

**13<sup>th</sup> International Conference on  
Hybrid Artificial Intelligent Systems  
HAIS 2018**

<http://hais2018.uniovi.es/>

**Oviedo, Spain 20<sup>st</sup>-22<sup>nd</sup> June**

| <b>Wednesday, 20th</b>   |   |                             |
|--------------------------|---|-----------------------------|
| Hour                     | Aula Pintado Fé   | Aula I. Patac y Pérez-Herce |
| 8:50                     | <i>Registration main hall - all day long</i>  |                             |
| 09:30-10:00              | <b>S 1.A1 - DMBD</b>  | <b>S 1.B1 - HIA</b>         |
| 10:00-11:00              |   |                             |
| 11:00-11:30              | <b>Coffee break</b>   |                             |
| 11:30-12:00              | <b>OPENING</b>  |                             |
| 12:00-12:30              | <b>Invited Talk (Aula Magna)<br/>Dr. Luciano Sánchez</b>  |                             |
| 12:30-13:00              |   |                             |
| 13:00-14:00              | <b>S 1.A2 - DMA</b>   | <b>S 1.B2 - VADP</b>        |
| 14:00-16:00              | <b>Lunch</b>  |                             |
| <b>Social Activities</b> |   |                             |
| 16:00-17:00              | Spare time  |                             |
| 17:00-17:15              |   |                             |
| 17:15-18:00              | <b>Guided tour to the city of Oviedo</b>  |                             |
| 18:00-18:30              |   |                             |
| 18:30-19:00              |   |                             |
| 19:00-19:30              |   |                             |
| 19:30-20:00              |   |                             |
| 20:00-20:30              | <b>Reception at the<br/>University of Oviedo old building<br/>Spanish wine and cocktail (20:30)</b> |                             |
| 20:30-21:00              |   |                             |
| 21:00-21:30              |   |                             |
| 21:30-22:00              |   |                             |
| 22:00-23:00              |   |                             |
| 22:30-23:00              |   |                             |
| 23:00-23:30              |   |                             |

| <b>Papers per Session</b> |               |
|---------------------------|---------------|
| S 1.A1 - DMBD             | S 1.B1 - HIA  |
| 9                         | 40            |
| 21                        | 28            |
| 25                        | 39            |
| 23                        | 41            |
| 46                        | 81            |
| 5                         |               |
| S 1.A2 - DMA              | S 1.B2 - VADP |
| 32                        | 13            |
| 37                        | 29            |
| 50                        | 33            |
| 58                        | 47            |

| Thursday, 21st           |  |                             |
|--------------------------|--|-----------------------------|
| Hour                     | Aula Pintado Fé  | Aula I. Patac y Pérez-Herce |
| 8:50                     | <i>Registration in main hall - all day long</i>                          |                             |
| 09:30-10:00              | S 2.A1 - DMBD  | S 2.B1 - LA                 |
| 10:00-11:00              |  |                             |
| 11:00-11:30 Coffee break |  |                             |
| 11:30-12:00              | Invited Talk (Aula Magna)<br>Dr. Antony Bagnall                          |                             |
| 12:00-12:30              |  |                             |
| 12:30-13:00              | S 2.A2 - VADP  | S 2.B2 - LA                 |
| 13:00-14:00              |  |                             |
| 14:00-16:00 Lunch        |  |                             |
| Social Activities        |  |                             |
| 16:00-17:00              | Visit "El Gaitero" cider cellar<br><br>Meeting point: Venue hall (16:00) |                             |
| 17:00-17:30              |  |                             |
| 17:30-18:00              |  |                             |
| 18:00-18:30              |  |                             |
| 18:30-19:00              |  |                             |
| 19:00-19:30              | Spare time   |                             |
| 19:30-20:00              |  |                             |
| 20:00-20:30              |  |                             |
| 20:30-21:00              |  |                             |
| 21:00-21:30              | Gala Dinner at Hotel de la Reconquista (21:00)                           |                             |
| 21:30-22:00              |  |                             |
| 22:00-23:00              |  |                             |
| 22:30-23:00              |  |                             |
| 23:00-23:30              |  |                             |
| 23:30-24:00              |  |                             |

  

| Papers per Session |             |
|--------------------|-------------|
| S 2.A1 - DMBD      | S 2.B1 - LA |
| 35                 | 3           |
| 57                 | 70          |
| 65                 | 6           |
| 67                 | 31          |
| 77                 | 54          |
| 83                 |             |

  

| S 2.A2 - VADP | S 2.B2 - LA |
|---------------|-------------|
| 49            | 4           |
| 55            | 71          |
| 56            | 72          |
| 61            | 80          |
|               | 82          |

| Friday, 22nd  |   |                             |  |               |              |    |    |    |    |    |    |    |    |    |    |    |    |
|---------------|---|-----------------------------|--|---------------|--------------|----|----|----|----|----|----|----|----|----|----|----|----|
| Hour          | Aula Pintado Fé                                 | Aula I. Patac y Pérez-Herce | Papers per Session   |               |              |    |    |    |    |    |    |    |    |    |    |    |    |
| 8:50          | <i>Registration in main hall - all day long</i> |                             | <table border="1"> <thead> <tr> <th>S 3.A1 - DMA</th> <th>S 3.B1 - HIA</th> </tr> </thead> <tbody> <tr><td>64</td><td>42</td></tr> <tr><td>66</td><td>44</td></tr> <tr><td>75</td><td>48</td></tr> <tr><td>76</td><td>51</td></tr> <tr><td>12</td><td>52</td></tr> <tr><td>45</td><td>53</td></tr> </tbody> </table> | S 3.A1 - DMA  | S 3.B1 - HIA | 64 | 42 | 66 | 44 | 75 | 48 | 76 | 51 | 12 | 52 | 45 | 53 |
| S 3.A1 - DMA  | S 3.B1 - HIA                                    |                             |  |               |              |    |    |    |    |    |    |    |    |    |    |    |    |
| 64            | 42  |                             |  |               |              |    |    |    |    |    |    |    |    |    |    |    |    |
| 66            | 44  |                             |  |               |              |    |    |    |    |    |    |    |    |    |    |    |    |
| 75            | 48  |                             |  |               |              |    |    |    |    |    |    |    |    |    |    |    |    |
| 76            | 51  |                             |  |               |              |    |    |    |    |    |    |    |    |    |    |    |    |
| 12            | 52  |                             |  |               |              |    |    |    |    |    |    |    |    |    |    |    |    |
| 45            | 53  |                             |  |               |              |    |    |    |    |    |    |    |    |    |    |    |    |
| 09:30-10:00   | S 3.A1 - DMA                                    | S 3.B1 - HIA                |  |               |              |    |    |    |    |    |    |    |    |    |    |    |    |
| 10:00-11:00   |   |                             |  |               |              |    |    |    |    |    |    |    |    |    |    |    |    |
| 11:00-11:30   | Coffee break                                    |                             |  |               |              |    |    |    |    |    |    |    |    |    |    |    |    |
| 11:30-12:00   | S 3.A2 - BMEC                                   | S 3.B2 - HIA                |  |               |              |    |    |    |    |    |    |    |    |    |    |    |    |
| 12:00-12:30   |   |                             |  |               |              |    |    |    |    |    |    |    |    |    |    |    |    |
| 12:30-13:00   |   |                             |  |               |              |    |    |    |    |    |    |    |    |    |    |    |    |
| 13:00-14:00   |   |                             |  |               |              |    |    |    |    |    |    |    |    |    |    |    |    |
| 14:00-16:00   | Lunch   |                             | <table border="1"> <thead> <tr> <th>S 3.A2 - BMEC</th> <th>S 3.B2 - HIA</th> </tr> </thead> <tbody> <tr><td>14</td><td>38</td></tr> <tr><td>16</td><td>68</td></tr> <tr><td>17</td><td>73</td></tr> <tr><td>18</td><td>74</td></tr> <tr><td>19</td><td>78</td></tr> <tr><td>43</td><td></td></tr> </tbody> </table>  | S 3.A2 - BMEC | S 3.B2 - HIA | 14 | 38 | 16 | 68 | 17 | 73 | 18 | 74 | 19 | 78 | 43 |    |
| S 3.A2 - BMEC | S 3.B2 - HIA                                    |                             |  |               |              |    |    |    |    |    |    |    |    |    |    |    |    |
| 14            | 38  |                             |  |               |              |    |    |    |    |    |    |    |    |    |    |    |    |
| 16            | 68  |                             |  |               |              |    |    |    |    |    |    |    |    |    |    |    |    |
| 17            | 73  |                             |  |               |              |    |    |    |    |    |    |    |    |    |    |    |    |
| 18            | 74  |                             |  |               |              |    |    |    |    |    |    |    |    |    |    |    |    |
| 19            | 78  |                             |  |               |              |    |    |    |    |    |    |    |    |    |    |    |    |
| 43            |   |                             |  |               |              |    |    |    |    |    |    |    |    |    |    |    |    |

# WEDNESDAY 20<sup>th</sup>

## Session HAIS S 1.A1: DMBD - Data Mining and Big Data

Date: Wednesday 20<sup>th</sup>, 09:30–11:00

Room: Pintado Fé, EIMEM

Chairs: Sung-Bae Cho, José R. Villar

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| <b>Paper ID</b> | <b>Title</b>  | <b>Authors</b>   |
|-----------------|---|--|
| 9               | A Deep Learning-based Recommendation System to Enable End User Access to Financial Linked Knowledge | Luis Colombo-Mendoza, <b>José Antonio García-Díaz</b> , Juan Miguel Gómez-Berbís and Rafael Valencia-García  |
| 21              | On the use of Random Discretization and Dimensionality Reduction in Ensembles for Big Data          | <b>Diego García-Gil</b> , Sergio Ramírez-Gallego, Salvador García and Francisco Herrera  |
| 25              | Inferring user expertise from social tagging in music recommender systems for streaming services    | Diego Sánchez-Moreno, <b>María N. Moreno-García</b> , Nasim Sonboli, Bamshad Mobasher and Robin Burke  |
| 23              | Hybrid Deep Learning based on GAN for Classifying BSR Noises from Invehicle Sensors                 | Jin-Young Kim, Seok-Jun Bu and <b>Sung-Bae Cho</b>   |
| 46              | Improving adaptive optics reconstructions with a deep learning approach                             | Sergio L. Suárez Gómez, Carlos González-Gutiérrez, Enrique Díez Alonso, María Luisa Sánchez Rodríguez, Jorge Carballido Landeira, Alastair Basden, James Osborn and <b>Jesús Daniel Santos Rodríguez</b> |
| 5               | A Hybrid Deep Learning System of CNN and LRCN to Detect Cyberbullying from SNS Comments             | Seok-Jun Bu and <b>Sung-Bae Cho</b>  |

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## **Session HAIS S 1.B1: HIA - Hybrid Intelligent Applications**

*Date:* Wednesday 20<sup>th</sup>, 09:30–11:00

*Room:* Ing. Patac y P.-H., EIMEM

*Chairs:* Francisco J. Martínez de Pisón, Dragan Simic

| <b>Paper ID</b> | <b>Title</b>  | <b>Authors</b>   |
|-----------------|---|--|
| 40              | GAparsimony: R package for searching parsimonious models by combining hyperparameter optimization and feature selection           | <b>Francisco Javier Martínez-De-Pison</b> , Ruben Gonzalez-Sendino, Javier Ferreiro, Esteban Fraile and Alpha Pernia-Espinoza                    |
| 28              | Taxonomy-Based Detection of User Emotions for Advanced Artificial Intelligent Applications  | Giovanni Pilato and <b>Alfredo Cuzzocrea</b>   |
| 39              | A hybrid algorithm for the prediction of Computer Vision Syndrome in health personnel based on trees and evolutionary algorithms  | Eva María Artime Ríos, Fernando Sánchez Lasheras, <b>Ana Suárez Sánchez</b> , Francisco Javier Iglesias Rodríguez and María Del Mar Seguí Crespo |
| 41              | An algorithm based on satellite observations to quality control ground solar sensors: Analysis of Spanish meteorological networks | Ruben Urraca, Javier Antonanzas, Andres Sanz-Garcia, Alvaro Aldama and <b>Francisco Javier Martínez-De-Pison</b>                                 |
| 81              | A Hybrid Clustering Approach for Diagnosing Medical Diseases  | Svetlana Simić, Zorana Banković, <b>Dragan Simić</b> and Svetislav D. Simić  |

### **Session HAIS S 1.A2: DMA - Data Mining Applications**

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

*Room:* Pintado Fé, EIMEM

*Chairs:* Vivian López, José M. Molina

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| <b>Paper ID</b> | <b>Title</b>  | <b>Authors</b>  |
|-----------------|---|---|
| 32              | Listen to This: Music Recommendation Based on One-Class Support Vector Machine. | Fabio A. Yepes, <b>Vivian F. López</b> , Javier Pérez-Marcos, Ana B. Gil and Gabriel Villarrubia        |
| 37              | Improving forecasting using Information Fusion in local agricultural markets    | Washington R. Padilla, Jesús García and <b>José M. Molina</b>   |
| 50              | Chord progressions selection based on song audio features                       | <b>Noelia Rico</b> and Irene Diaz   |
| 58              | LearnSec: A Framework for Full Text Analysis                                    | <b>Carlos Gonçalves</b> , Eva Iglesias, Lourdes Borrajo, Rui Camacho, Adrian Vieira and Celia Gonçalves |

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**Session HAIS S 1.B2: VADP - Visual Analysis & Advanced Data Processing Techniques**

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

Room: Ing. Patac y P.-H., EIMEM

Chair: Alonso González Briones, Laura Fernández Robles

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| <b>Paper ID</b> | <b>Title</b>  | <b>Authors</b>   |
|-----------------|---|--|
| 13              | Evaluation of a Wrist-based Wearable Fall Detection Method  | Samad Barri Kohjasteh, <b>José Ramón Villar</b> , Enrique de La Cal, Víctor M. González, Javier Sedano and Harun Resit Yazgan  |
| 29              | EnerVMAS: Virtual agent organizations to optimize energy consumption using intelligent temperature calibration      | <b>Alfonso González Briones</b> , Javier Prieto, Juan M. Corchado and Yves Demazeau  |
| 33              | Tool wear estimation and visualization using image sensors in micro milling manufacturing                           | <b>Laura Fernández-Robles</b> , Noelia Charro, Lidia Sánchez-González, Hilde Pérez, Manuel Castejón-Limas and Javier Alfonso-Cendón  |
| 47              | Compensating atmospheric turbulence with convolutional neural networks for defocused pupil image wave-front sensors | Sergio L. Suárez Gómez, Carlos González-Gutiérrez, Enrique Díez Alonso, <b>Jesús Daniel Santos Rodríguez</b> , Laura Bonavera, Juan José Fernández Valdivia, José Manuel Rodríguez Ramos and Luis Fernando Rodríguez Ramos |

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# THURSDAY 21<sup>st</sup>

## Session HAIS S 2.A1: Data mining applications II

Date: Thursday 21<sup>st</sup>, 09:30–11:00

Room: Pintado Fé, EIMEM

Chair: David Gutiérrez-Avilés, Jerzy Grzymala-Busse, Alfredo Cuzzocrea

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| Paper ID | Title   | Authors   |
|----------|---|---|
| 35       | Learning Logical Definitions of n-ary Relations in Graph Databases  | Furkan Goz and <b>Alev Mutlu</b>  |
| 57       | Complexity of Rule Sets in Mining Incomplete Data Using Characteristic Sets and Generalized Maximal Consistent Blocks | Patrick G. Clark, Cheng Gao, <b>Jerzy Grzymala-Busse</b> , Teresa Mroczek and Rafal Niemiec   |
| 65       | Optimization of the university transportation by contraction hierarchies method and clustering algorithms             | Israel David Herrera Granda, Leandro Leonardo Lorente Leyva, <b>Diego Hernán Peluffo Ordóñez</b> , Robert Mauricio Valencia Chapi, Yackleem Montero Santos, Jorge Luis Chicaiza Vaca and Andrés Eduardo Castro Ospina |
| 67       | Identification of patterns in blogosphere considering social positions of users and reciprocity of relations          | Krzysztof Rudek and <b>Jaroslav Kozlak</b>  |
| 77       | SmartFD: A Real Big Data Application for Electrical Fraud Detection   | David Gutiérrez-Avilés, José Antonio Fábregas, Javier Tejedor, <b>Francisco Martínez-Álvarez</b> , Alicia Troncoso, Ángel Arcos and José C. Riquelme  |
| 83       | Multi-class imbalanced data oversampling for vertebral column pathologies classification                              | José A. Séez, <b>Hector Quintian</b> , Bartosz Krawczyk, Michal Wozniak and Emilio Corchado   |

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**Session HAIS S 2.B1: LA - Learning Algorithms***Date:* Thursday 21<sup>st</sup>, 09:30–11:00*Room:* Ing. Patac y P.-H., EIMEM*Chair:* Tomas Kadavy, Miguel Cárdenas

| <b>Paper ID</b> | <b>Title</b>  | <b>Authors</b>   |
|-----------------|---|--|
| 3               | Generalized Probability Distribution Mixture Model for Clustering       | David Crespo-Roces, Iván Méndez-Jiménez, Sancho Salcedo-Sanz and <b>Miguel Cárdenas Montes</b>               |
| 70              | Orthogonal Learning Firefly Algorithm                                   | <b>Tomas Kadavy</b> , Michal Pluhacek, Adam Viktorin and Roman Senkerik                                      |
| 6               | A first attempt on Monotonic Training Set Selection                     | José-Ramón Cano and Salvador García  |
| 31              | Dealing with Missing Data and Uncertainty in the Context of Data Mining | <b>Aliya Aleryani</b> , Dr. Wenjia Wang and Dr. Beatriz De La Iglesia  |
| 54              | A preliminary study of diversity in Extreme Learning Machines ensembles | <b>Carlos Perales-González</b> , Mariano Carbonero-Ruz, David Becerra-Alonso and Francisco Fernández-Navarro |

**Session HAIS S 2.A2: VADP - Visual Analysis & Advanced Data Processing Techniques**

*Date:* Thursday 21<sup>st</sup>, 12:30–14:00

*Room:* Pintado Fé, EIMEM

*Chairs:* Diego Hernán Peluffo-Ordóñez, Francisco Javier de Cos

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| <b>Paper ID</b> | <b>Title</b>  | <b>Authors</b>   |
|-----------------|---|--|
| 49              | Using nonlinear quantile regression for the estimation of software cost                           | <b>Javier De Andrés</b> , Manuel Landajo and Pedro Lorca   |
| 55              | A Distributed Drone-Oriented Architecture for in-flight Object Detection                          | <b>Diego Vaquero-Melchor</b> , Ivan Campaña, Ana M. Bernardos, Luca Bergesio and Juan A. Besada  |
| 56              | 3D Gabor Filters for chest segmentation in DCE-MRI  | <b>Ignacio Illan</b> , Javier Perez-Matos, Javier Ramirez, Juan Manuel Gorriz, Simon Foo and Anke Meyer-Baese                          |
| 61              | Fingertips segmentation of thermal images and its potential use in hand thermoregulation analysis | Andrés Eduardo Castro Ospina, Adriana Correa Mira, Israel David Herrera Granda, <b>Diego Hernán Peluffo-Ordóñez</b> and Hermes Fandiño |

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**Session HAIS S 2.B2: LA - Learning Algorithms**

*Date:* Thursday 21<sup>st</sup>, 12:30–14:00

*Room:* Ing. Patac y P.H., EIMEM

*Chair:* Fernando O. Gallego, Irene Díaz

| <b>Paper ID</b> | <b>Title</b>  | <b>Authors</b>   |
|-----------------|---|--|
| 4               | A Hybrid Approach to Mining Conditions  | <b>Fernando O. Gallego</b> and Rafael Corchuelo  |
| 71              | Multi-label learning by hyperparameters calibration fortreating class imbalance | <b>Andrés Felipe Giraldo Forero</b> , Andrés Felipe Cardona Escobar and Andrés Eduardo Castro Ospina |
| 72              | Drifted Data Stream Clustering Based on ClusTree Algorithm                      | <b>Jakub Zgraja</b> and Michal Wozniak   |
| 80              | Featuring the attributes in supervised machine learning                         | <b>Antonio J. Tallón-Ballesteros</b> , Luís Correia and Bing Xue                                     |
| 82              | Applying VorEAI for IoT Intrusion Detection                                     | Nayat Sanchez-Pi, Luis Martí and <b>Jose M. Molina</b>   |

# FRIDAY 22<sup>nd</sup>

## Session HAIS S 3.A1: DMA - Data Mining Applications

Date: Friday 22<sup>nd</sup> 9:30-10:30

Room: Pintado Fé, EIMEM

Chair: Juan Albino Méndez-Pérez, Bárbara Pes

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| Paper ID | Title  | Authors  |
|----------|--|--|
| 64       | A Mood Analysis on Youtube Comments and a Method for Improved Social Spam Detection  | Enaitz Ezpeleta, Mikel Iturbe, Iñaki Garitano, Urko Zurutuza and <b>Iñaki Velez de Mendizabal</b>  |
| 66       | An improved comfort biased smart home load manager for grid connected homes under direct load control  | <b>Chukwuka Monyei</b> and Serestina Viriri  |
| 75       | Remifentanil dose prediction for patients during general anesthesia  | Esteban Jove, Jose M. Gonzalez-Cava, José-Luis Casteleiro-Roca, Héctor Quintián, <b>Juan Albino Méndez Pérez</b> , José Luis Calvo-Rolle, Francisco Javier de Cos Juez, Ana León, María Martín and José Reboso |
| 76       | Classification of prostate cancer patients and healthy individuals by means of a hybrid algorithm combining SVM and evolutionary algorithms. | Juan Enrique Sánchez Lasheras, <b>Fernando Sanchez Lasheras</b> , Francisco Javier de Cos Juez and Carmen González Donquiles   |
| 12       | A Hybrid Genetic-Bootstrapping Approach to Link Resources in the Web of Data   | <b>Andrea Cimmino</b> Arriaga and Rafael Corchuelo   |
| 45       | Evaluating Feature Selection Robustness on High-Dimensional Data   | <b>Barbara Pes</b>   |

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### **Session HAIS S 3.B1: HIA – Hybrid Intelligent Applications**

*Date:* Friday 22<sup>nd</sup> 9:30-11:00

*Room:* Ing. Patac y P.-H., EIMEM

*Chair:* Jesús Daniel Santos Rodríguez, Petrica Pop

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| <b>Paper ID</b> | <b>Title</b>  | <b>Authors</b>   |
|-----------------|---|--|
| 42              | Predicting global irradiance combining forecasting models through machine learning  | <b>Javier Huertas</b> , Ricardo Aler, Inés María Galván, Clara Arbizu, Francisco Javier Rodríguez and David Pozo                   |
| 44              | A hybrid algorithm for the assessment of the influence of risk factors in the development of upper limb musculoskeletal disorders | Nélida M. Busto Serrano, Paulino J. García Nieto, <b>Ana Suárez Sánchez</b> , Fernando Sánchez Lasheras and Pedro Riesgo Fernández |
| 48              | Evolutionary Computation on Road Safety   | Bruno Fernandes, Henrique Vicente, <b>Jorge Ribeiro</b> , Cesar Analide and José Neves   |
| 51              | Memetic Modified Cuckoo Search Algorithm with ASSRS for the SSCF Problem in Self-Similar Fractal Image Reconstruction             | Akemi Galvez-Tomida, <b>Andres Iglesias Prieto</b> , Iztok Fister, Iztok Jr. Fister, Eneko Osaba and Javier Del Ser                |
| 52              | A Re-description Based Developmental Approach to the Generation of Value Functions for Cognitive Robots                           | <b>Alejandro Romero</b> , Francisco Bellas, Abraham Prieto and Richard J. Duro   |
| 53              | A hybrid iterated local search for solving a particular two-stage fixed-charge transportation problem                             | Ovidiu Cosma, <b>Petrica Pop</b> , Oliviu Matei and Ioana Zelina   |

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**Session HAIS S 3.A2: BMEC - Bio-inspired Models and Evolutionary Computation**

Date: Friday 22<sup>nd</sup>, 11:30-14:00

Room: Pintado Fé, EIMEM

Chair: Héctor Aláiz-Moretón, Juan A. Gomez-Pulido

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| <b>Paper ID</b> | <b>Title</b>   | <b>Authors</b>   |
|-----------------|--|--|
| 14              | Modelling and Forecasting 222Rn Radiation Level Time Series at Canfranc Underground Laboratory                     | Iván Méndez-Jimenez and <b>Miguel Cárdenas Montes</b>  |
| 16              | Sensor fault detection and recovery methodology for a geothermal heat exchanger                                    | <b>Hector Alaiz-Moreton</b> , Jose Luis Casteleiro-Roca, Laura Fernandez-Robles, Esteban Jove, Manuel Castejon-Limas and Jose Luis Calvo-Rolle |
| 17              | Distinctive Features of Asymmetric Neural Networks with Gabor Filters  | <b>Naohiro Ishii</b> , Toshinori Deguchi, Masashi Kawaguchi and Hiroshi Sasaki   |
| 18              | Tuning CNN input layout for IDS with Genetic Algorithms  | Roberto Blanco, Juan Jesus Cilla Ugarte, <b>Pedro Malagón</b> , Ignacio Penas and Jose M. Moya   |
| 19              | Improving the Accuracy of Prediction Applications by Efficient Tuning of Gradient Descent Using Genetic Algorithms | Arturo Durán Domínguez, <b>Juan A. Gomez-Pulido</b> and David Rodríguez Lozano   |
| 43              | Mono-modal Medical Image Registration with Coral Reef Optimization   | Enrique Bermejo, Manuel Chica, <b>Sergio Damas</b> , Sancho Salcedo and Oscar Cordon   |

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**Session HAIS S 3.B2: HIA - Hybrid Intelligent Applications***Date:* Friday 22<sup>nd</sup>, 11:30-14:00*Room:* Ing. Patac y P.-H., EIMEM*Chair:* Manuel Graña, Enrique de la Cal

| <b>Paper ID</b> | <b>Title</b>  | <b>Authors</b>  |
|-----------------|---|---|
| 38              | Prediction of the energy demand of a hotel using an artificial intelligence-based model               | Jose-Luis Casteleiro-Roca, José Francisco Gómez-González, José Luis Calvo-Rolle, Esteban Jove, Héctor Quintián, Juan Francisco Acosta Martín, Sara González Pérez, Benjamín González Díaz Francisco Calero García and <b>Juan-Albino Mendez-Perez</b> |
| 68              | Change Detection in Multidimensional Data Streams with Efficient Tensor Subspace Model                | <b>Boguslaw Cyganek</b>   |
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