

**10<sup>th</sup> International Work-Conference on Artificial Neural Networks (IWANN2009)**  
**University of Salamanca (Spain) 9<sup>th</sup>-12<sup>th</sup> June 2009 <http://iwann.ugr.es>**

**Important Note:** The plenary talks and the sessions will be opened for all attendants independently of the conference in which they are registered.

Time	Thursday 9 <sup>th</sup> June	Wednesday 10 <sup>th</sup> June	Thursday 11 <sup>th</sup> June	Friday 12 <sup>th</sup> June
09:00-10:00		1b: SS02 Machine Learning and the future of medical care in 4P 1a: Mathematics for ANN 1c - Evolutionary Genetic Algorithm and Fuzzy Logic.	4c: Learning and Optimization 4a: SS13 Modelling and data analysis in biomedical systems 4b: SS15 Aging well in the knowledge society (AKS) 1	8a: SS11 Graph based representations in Pattern Recognition and Computational Intelligence 2 8b: SS09 Fuzzy Logic and Soft Computing Applications 2 8c: Pattern Recognition and Robotics
10:00-11:00		1a2: SS01 Practical applications of Agents and Multi-agent Systems 1 1b2: SS02 Machine Learning and the future of medical care in 4P 1c2: Applications 1	4c2: SS08 Applications of ANN in bio-informatics and biomedical engineering 1 4a2: SS13 Modelling and data analysis in biomedical systems. 4b2: SS15 Aging well in the knowledge society (AKS) 2	<b>Invited Talk 4: Prof. Dr. Dario Floreano</b> <b>Invited Talk 5: Prof. Dr. Dario Floreano</b>
11:00-11:30		Coffee Break	Coffee Break	Coffee Break
11:30-13:00		2a: SS01 Practical applications of Agents and Multi-agent Systems 2 2b: Self Organizing Map 2c: Applications 2	5c: SS08 Applications of ANN in bio-informatics and biomedical engineering 2 5a: Biomedical Applications 5b: Foundations and Models	9a: SS5 Data Mining with Evolutionary Computation 9b: SS07 ForLing 2009: Non-Classical Formal Languages in Linguistics 9c: SS12 Applying Evolutionary computation and Nature-inspired algorithms to Formal Methods
13:00-14:00		<b>Official opening and Invited Talk 1: Prof. Dr. Klaus-Robert Müller</b>	<b>Invited Talk 3: Dr. Witold Pedrycz</b>	<b>Invited Talk 6: Ing. Esteban Pérez Castrejón</b>
14:00-16:00		Lunch	Lunch	Lunch
16:00-17:00	<b>Registration</b>	<b>Invited Talk 2: Prof. Dr. Sigeru Omatu</b>	6a: SS11 Graph based representations in Pattern Recognition and Computational Intelligence 1 6b: SS09 Fuzzy Logic and Soft Computing Applications 1 6c: SS10 New Algorithms for ANN High Impact Applications	
17:00-18:30		3a: SS01 Practical Applications of Agents and Multi-agent Systems 3 3b: SS03 Brain-Computer Interface 3c: SS04 Advances in AI models adaptable to mobile devices	7c: Applications 3 7a: Learning 7b: SS14 Evolutionary Approaches to multiobjective optimization and applications.	
18:00-18:30			<b>Invited Talk Share-it 1: Dr. Khoon Guan Seah</b> <b>Invited Talk Share-it 2: Dr. Juan Carlos Augusto</b>	
18:30-19:00				
19:00-19:30		<b>Visit to Salamanca artistic</b>		
19:30-20:30				
20:30-21:30		<b>Dinner</b>	<b>Gala Dinner</b>	
21:30-23:00	<b>Welcome Reception</b>			

Time	Wednesday 10 <sup>th</sup> June		
09:00-10:00	<p><b>Session 1b: (Room Auditorio) - SS02 Machine Learning and the future of medical care in 4P – Chair: Alfredo Vellido / Co-Chair: Paulo J.G. Lisboa</b></p> <ul style="list-style-type: none"> <li>• <b>Feature Selection in Survival Least Squares Support Vector Machines with Maximal Variation Constraints</b> - <i>V. Van Belle, K. Pelckmans, J.A.K. Suykens, and S. Van Huffel</i></li> <li>• <b>Model Comparison for the Detection of EEG Arousals in Sleep Apnea Patients</b> - <i>D. Álvarez-Estévez and V. Moret-Bonillo</i></li> <li>• <b>Ranking of brain tumour classifiers using a Bayesian approach</b> - <i>Javier Vicente, Juan Miguel García-Gómez, Salvador Tortajada, Alfredo T. Navarro, Franklyn A. Howe, Andrew C. Peet, Margarida Juliá-Sapé, Bernardo Celda, Pieter Wesseling, Magí Lluch-Ariet, and Montserrat Robles</i></li> <li>• <b>Feature Selection with Single-Layer Perceptrons for a Multicentre 1H-MRS Brain Tumour Database</b> - <i>Enrique Romero, Alfredo Vellido, and Josep María Sopena</i></li> </ul>	<p><b>Session 1a: (Room 1.2) - Mathematics for ANN – Chair: Carlos Aguirre / Co-Chair: Cruz E. Borges</b></p> <ul style="list-style-type: none"> <li>• <b>Gradient like behavior and high gain design of KWTA neural networks</b> - <i>Daniela Danciu and Vladimir Räsvan</i></li> <li>• <b>Domains of Competence of Artificial Neural Networks using Measures of Separability of Classes</b> - <i>Julián Luengo and Francisco Herrera</i></li> <li>• <b>Lower bounds for Approximation of some classes of Lebesgue measurable functions by sigmoidal neural networks</b> - <i>José L. Montaña and Cruz E. Borges</i></li> <li>• <b>A wavelet based method for detecting multiple encoding rhythms in neural networks</b> - <i>Carlos Aguirre and Pedro Pascual</i></li> </ul>	<p><b>Session 1c: (Room 2.5) Evolutionary Genetic Algorithm and Fuzzy Logic – Chair: Juan J. Merelo Guervós / Co-Chair: Fernando Mateo</b></p> <ul style="list-style-type: none"> <li>• <b>An Adaptive Parameter Control for the Differential Evolution Algorithm</b> - <i>Gilberto Reynoso-Meza, Javier Sanchis, and Xavier Blasco</i></li> <li>• <b>RCGA-S/RCGA-SP Methods to Minimize the Delta Test for Regression Tasks</b> - <i>Fernando Mateo, Dušan Sovilj, Rafael Gadea, and Amaury Lendasse</i></li> <li>• <b>Parallelizing the design of Radial Basis Function Neural Networks by means of evolutionary meta-algorithms</b> - <i>M.G. Arenas, E. Parras-Gutiérrez, V.M. Rivas, P.A. Castillo, M.J. Del Jesús, and J.J. Merelo</i></li> <li>• <b>Evolutionary Fuzzy Scheduler for Grid Computing</b> - <i>R.P. Prado, S. García Galán, A.J. Yuste, J.E. Muñoz Expósito, A.J. Sánchez Santiago, and S. Bruque</i></li> </ul>
10:00-11:00	<p><b>Session 1a2: (Room Auditorio) - SS01 Practical applications of Agents and Multi-agent Systems 1 – Chair: Juan M. Corchado / Co-Chair: Javier Bajo</b></p> <ul style="list-style-type: none"> <li>• <b>Thomas: Practical Applications of Agents and Multiagent Systems</b> - <i>Javier Bajo and Juan M. Corchado</i></li> <li>• <b>THOMAS-MALL: A Multiagent System for Shopping and Guidance in Malls</b> - <i>S. Rodríguez, A. Fernández, V. Julián, J.M. Corchado, S. Ossowski, and V. Botti</i></li> <li>• <b>Easing the Smart Home: Translating human hierarchies to Intelligent Environments</b> - <i>Manuel García-Herranz, Pablo A. Haya, and Xavier Alamán</i></li> <li>• <b>A Secure Group-Oriented Model for Multiagent Systems</b> - <i>Jose M. Such, Juan M. Alberola, Antonio Barella, Agustín Espinosa, and Ana García-Fornes</i></li> <li>• <b>Interactive Animation of Agent formation based on Hopfield Neural Networks</b> - <i>Rafael Kelly and Carmen Monroy</i></li> </ul>	<p><b>Session 1b2: (Room 1.2) SS02 Machine Learning and the future of medical care in 4P – Chair: Alfredo Vellido / Co-Chair: Paulo. J.G. Lisboa</b></p> <ul style="list-style-type: none"> <li>• <b>Wireless Sensor Networks in Home Care</b> - <i>Dante I. Tapia, Juan A. Fraile, Sara Rodríguez, Juan F. de Paz, and Javier Bajo</i></li> <li>• <b>Participatory EHPR: A Watermarking Solution</b> - <i>David Lowe and B.R. Matam</i></li> <li>• <b>Artificial Intelligent Systems based on supervised HUMANN for differential diagnosis of Cognitive Impairment. Towards a 4P-HCDS</b> - <i>Patricio García Báez, Miguel Angel Pérez del Pino, Carlos Fernández Viadero, and Carmen Paz Suárez Araujo</i></li> <li>• <b>Stratification methodologies for neural networks models of survival</b> - <i>Ana S. Fernandes, Ian H. Jarman, Terence A. Etchells, José M. Fonseca, Elia Biganzoli, Chris Bajdik, and Paulo J.G. Lisboa</i></li> </ul>	<p><b>Session 1c2: (Room 2.5) Applications 1 – Chair: Pedro Zufiria/ Co-Chair: Fco. José Mora Moreno</b></p> <ul style="list-style-type: none"> <li>• <b>Estimating the embedding dimension distribution of time series with SOMOS</b> - <i>Pedro J. Zufiria and Pascual Campoy</i></li> <li>• <b>Indoor Localization based on Neural Networks for Non-Dedicated ZigBee Networks in AAL</b> - <i>Rubén Blasco, Álvaro Marco, Roberto Casas, Alejandro Ibarz, Victorián Coarasa, and Ángel Asensio</i></li> <li>• <b>Wine Classification with Gas Sensors Combined with Independent Component Analysis and Neural Networks</b> - <i>Jesús Lozano, Antonio García, Carlos J. García, Fernando Álvarez, and Ramón Gallardo</i></li> <li>• <b>Evaluating the Performance of the Multilayer Perceptron as a Data Editing Tool</b> - <i>M<sup>a</sup>-Dolores Cubiles-de-la-Vega, Esther-Lydia Silva-Ramírez, Rafael Pino-Mejías, and Manuel López-Coello</i></li> </ul>
11:00-11:30	Coffee Break		

11:30-13:00	<p><b>Session 2a: (Room Auditorio) SS01 Practical applications of Agents and Multi-agent Systems 2 – Chair: Juan M. Corchado / Co-Chair: Javier Bajo</b></p> <ul style="list-style-type: none"> <li>• <b>The INGENIAS Development Kit: a practical application for crisis-management</b> - Iván García-Magariño, Celia Gutiérrez, and Rubén Fuentes-Fernández</li> <li>• <b>The Delphi process Applied to African Traditional Medicine</b> - Ghislain Atemezing, Iván García-Magariño, and Juan Pavón</li> <li>• <b>Composing and ensuring time-bounded agent services</b> - Martí Navarro, Elena del Val, Miguel Rebollo, and Vicente Julián</li> <li>• <b>An Organisation-based Multiagent System for Medical Emergency Assistance</b> - Roberto Centeno, Moser Fagundes, Holger Billhardt, Sascha Ossowski, Juan Manuel Corchado, Vicente Julian, and Alberto Fernandez</li> <li>• <b>Agents Jumping in the Air: Dream or Reality?</b> - Oscar Urra, Sergio Ilarri, and Eduardo Mena</li> <li>• <b>Evaluation of Multi-agent System Communication in INGENIAS</b> - Celia Gutiérrez, Iván García-Magariño, and Jorge J. Gómez-Sanz</li> </ul>	<p><b>Session 2b: (Room 1.2) Self Organizing Map – Chair: José Muñoz Pérez / Co-Chair: Sara Rodríguez González</b></p> <ul style="list-style-type: none"> <li>• <b>Spicules for Unsupervised Learning</b> - J.A. Gómez-Ruiz, J. Muñoz-Pérez, and M.A. García-Bernal</li> <li>• <b>Topology Preserving Visualization Methods for Growing Self-Organizing Maps</b> - Soledad Delgado, Consuelo Gonzalo, Estibaliz Martinez, and Agueda Arquero</li> <li>• <b>Making Standard Som Invariant to the Initial Conditions</b> - Soukeina Ben Chikha and Kirmene Marzouki</li> <li>• <b>The Complexity of the Batch Neural Gas Extended to Local PCA</b> - Iván Machón-González, Hilario López-García, and José Luís Calvo-Rolle</li> <li>• <b>Self Organized Dynamic Tree Neural Network</b> - Juan F. De Paz, Sara Rodríguez, Javier Bajo, Juan M. Corchado, and Vivian López</li> <li>• <b>Development of Neural Network Structure with Biological Mechanisms</b> - Samuel Johnson, Joaquín Marro, Jorge F. Mejias, and Joaquín J. Torres</li> </ul>	<p><b>Session 2c: (Room 2.5) Applications 2 – Chair: Leonardo Reyneri / Co-Chair: Marcos Faundez Zanuy</b></p> <ul style="list-style-type: none"> <li>• <b>Social and Cognitive System for Learning Negotiation Strategies with Incomplete Information</b> - Amine Chohra, Arash Bahrammirzaee, and Kurosh Madani</li> <li>• <b>Protecting DCT Templates for a Face Verification System by Means of Pseudo-Random Permutations</b> - Marco Grassi and Marcos Faundez-Zanuy</li> <li>• <b>Self-Estimation of Data and Approximation Reliability Through Neural Networks</b> - Leonardo M. Reyneri, Valentina Colla, Mirko Sgarbi, and Marco Vannucci</li> <li>• <b>Efficient Parallel Feature Selection for Steganography Problems</b> - Alberto Guillén, Antti Sorjamaa, Yoan Miche, Amaury Lendasse, and Ignacio Rojas</li> <li>• <b>Thresholded neural networks for sensitive industrial classification tasks</b> - Marco Vannucci, Valentina Colla, Mirko Sgarbi, and Orlando Toscanelli</li> <li>• <b>Improving Training in the Vicinity of Temporary Minima</b> - Ido Roth and Michael Margalot</li> </ul>
13:00-14:00	<b>Official opening and Invited Talk 1: Prof. Dr. Klaus-Robert Müller (Room Auditorio)</b> <b>“Using Rest Class and Control Paradigms for Brain Computer Interfacing”</b>		
14:00-16:00	Lunch		
16:00-17:00	<b>Invited Talk 2: Prof. Dr. Sigeru Omatu (Room Auditorio)</b> <b>“Neuro-Control and Its Applications to Electric Vehicle Control”</b>		
17:00-18:30	<p><b>Session 3a: (Room Auditorio) SS01 Practical Applications of Agents and Multi-agent Systems 3 – Chair: Juan M. Corchado / Co-Chair: Javier Bajo</b></p> <ul style="list-style-type: none"> <li>• <b>TEMMAS: The Electricity Market Multi-Agent Simulator</b> - Paulo Trigo, Paulo Marques, and Helder Coelho</li> <li>• <b>Two Steps Reinforcement Learning in Continuous Reinforcement Learning Task</b> - Iván López-Bueno, Javier García, and Fernando Fernández</li> <li>• <b>Construction and Debugging of a Multi-Agent Based Simulation to Study Ambient Intelligence Applications</b> - Emilio Serrano, Juan A. Botia, and José M. Cadenas</li> <li>• <b>On the road to an Abstract Architecture for Open Virtual Organizations</b> - M. Rebollo, A. Giret, E. Argente, C. Carrascosa, J.M. Corchado, A. Fernandez, and V. Julian</li> <li>• <b>Multi-Agent System Theory for modelling a Home Automation System</b> - G. Morganti, A.M. Perdon, G. Conte, and D. Scaradozzi</li> <li>• <b>INGENIAS Development Process Assisted with Chains of Transformations</b> - Iván García-Magariño, Rubén Fuentes-Fernández, and Jorge J. Gómez-Sanz</li> </ul>	<p><b>Session 3b: (Room 1.2) Brain-Computer Interface – Chair: Ricardo Ron / Co-Chair: Miguel A. López Gordo</b></p> <ul style="list-style-type: none"> <li>• <b>The training issue in Brain-Computer Interface: A multi-disciplinary field</b> - Ricardo Ron-Angevin, Miguel Angel López, and Francisco Pelayo</li> <li>• <b>Impact of Frequency Selection on LCD Screens for SSVEP Based Brain-Computer Interfaces</b> - Ivan Volosyak, Hubert Cecotti, and Axel Gräser</li> <li>• <b>A Maxmin Approach to Optimize Spatial Filters for EEG Single-Trial Classification</b> -Motoaki Kawanabe, Carmen Vidaurre, Benjamin Blankertz, and Klaus-Robert Müller</li> <li>• <b>A Brain-Computer Interface Based on Steady State Visual Evoked Potentials for Controlling a Robot</b> - Robert Prueckl and Christoph Guger</li> <li>• <b>Asynchronous Brain-Computer Interface to Navigate in Virtual Environments Using One Motor Imagery</b> - Francisco Velasco-Álvarez and Ricardo Ron-Angevin</li> <li>• <b>Multiple AM modulated Visual Stimuli in Brain-computer Interface</b> - M.-A. López, H. Pomares, A. Prieto, and F. Pelayo</li> </ul>	<p><b>Session 3c: (Room 2.5) SS04 Advances in AI models adaptable to mobile devices – Chair: Miguel Angel Sánchez / Co-Chair: María Encarnación Beato</b></p> <ul style="list-style-type: none"> <li>• <b>Multiagent-based Educational Environment for Dependents</b> - Antonia Macarro, Alberto Pedrero, and Juan A. Fraile</li> <li>• <b>Mobile applications: MovilPIU and Mobiblio</b> - Roberto Berjón Gallinas, M. Encarnación Beato Gutiérrez, Montserrat Mateos Sánchez, Miguel Ángel Sánchez Vidales, and Ana Feroso García</li> <li>• <b>A Case Study of a Pull WAP Location-Based Service incorporating Maps Services</b> - Montserrat Mateos Sánchez, Roberto Berjón Gallinas, Miguel Ángel Sánchez Vidales, Encarnación Beato Gutiérrez, and Ana Feroso García</li> <li>• <b>A Mobile Tourist Decision Support System for Small Footprint Devices</b> - Wouter Souffiau, Joris Maervoet, Pieter Vansteenwegen, Greet Vanden Berghe, and Dirk Van Oudheusden</li> <li>• <b>Stereo-MAS: Multi-Agent System for Image Stereo Processing</b> - Sara Rodríguez, Juan F. De Paz, Javier Bajo, Dante I. Tapia, and Belén Pérez</li> </ul>
19:00-21:30	Visit to Salamanca artistic and		
21:30-23:00	Dinner		

Time	Friday 12 <sup>th</sup> June		
09:00-10:00	<p><b>Session 8a: (Room Auditorio) SS11 Graph Based Representations in Pattern Recognition and Computational Intelligence 2 – Chair: Rebeca Marfil / Co-Chair: Francisco Escolano</b></p> <ul style="list-style-type: none"> <li>• <b>Energy-based Perceptual Segmentation Using an Irregular Pyramid</b> - R. Marfil and F. Sandoval</li> <li>• <b>Hierarchical Graphs for Data Clustering</b> - E.J. Palomo, J.M. Ortiz-de-Lazcano-Lobato, Domingo López-Rodríguez, and R.M. Luque</li> <li>• <b>Integrating Graph-Based Vision Perception to Spoken Conversation in Human-Robot Interaction</b> - Wendy Aguilar and Luis A. Pineda</li> <li>• <b>Kernelization of Softassign and Motzkin-Strauss Algorithms</b> - M.A. Lozano and F. Escolano</li> </ul>	<p><b>Session 8b: (Room 1.2) SS09 Fuzzy Logic and Soft Computing Applications 2 – Chair: Pablo Cordero / Co-Chair: Manuel Ojeda Aciego</b></p> <ul style="list-style-type: none"> <li>• <b>A complete Logic for Fuzzy Functional Dependencies over Domains with Similarity Relations</b> - P. Cordero, M. Enciso, A. Mora, and I.P. de Guzmán</li> <li>• <b>Classification of Schistosomiasis Prevalence Using Fuzzy Case-based Reasoning</b> - Flávia T. Martins-Bedé, Luís Godo, Sandra Sandri, Luciano V. Dutra, Corina C. Freitas, Omar S. Carvalho, Ricardo J.P.S. Guimarães, and Ronaldo S. Amaral</li> <li>• <b>RFuzzy: An Expressive Simple Fuzzy Compiler</b> - Susana Muñoz-Hernández, Victor Pablos Ceruelo, and Hannes Strass</li> <li>• <b>Overcoming Non-Commutativity in Multi-Adjoint Concept Lattices</b> - Jesús Medina</li> <li>• <b>A t-Norm Based Approach to Edge Detection</b> - C. Lopez-Molina, H. Bustince, J. Fernández, E. Barrenechea, P. Couto, and B. De Baets</li> </ul>	<p><b>Session 8c: (Room 2.5) Pattern Recognition and Robotics – Chair: Mariano Gómez Plaza / Co-Chair: Francisco García Lagos</b></p> <ul style="list-style-type: none"> <li>• <b>A Wrapper Method for Feature Selection In Multiple Classes Datasets</b> - Noelia Sánchez-Marroño, Amparo Alonso-Betanzos, and Rosa M. Calvo-Estévez</li> <li>• <b>Using the Negentropy Increment to Determine the Number Of Clusters</b> - Luis F. Lago-Fernández and Fernando Corbacho</li> <li>• <b>Real Adaboost Ensembles with Emphasized Subsampling</b> - Sergio Muñoz-Romero, Jerónimo Arenas-García, and Vanessa Gómez-Verdejo</li> <li>• <b>From Vision Sensor to Actuators, Spike Based Robot Control through Address-Event-Representation</b> - A. Jimenez-Fernandez, C. Lujan-Martinez, R. Paz-Vicente, A. Linares-Barranco, G. Jimenez, and A. Civit</li> <li>• <b>Motion Planning of a Non-Holonomic Vehicle in a Real Environment by Reinforcement Learning</b> - M. Gómez, L. Gayarre, T. Martínez-Marín, S. Sánchez, and D. Meziat</li> </ul>
10:00-11:00	<p><b>Invited Talk 4: Prof. Dr. Dario Floreano (Room Auditorio): “Methods for Artificial Evolution of Truly Cooperative Robots”</b></p>		
11:00-11:30  11:30-12:45	<p>Coffee Break</p>		
	<p><b>Session 9a: (Room Auditorio) SS5 Data Mining with Evolutionary Computation – Chair: Julián Dorado / Co-Chair: Juan Ramón Rabuñal</b></p> <ul style="list-style-type: none"> <li>• <b>Special Time Series Prediction: Creep of Concrete</b> - Juan L. Pérez, Fernando Martínez Abella, Alba Catoira, and Javier Berrocal</li> <li>• <b>A Genetic Algorithm for ANN Design, Training and Simplification</b> - Daniel Rivero, Julian Dorado, Enrique Fernández-Blanco, and Alejandro Pazos</li> <li>• <b>Data mining in Complex Diseases Using Evolutionary Computation</b> - Vanessa Aguiar, Jose A. Seoane, Ana Freire, and Cristian R. Munteanu</li> <li>• <b>Automatic Generation of Biped Walk Behavior Using Genetic Algorithms</b> - Hugo Picado, Marcos Gestal, Nuno Lau, Luis P. Reis, and Ana M. Tomé</li> <li>• <b>Artificial Neural Networks in Urban Runoff Forecast</b> - Mónica Miguélez, Jerónimo Puertas, and Juan Ramón Rabuñal</li> <li>• <b>An Evolutionary Hierarchical Clustering Method with a Visual Validation Tool</b> - José A. Castellanos-Garzón, Carlos Armando Garççia, and Luis A. Miguel-Quintales</li> </ul>	<p><b>Session 9b: (Room 1.2) SS07 ForLing 2009: Non-Classical Formal Languages in Linguistics – Chair: Genma Bel-Enguix / Co-Chair: María Dolores Jiménez</b></p> <ul style="list-style-type: none"> <li>• <b>New Challenges in the Application of Non-Classical Formal Languages to Linguistics</b> - Gemma Bel-Enguix and M. Dolores Jiménez-López</li> <li>• <b>PNEPs, NEPs for Context Free Parsing: Application to Natural Language Processing</b> - Alfonso Ortega, Emilio del Rosal, Diana Pérez, Robert Mercaş, Alexander Perekrestenko, and Manuel Alfonseca</li> <li>• <b>Beta-Reduction and Antecedent--Anaphora Relations in the Language of Acyclic Recursion</b> - Roussanka Loukanova</li> <li>• <b>Permutation Languages in Formal Linguistics</b> - Benedek Nagy</li> <li>• <b>A Hyprolog Parsing Methodology for Property Grammars</b> - Veronica Dahl, Baohua Gu, and Erez Maharshak</li> <li>• <b>Adaptable Grammars for Non-Context-Free Languages</b> - Henning Christiansen</li> </ul>	<p><b>Session 9c: (Room 2.5) SS12 Applying Evolutionary computation and Nature-inspired algorithms to Formal Methods – Chair: Ismael Rodríguez / Co-Chair: Pablo Rabanal</b></p> <ul style="list-style-type: none"> <li>• <b>Applying Evolutionary Computation Methods to Formal Testing and Model Checking</b> - Pablo Rabanal, Ismael Rodríguez, and Fernando Rubio</li> <li>• <b>Aiding Test Case Generation in Temporally Constrained State Based Systems Using Genetic Algorithms</b> - Karnig Derderian, Mercedes G. Merayo, Robert M. Hierons, and Manuel Núñez</li> <li>• <b>Creation of Specific-To-Problem Kernel Functions for Funcion Approximation</b> - Ginés Rubio, Héctor Pomares, Ignacio Rojas, and Alberto Guillén</li> <li>• <b>Combining Genetic Algorithms and Mutation Testing to Generate Testing Sequences</b> - Carlos Molinero, Manuel Núñez, and César Andrés</li> <li>• <b>Testing Restorable Systems by Using RFD</b> - Pablo Rabanal and Ismael Rodríguez</li> <li>• <b>Applying Evolutionary Techniques to Debug Functional Programs</b> - Alberto de la Encina, Mercedes Hidalgo-Herrero, Pablo Rabanal, and Fernando Rubio</li> </ul>
13:00-14:00	<p><b>Invited Talk 5: Ing. Esteban Pérez Castrejón (Room Auditorio): “Ambient Assisted Living and the Mainstream of Digital Home</b></p>		
14:00-16:00	<p>Lunch</p>		

Time	Thursday 11 <sup>th</sup> June		
09:00-10:00	<p><b>Session 4c: (Room Auditorio) Learning and Optimization – Chair: Julio Ortega / Co-Chair: Sylvain Saighi</b></p> <ul style="list-style-type: none"> <li>• <b>Improving Classification Under Changes in Class and Within-Class Distributions</b> - <i>Rocío Alaiz-Rodríguez, Alicia Guerrero-Curienes, and Jesús Cid-Sueiro</i></li> <li>• <b>Convergence in an Adaptive Neural Network: the Influence of Noise Inputs Correlation</b> - <i>Adel Daouzli, Sylvain Saighi, Michelle Rudolph, Alain Destexhe, and Sylvie Renaud</i></li> <li>• <b>Performance Measures for Dynamic Multi-objective Optimization</b> - <i>Mario Cámara, Julio Ortega, and Francisco de Toro</i></li> <li>• <b>EMORBFN: An Evolutionary Multiobjective Optimization Algorithm for RBFN Design</b> - <i>Pedro L. López, Antonio J. Rivera, M. Dolores Pérez-Godoy, María J. del Jesus, and Cristóbal Carmona</i></li> </ul>	<p><b>Session 4a: (Room 1.2) SS13 Modelling and Data Analysis in Biomedical Systems - Chair: Gonzalo Joya / Co-Chair: Esther García Garaluz</b></p> <ul style="list-style-type: none"> <li>• <b>Modelling Dengue Epidemics with Autoregressive Switching Markov Models (AR-HMM)</b> - <i>Madalina Olteanu, Esther García-Garaluz, Miguel Atencia, and Gonzalo Joya</i></li> <li>• <b>Matrix Metric Adaptation for Improved Linear Discriminant Analysis of Biomedical Data</b> - <i>M. Strickert, J. Keilwagen, F.-M. Schleif, T. Villmann, and M. Biehl</i></li> <li>• <b>A New Methodology for Feature Selection Based on Machine Learning Methods Applied to Glaucoma</b> - <i>Diego García-Morate, Arancha Simón-Hurtado, Carlos Vivaracho-Pascual, and Alfonso Antón-López</i></li> <li>• <b>HIV Model Described by Differential Inclusions</b> - <i>Jorge Barrios, Alain Piétrus, Aymée Marrero, and Héctor de Arazoza</i></li> </ul>	<p><b>Session 4b: (Room 2.5) SS15 Aging Well in the Knowledge Society (AKS) 1 – Chair: Cristina Urdiales / Co-Chair: Ulises Cortés</b></p> <ul style="list-style-type: none"> <li>• <b>Normal Versus Pathological Cognitive Aging. Variability as a Constraint of Patients Profiling for Aml Design</b> - <i>Luiza Spiru, Camelia Ghita, Ileana Turcu, Lucian Stefan, Ioana Ioancio, Costin Nuta, Mona Blaciotti, Mariana Martin, Ulises Cortes, and Roberta Annicchiarico</i></li> <li>• <b>Legal Concerns Regarding Aml Assisted Living in the Elderly, Worldwide and in Romania</b> - <i>Luiza Spiru, Lucian Stefan, Ileana Turcu, Camelia Ghita, Ioana Ioancio, Costin Nuta, Mona Blaciotti, Mariana Martin, Ulises Cortes, and Roberta Annicchiarico</i></li> <li>• <b>Using Scenarios to Draft the Support of intelligent Tools for Frail Elders in the SHARE-it Approach</b> - <i>R. Annicchiarico, F. Campana, A. Federici C. Barrué, U. Cortés, A. Villar, and C. Caltagirone</i></li> <li>• <b>Ambulatory Mobility Characterization Using Body Inertial Systems: an Application to Fall Detection</b> - <i>Marc Torrent, Alan Bourke, Xavier Parra, and Andreu Catalá</i></li> </ul>
10:00-11:00	<p><b>Session 4c2: (Room Auditorio) SS08 Applications of ANN in Bio-Informatics and Biomedical Engineering 1 – Chair: Ignacio Rojas / Co-Chair: Hector Pomares</b></p> <ul style="list-style-type: none"> <li>• <b>Applications in Bio-Informatics and Biomedical Engineering</b> - <i>I. Rojas, H. Pomares, O. Valenzuela, and J.L. Bernier</i></li> <li>• <b>Using Efficient RBF Networks to Classify Transport Proteins based on PSSM Profiles and Biochemical Properties</b> - <i>Yu-Yen Ou and Shu-An Chen</i></li> <li>• <b>A Large-Scale Genomics Studies Conducted with Batch-Learning SOM Utilizing High-Performance Supercomputers</b> - <i>Takashi Abe, Yuta Hamano, Shigehiko Kanaya, Kennosuke Wada, and Toshimichi Ikemura</i></li> <li>• <b>BAC Overlap Identification based on Bit-Vectors</b> - <i>Jens-Uwe Krause and Jürgen Kleffe</i></li> </ul>	<p><b>Session 4a2: (Room 1.2) SS13 Modelling and Data Analysis in Biomedical Systems – Chair: Gonzalo Joya / Co-Chair: Esther García Garaluz</b></p> <ul style="list-style-type: none"> <li>• <b>Weakly-Supervised Classification with Mixture Models for Cervical Cancer Detection</b> - <i>Charles Bouveyron</i></li> <li>• <b>User Daily Activity Classification from Accelerometry Using Feature Selection and SVM</b> - <i>Jordi Parera, Cecilio Angulo, A. Rodríguez-Moliner, and Joan Cabestany</i></li> <li>• <b>A Theoretical Model for the Dengue Epidemic Using Delayed Differential Equations. Numerical Approaches</b> - <i>Héctor de Arazoza Rodríguez, Teresita Noriega Sánchez, Andrés Sánchez Pérez, Jorge Barrios, and Aymée Marrero Severo</i></li> <li>• <b>System Identification of Dengue Fever Epidemics in Cuba</b> - <i>Esther García-Garaluz, Miguel Atencia, Francisco García-Lagos, Gonzalo Joya, and Francisco Sandoval</i></li> </ul>	<p><b>Session 4b2: (Room 2.5) SS15 Aging Well in the Knowledge Society (AKS) 2 – Chair: Cristina Urdiales / Co-Chair: Ulises Cortés</b></p> <ul style="list-style-type: none"> <li>• <b>Social Robot Paradigms: an Overview</b> - <i>Sergi del Moral, Diego Pardo, and Cecilio Angulo</i></li> <li>• <b>A Metrics Review for Performance Evaluation on Assisted Wheelchair Navigation</b> - <i>Cristina Urdiales, Jose M. Peula, Ulises Cortés, Christian Barrué, Blanca Fernández-Espejo, Roberta Annicchiarico, Francisco Sandoval, and Carlo Caltagirone</i></li> <li>• <b>Managing Ambient Intelligence Sensor Network Systems, an Agent Based Approach</b> - <i>Guillermo Bosch and Cristian Barrué</i></li> <li>• <b>Conventional joystick vs WiiMote for Holonomic Wheelchair Control</b> - <i>L. Duran, M. Fernandez-Carmona, C. Urdiales, J.M Peula, and F. Sandoval</i></li> </ul>
11:00-11:30	Coffee Break		

11:30-13:00	<p><b>Session 5c: (Room Auditorio) SS08 Applications of ANN in Bio-Informatics and Biomedical Engineering 2 – Chair: Ignacio Rojas / Co-Chair: Hector Pomares</b></p> <ul style="list-style-type: none"> <li>• <b>Selecting Regions of Interest for the Diagnosis of Alzheimer's Disease in Brain SPECT Images Using Welch's t-Test</b> - D. Salas-Gonzalez, J.M. Górriz, J. Ramírez, M. López, I. Álvarez, F. Segovia, and C.G. Puntonet</li> <li>• <b>Clustering Method to Identify Gene Sets with Similar Expression Profiles in Adjacent Chromosomal Regions</b> - Min A. Jhun and Taesung Park</li> <li>• <b>Protein Structure Prediction by Evolutionary Multi-objective Optimization: Search Space Reduction by Using Rotamers</b> - J.C. Calvo, J. Ortega, M. Anguita, J.M. Urquiza, and J.P. Florido</li> <li>• <b>Alzheimer's Diagnosis Using Eigenbrains and Support Vector Machines</b> - I. Álvarez, J.M. Górriz, J. Ramírez, D. Salas-González, M. López, F. Segovia, C.G. Puntonet, and B. Prieto</li> <li>• <b>Method for Prediction of Protein-Protein Interactions in Yeast using Genomics/Proteomics Information and Feature Selection</b> - J.M. Urquiza, I. Rojas, H. Pomares, J.P. Florido, G. Rubio, L.J. Herrera, J.C. Calvo, and J. Ortega</li> <li>• <b>On Selecting the Best Pre-Processing Method for Affymetrix Genechips</b> - J.P. Florido, H. Pomares, I. Rojas, J.C. Calvo, J.M. Urquiza, and M. Gonzalo Claros</li> </ul>	<p><b>Session 5a: (Room 1.2) Biomedical Applications – Chair: Kurosh Madani / Co-Chair: Juan Manuel Górriz</b></p> <ul style="list-style-type: none"> <li>• <b>Tissue Recognition Approach to Pressure Ulcer Area Estimation with Neural Networks</b> - Francisco J. Veredas, Héctor Mesa, and Laura Morente</li> <li>• <b>Automatic System for Alzheimer's Disease Diagnosis Using Eigenbrains and Bayesian Classification Rules</b> - M. López, J. Ramírez, J.M. Górriz, I. Álvarez, D. Salas-Gonzalez, F. Segovia, and C.G. Puntonet</li> <li>• <b>A.N.N. Based Approach to Mass Biometry Taking Advantage from Modularity</b> - Kurosh Madani, Abdennasser Chebira, and Véronique Amarger</li> <li>• <b>On the Use of Morphometry based Features for Alzheimer's Disease detection on MRI</b> - Maite García-Sebastián, Alexandre Savio, Manuel Graña, and Jorge Villanúa</li> <li>• <b>Artificial Neural Network Based Algorithm for Biomolecular Interactions Modeling</b> - Christophe Lemetre, Lee J. Lancashire, Robert C. Rees, and Graham R. Ball</li> <li>• <b>SPECT Image Classification Techniques for Computer Aided Diagnosis of the Alzheimer Disease</b> - J. Ramírez, R. Chaves, J.M. Górriz, M. López, D. Salas-González, I. Álvarez, and F. Segovia</li> </ul>	<p><b>Session 5b: (Room 2.5) Foundations and Models – Chair: José Dorronsoro / Co-Chair: Samuel Johnson</b></p> <ul style="list-style-type: none"> <li>• <b>Improving the Consistency of AHP Matrices Using a Multi-layer Perceptron-Based Model</b> - Jose Antonio Gómez-Ruiz, Marcelo Karanik, and José Ignacio Peláez</li> <li>• <b>Global and Local Modelling in Radial Basis Functions Networks</b> - L.J. Herrera, H. Pomares, I. Rojas, A. Guillén, G. Rubio, and J. Urquiza</li> <li>• <b>A Preliminar Analysis of CO<sup>2</sup>RBFN in Imbalanced Problems</b> - M.D. Pérez-Godoy, A.J. Rivera, A. Fernández, M.J. del Jesús, and F. Herrera</li> <li>• <b>A Simple Maximum Gain Algorithm for Support Vector Regression</b> - Alvaro Barbero and José R. Dorronsoro</li> <li>• <b>Switching Dynamics of Neural Systems in the Presence of Multiplicative Colored Noise</b> - Jorge F. Mejías, Joaquín J. Torres, Samuel Johnson, and Hilbert J. Kappen</li> <li>• <b>Fast Evaluation of Connectionist Language Models</b> - F. Zamora-Martínez, M.J. Castro-Bleda, and S. España-Boquera</li> </ul>
13:00-14:00	<p><b>Invited Talk 3 - Witold Pedrycz (Room Auditorio):</b>  <b>“Analysis of the Controllers with Respect to Their Robustness and Fault Tolerance”</b></p>		
14:00-16:00	<p>Lunch</p>		
16:00-17:00	<p><b>Session 6a: (Room Auditorio) SS11 Graph Based Representations in Pattern Recognition and Computational Intelligence 1 – Chair: Rebeca Marfil / Co-Chair: Francisco Escolano</b></p> <ul style="list-style-type: none"> <li>• <b>Graph-Based Representations in Pattern Recognition and Computational Intelligence</b> - R. Marfil, F. Escolano, and A. Bandera</li> <li>• <b>Probabilistic Self-Organizing Graphs</b> - Ezequiel López-Rubio, Juan Miguel Ortiz-de-Lazcano-Lobato, and María Carmen Vargas-González</li> <li>• <b>A Dual Graph Pyramid Approach to Grid-Based and Topological Maps Integration for Mobile Robotics</b> - J.M. Pérez-Lorenzo, R. Vázquez-Martín, E. Antúnez, and A. Bandera</li> <li>• <b>Connectivity Forests for Homological Analysis of Digital Volumes</b> - Pedro Real</li> </ul>	<p><b>Session 6b: (Room 1.2) SS09 Fuzzy Logic and Soft Computing Applications 1 – Chair: Pablo Cordero/ Co-Chair: Manuel Ojeda Aciego</b></p> <ul style="list-style-type: none"> <li>• <b>Fuzzy Logic, Soft Computing, and Applications</b> - Inma P. Cabrera, Pablo Cordero, and Manuel Ojeda-Aciego</li> <li>• <b>Improving the Performance of Fuzzy Rule Based Classification Systems for Highly Imbalanced Data-sets Using an Evolutionary Adaptive Inference System</b> - Alberto Fernández, María José del Jesús, and Francisco Herrera</li> <li>• <b>A Similarity-based WAM for Bousi~Prolog</b> - Pascual Julián-Iranzo and Clemente Rubio-Manzano</li> <li>• <b>On the Declarative Semantics of Multi-Adjoint Logic Programs</b> - P. Julián, G. Moreno, and J. Penabad</li> </ul>	<p><b>Session 6c: (Room 2.5) SS10 New Algorithms for ANN High Impact Applications – Chair: Diego Andina / Co-Chair: Alejandro Linares Barranco</b></p> <ul style="list-style-type: none"> <li>• <b>New Artificial Metaplasticity MLP Results on Standard Data Base</b> - Alexis Marcano-Cedeño, Aleksandar Jevtić, Antonio Álvarez-Vellisco, and Diego Andina</li> <li>• <b>Edges Detection of Clusters of Microcalcifications with SOM and Coordinate Logic Filters</b> - J. Quintanilla-Domínguez, B. Ojeda-Magaña, J. Seijas, A. Vega-Corona, and D. Andina</li> <li>• <b>Pollution Alarm System in Mexico</b> - M.G. Cortina-Januchs, J.M. Barrón-Adame, A. Vega-Corona, and D. Andina</li> <li>• <b>FPGA Implementation of a Neuro-Cortical Inspired Convolution Processor for Spiking Systems</b> - A. Linares-Barranco, R. Paz, F. Gómez-Rodríguez, A. Jiménez, M. Rivas, G. Jiménez, and A. Civit</li> </ul>

17:00-18:00	<p><b>Session 7c: (Room Auditorio) Applications 3 – chair: Jesús González/ Co-Chair: Kurosh Madani</b></p> <ul style="list-style-type: none"> <li>• <b>A Secret Sharing Scheme for Digital Images based on Cellular Automata and Boolean Functions</b> - <i>Ángel Martín del Rey and Gerardo Rodríguez Sánchez</i></li> <li>• <b>Using UN/CEFACT'S Modelling Methodology (UMM) in e-health projects</b> - <i>P. García-Sánchez, J. González, P.A. Castillo, and A. Prieto</i></li> <li>• <b>Training Methods and Analysis of Composite, Evolved, On-line Networks for Time Series Prediction</b> - <i>Russell Y. Webb</i></li> <li>• <b>Shapes Description by a Segments-based Neural Network</b> - <i>J.A. Gómez-Ruiz, J. Muñoz-Pérez, M.A. García-Bernal</i></li> <li>• <b>ANN Based Solutions: It Is Time to Defeat Real-World and Industrial Dilemmas</b> - <i>Kurosh Madani, Véronique Amarger, and Christophe Sabourin</i></li> <li>• <b>Intrusion Detection Method using Neural Networks based on the Reduction of Characteristics</b> - <i>Iren Lorenzo-Fonseca, Francisco Macía-Pérez, Francisco José Mora-Gimeno, Rogelio Lau-Fernández, Juan Antonio Gil-Martínez-Abarca, and Diego Marcos-Jorquera</i></li> </ul>	<p><b>Session 7a: (Room 1.2) Learning – Chair: Miguel Atencia / Co-Chair: Juan Miguel Ortiz-de-Lazcano-Lobato</b></p> <ul style="list-style-type: none"> <li>• <b>Nonparametric Location Estimation for Probability Density Function Learning</b> - <i>Ezequiel López-Rubio, Juan Miguel Ortiz-de-Lazcano-Lobato, and María Carmen Vargas-González</i></li> <li>• <b>An Awareness-based Artificial Neural Network for Cooperative Distributed Environments</b> - <i>Mauricio Paletta and Pilar Herrero</i></li> <li>• <b>Adaptative Resonance Theory Fuzzy Networks Parallel Computation Using CUDA</b> - <i>M. Martínez-Zarzuela, F.J. Díaz Pernas, A. Tejero de Pablos, M. Antón Rodríguez, J.F. Díez Higuera, D. Boto Giralda, and D. González Ortega</i></li> <li>• <b>A Supervised Learning Method for Neural Networks Based on Sensitivity Analysis with Automatic Regularization</b> - <i>Beatriz Pérez-Sánchez, Oscar Fontenla-Romero, and Bertha Guijarro-Berdiñas</i></li> <li>• <b>Ensemble Methods for Boosting Visualization Models</b> - <i>Bruno Baruaque, Emilio Corchado, Aitor Mata, and Juan M. Corchado</i></li> <li>• <b>Experiments and Reference Models in Training Neural Networks for Short-term Wind Power Forecasting in Electricity Markets</b> - <i>Juan Méndez, Javier Lorenzo, and Mario Hernández</i></li> </ul>	<p><b>Session 7b: (Room 2.5) SS14 Evolutionary Approaches to Multiobjective Optimization and Applications – Chair: José Manuel Molina / Co-Chair: Jorge Muñoz</b></p> <ul style="list-style-type: none"> <li>• <b>Multiobjective Evolutionary Algorithms: Applications in Real Problems</b> - <i>Antonio Berlanga, Jesús García Herrero, and José Manuel Molina</i></li> <li>• <b>Bus Network Scheduling Problem: GRASP + EAs with PISA * Simulation</b> - <i>Ana C. Olivera, Mariano Frutos, Jessica A. Carballido, Ignacio Ponzoni, and Nélida B. Brignole</i></li> <li>• <b>Evolutionary Genetic Algorithms in a Constraint Satisfaction Problem: Puzzle Eternity II</b> - <i>Jorge Muñoz, Germán Gutiérrez, and Araceli Sanchis</i></li> <li>• <b>Multiobjective Algorithms Hybridization to Optimize Broadcasting Parameters in Mobile Ad-hoc Networks</b> - <i>Sandra García, Cristóbal Luque, Alejandro Cervantes, and Inés M. Galván</i></li> <li>• <b>Multi Objective Optimization Algorithm Based on Neural Networks Inversion</b> - <i>Sara Carcangiu, Alessandra Fanni, and Augusto Montisci</i></li> </ul>
18:00-18:30	<p><b>Invited Talk Share-it 1: Dr. Khoon Guan Seah: “Home of the Future and Environmentally-Friendly Sensing”</b>  <b>Invited Talk Share-it 2: Dr. Juan Carlos Augusto: “Ambient Assisted Living: Past, Present and Future”</b>  <b>(Room Auditorio)</b></p>		
18:30-19:30			
20:30-21:30	<b>Gala Dinner</b>		
21:30-23:00			