium Iron Phosphate Power Cell used in Electric Vehicles	H. Quintian, J. L. Casteleiro-Roca, F. J. Pérez-Castelo, E. Corchado and J. L. Calvo-Rolle

### **Session HAIS S8: Classification and Cluster Analysis I**

Date: Wednesday 20<sup>th</sup>, 08:30–10:30

Room: Salón de Grados, Building 7

Chairs: **F. Charte**

<b>Id paper</b>	<b>TITLE</b>	<b>Authors</b>
<b>16</b>	Solution to Data Imbalance Problem in Application Layer Anomaly Detection Systems	R. Kozik and M. Choras
<b>42</b>	A fuzzy-based approach for the Multilevel Component Selection Problem	A. Vescan and C. Serban
<b>52</b>	A clustering-based method for team formation in learning environments	M. Guijarro-Mata-García, M. Guijarro and R. Fuentes-Fernández
<b>57</b>	R Ultimate Multilabel Dataset Repository	F. Charte Ojeda, D. Charte Luque, A. J. Rivera Rivas M. J. del Jesus and F. Herrera Triguero

<b>58</b>	On the Impact of Dataset Complexity and Sampling Strategy in Multilabel Classifiers Performance	F. Charte Ojeda, A. J. Rivera Rivas, M. J. del Jesus and F. Herrera Triguero
<b>62</b>	Managing Monotonicity in Classification by a Pruned AdaBoost	S. González, F. Herrera and S. García
<b>66</b>	Model Selection for Financial Distress Prediction by Aggregating TOPSIS and PROMETHEE Rankings	V. Garcia, A. I. Marqués and J. S. Sánchez

### **Session HAIS S9: Classification and Cluster Analysis II**

Date: Wednesday 20<sup>th</sup>, 12:00-13:00

Room: Salón de Grados, Building 7

Chairs: **W. Chmielnicki**

<b>Id paper</b>	<b>TITLE</b>	<b>Authors</b>
<b>90</b>	Combining k-Nearest Neighbor and Centroid Neighbor Classifier for Fast and Robust Classification	W. Chmielnicki
<b>100</b>	A first study on the use of boosting for class noise reparation	P. Morales Álvarez, J. Luengo and F. Herrera
<b>109</b>	Ensemble of HOSVD Generated Tensor Subspace Classifiers with Optimal Tensor Flattening Directions	B. Cyganek, M. Wozniak and D. Jankowski
<b>41</b>	Ordinal Evolutionary Artificial Neural Networks for solving an Imbalanced Liver Transplantation Problem	M. Dorado-Moreno, M. Pérez-Ortiz, M. D. Ayllón-Terán, P. A. Gutiérrez and C. Hervás-Martínez

### **Session HAIS S10: Bioinformatics**

Date: Wednesday 20<sup>th</sup>, 13:00-14:00

Room: Salón de Grados, Building 7

Chairs: **C. Rubio-Escudero, R. Giráldez**

<b>Id paper</b>	<b>TITLE</b>	<b>Authors</b>
<b>65</b>	TRIQ: A new measure to evaluate the quality of gene expression triclusters	D. Gutiérrez-Avilés and C. Rubio-Escudero
<b>80</b>	Biclustering of gene expression data based on SimUI semantic similarity measure	J. A. Nepomuceno, A. Troncoso, I. A. Nepomuceno-Chamorro and J. S. Aguilar-Ruiz
<b>81</b>	Discovery of Genes Implied in Cancer by Genetic Algorithms and Association Rules	A. Sánchez Medina, A. Gil Pichardo, J. M. García Heredia and M. Martínez Ballesteros
<b>87</b>	Extending Probabilistic Encoding for discovering biclusters in gene expression data	F. J. Gil-Cumbreras, R. Giráldez and J. S. Aguilar-Ruiz

**Session HAIS S11A: Applications I**Date: Wednesday 20<sup>th</sup>, 16:00-17:00

Room: Salón de Grados, Building 7

Chairs: **M. Cárdenas, R. Lostado**

<b>Id paper</b>	<b>TITLE</b>	<b>Authors</b>
<b>7</b>	Evaluation of Decision Tree Algorithms for Position Reconstruction in Argon Dark Matter Experiment	M. Cárdenas Montes, B. Montes, R. Santorelli and L. Romero
<b>49</b>	Proposed Methodology for Setting the Finite Element Models based on Healthy Human Intervertebral Lumbar Discs	F. Somovilla Gomez, R. Lostado Lorza, R. Fernandez Martinez, M. Corral Bobadilla and R. Escibano Garcia
<b>35</b>	Fisher Score-Based Feature Selection for Ordinal Classification: A Social Survey on Subjective Well-being	M. Pérez Ortiz, M. Torres-Jiménez, P. A. Gutierrez, J. Sánchez-Monedero and C. Hervás-Martínez
<b>40</b>	An approach to optimize the clarification process in waste water treatment	M. Corral Bobadilla, R. Fernandez Martinez, R. Lostado Lorza, F. Somovilla Gomez and E. P. Vergara Gonzalez

**Session HAIS S11B: Applications II**Date: Wednesday 20<sup>th</sup>, 16:00-17:00

Room: Salón de Grados, Building 7

Chairs: **C. Peláez-Moreno, R. Salgado.**

<b>Id paper</b>	<b>TITLE</b>	<b>Authors</b>
<b>34</b>	A preliminary study of the suitability of deep learning to improve LiDAR-derived biomass estimation	J. García-Gutiérrez, E. González-Ferreiro, D. Mateos-García and J. Riquelme-Santos
<b>73</b>	Passivity Based Control of Cyber Physical Systems Under Zero-Dynamics Attack	F. Hassan, N. Iqbal, F. Martínez-Álvarez and K. Asim
<b>91</b>	The Multivariate Entropy Triangle and Applications	F. J. Valverde Albacete and C. Peláez-Moreno
<b>103</b>	Motivational Engine with Sub-Goal Identification in Neuroevolution based Cognitive Robotics	R. Salgado, A. Prieto, P. Caamaño, F. Bellas and R. Duro