

PROGRAM IWANN 2013

Invited Talks to IWANN 2013

A Novel Framework to Design Fuzzy Rule-Based Ensembles Using Diversity Induction and Evolutionary Algorithms-based Classifier Selection and Fusion

Oscar Cordon and Krzysztof Trawinski

Extreme Learning Machine: A Robust Modeling Technique? Yes!

Amaury Lendasse

It's as easy as ABC Introducing Anthropology-Based Computing

John N. A. Brown

Wednesday, June 12

Session 12-1A (9:00-11:00).-Applications of Computational Intelligence (Part I)

Chairman: Alexander Gorban

Using nonlinear dimensionality reduction to visualize classifiers

Alexander Schulz, Andrej Gisbrecht and Barbara Hammer

Which distance use when extracting typologies in sequence analysis? An application to school to work transitions

Sebastien Massoni, Madalina Olteanu and Nathalie Villa-Vialaneix

Implementation of the C-Mantec neural network constructive algorithm in an Arduino Uno microcontroller

Francisco Ortega-Zamorano, José L. Subirats, José M. Jerez, Ignacio Molina and Leonardo Franco

Robust sensor and actuator fault diagnosis with GMDH neural networks

Marcin Witczak, Marcin Mrugalski and Józef Korbicz

Diffusion Methods for Wind Power Ramp Detection

Ángela Fernández, Carlos M. Alaíz, Ana M. González, Julia Díaz and José R. Dorronsoro

Study of alternative strategies to selection of Peer in P2P wireless mesh networks

Lissette Valdés, Gonzalo Joya, Alfonso Ariza and Sira Allende

Session 12-1B (9:00-11:00).-Hybrid Intelligent Systems

Chairman: Kurosh Madani

Simulated Annealing for Real-Time Vertical-Handoff in Wireless Networks

María D. Jaraiz-Simon, Juan A. Gomez-Pulido, Miguel A. Vega-Rodríguez and Juan M. Sanchez-Perez

A fuzzy tabu search approach to solve a vehicle routing problem

Kaj-Mikael Björk and József Mezei

Improved Particle Swarm Optimization Method in Inverse Design Problems

Y. Volkan Pehlivanoglu

Solving the Unknown Complexity Formula Problem with Genetic Programming

Rayco Batista, Eduardo Segredo, Carlos Segura, Coromoto León and Casiano Rodríguez

Three Alternatives for Parallel GPU-based Implementations of High Performance Particle Swarm Optimization

Nadia Nedjah

A Particle-Swarm-Optimized Fuzzy Classifier used for Investment Decision Support

Lars Krueger and Matthias Walter

Session 12-2A (11:30-13:00).-Applications of Computational Intelligence (Part II)

Chairman: Lars Krueger

Computational Study based on Supervised Neural Architectures for Fluorescence Detection of Fungicides

Yeray Álvarez Romero, Patricio García Báez and Carmen Paz Suárez Araujo

A Cloud-Based Neural Network Simulation Environment

Erich Schikuta and Erwin Mann

Performance Evaluation over Indoor Channels of an Unsupervised Decision-aided Method for OSTBC Systems

Paula M. Castro, Ismael Rozas-Ramallal, José A. García-Naya and Adriana Dapena

A Decision-Making Model for Environmental Behavior in Agent-Based Modeling

Noelia Sánchez-Marroño, Amparo Alonso-Betanzos, Oscar Fontenla-Romero, Miguel Rodríguez-García, Gary Polhill and Tony Craig

Version of the New SHA Standard Applied to Manage Certificate Revocation in VANETs

Francisco Martín-Fernández and Pino Caballero-Gil

Session 12-2B (11:30-13:00).-Learning and Adaptation

Chairman: Kwok Yip Szeto and Kaj-Mikael Bjork

A Cognitive Approach for Robots Autonomous Learning

Dominik M. Ramík, Kurosh Madani and Christophe Sabourin

Self-Organizing Incremental Neural Network (SOINN) as a Mechanism for Motor Babbling and Sensory-Motor Learning in Developmental Robotics

Tarek Najjar and Osamu Hasegawa

Alternative OVA proposals for cooperative competitive RBFN design in classification tasks

Francisco Charte Ojeda, Antonio Jesús Rivera Rivas, María Dolores Pérez Godoy and Maria Jose Del Jesus

Committee C-Mantec: A probabilistic Constructive Neural Network

Jose Luis Subirats, Rafael Marcos Luque, Daniel Urda, Francisco Ortega, Jose Manuel Jerez and Leonardo Franco

Numerical implementation of gradient algorithms

Miguel Atencia, Yadira Hernández, Gonzalo Joya and Francisco Sandoval

Official Opening and Invited Talk 1 (13:00-14:00)

"A Novel Framework to Design Fuzzy Rule-Based Ensembles Using Diversity Induction and Evolutionary Algorithms-based Classifier Selection and Fusion"

Prof. Oscar Cordon

Session 12-3A (16:00-17:00).-Applications of Computational Intelligence (Part III)

Chairman: Madalina Olteanu

System identification of high impact resistant structures

Yeesock Kim, Sarp Arsava and Tahar El-Korchi

Spikes Monitors for FPGAs, an experimental comparative study

Elena Cerezuela-Escudero, Manuel Jesus Dominguez-Morales, Angel Jimenez-Fernandez, Rafael Paz-Vicente, Alejandro Linares-Barranco and Gabriel Jimenez-Moreno

On Second Language Tutoring Through Womb Grammars

Leonor Becerra Bonache, Veronica Dahl and Emilio Miralles

Session 12-3B (16:00-17:00).- Kernel Methods and SVM

Chairman: Marcin Witczak and Thomas Villmann

Kernelizing the Proportional Odds Model through the Empirical Kernel Mapping

María Pérez Ortiz, Pedro Antonio Gutiérrez, Manuel Cruz-Ramírez, Javier Sánchez-Monedero and Cesar Hervas

Parallel Support Vector Data Description

Phuoc Nguyen, Dat Tran, Xu Huang and Wanli Ma

Antinoise Texture Retrieval Based on PCNN and One-Class SVM

Le Tian, Yi De Ma, Li Liu and Kun Zhan

Session 12-4A (17:30-19:30).- Data mining with Evolutionary Computation and ANN

Chairman: Carlos Fernandez and Juan Luis Pérez Ordóñez

Texture Classification Using Kernel-Based Techniques

Carlos Fernandez-Lozano, Jose A. Seoane, Marcos Gestal, Tom R. Gaunt and Colin Campbell

A genetic algorithms-based approach for optimizing similarity aggregation in ontology matching

Marcos Martinez-Romero, Jose Manuel Vazquez-Naya, Francisco Javier Novoa, Guillermo Vazquez and Javier Pereira

Automatic Fish Segmentation on Vertical Slot Fishways Using SOM Neural Networks

Alvaro Rodriguez, Juan R Rabuñal, Maria Bermudez and Alejandro Pazos

Clustering of gene expression profiles applied to marine research

Vanessa Aguiar-Pulido, Victoria Suárez-Ulloa, Daniel Rivero, José M. Eirín-López and Julián Dorado

Genetic programming to improvement FIB model: Bond and anchorage of reinforcing steel in structural concrete

Juan Luis Perez, Ismael Vieito, Juan Rabuñal and Fernando Martínez-Abella

Rainfall Forecasting based on Ensemble Empirical Mode Decomposition and Neural Networks

Juan Beltran-Castro, Juliana Valencia-Aguirre, Mauricio Orozco-Alzate, German Castellanos-Dominguez and Carlos M. Travieso-González

Session 12-4B (17:30-19:30).-Mathematical and Theoretical Methods in Computational Intelligence (Part I)

Chairman: Miguel Atencia

Secure Semi-Supervised Vector Quantization for Dissimilarity Data

Xibin Zhu, Frank-Michael Schleich and Barbara Hammer

Border-Sensitive Learning in Kernelized Learning Vector Quantization

Marika Kästner, Martin Riedel, Marc Strickert, Wieland Hermann and Thomas Villmann

Smoothed emphasis for boosting ensembles

Anas Ahachad, Adil Omari and Aníbal R. Figueiras-Vidal

F-Measure as the error function to train Neural Networks

Joan Pastor-Pellicer, Francisco Zamora-Martínez, Salvador España-Boquera and María José Castro-Bleda

Isomorphisms of fuzzy sets and cut systems

Jiří Močkoř

Hierarchical Modified Regularized Least Squares Fuzzy Support Vector Regression through Multiscale Approach

Arindam Chaudhuri

Thursday, June 13

Session 13-5A (9:00-11:00).-Mathematical and Theoretical Methods in Computational Intelligence (Part II)

Chairman: Belén Melián-Batista

A Novel Neural Network Parallel Adder

Fangyue Chen, Guangyi Wang and Guanrong Chen

Maximum Margin Clustering for State Decomposition of Metastable Systems

Hao Wu

Sea Clutter Neural Network Classifier: Feature Selection and MLP Design

Jose Luis Bárcena-Humanes, David Mata-Moya, María Pilar Jarabo-Amores, Nerea Del-Rey-Maestre and Jaime Martín De Nicolás

SONN and MLP Based Solutions for Detecting Fluctuating Targets with Unknown Doppler Shift in Gaussian Interference

David Mata-Moya, Pilar Jarabo-Amores, Nerea Del-Rey-Maestre, Jose Luis Bárcena-Humanes and Jaime Martín De Nicolás

Minimal Learning Machine: A new distance-based method for supervised learning

Amauri Holanda Souza Junior, Francesco Corona, Yoan Miche, Amaury Lendasse, Guilherme Barreto and Olli Simula

Extending Extreme Learning Machine with Combination Layer

Dusan Sovilj, Amaury Lendasse and Olli Simula

Session 13-5B (9:00-11:00).-Fuzzy Logic and Soft Computing Applications (Part I)

Chairman: Manuel Ojeda-Aciego and Pablo José Cordero Ortega

Automated inference with fuzzy functional dependencies over graded data

Pablo Cordero, Manuel Enciso, Angel Mora and José Manuel Rodríguez-Jemenez

Fuzzy attribute reduction in multi-adjoint concept lattices

Maria Eugenia Cornejo, Jesús Medina-Moreno and Eloisa Ramírez

Can machine learning techniques help to improve the Common Fisheries Policy?

María Pérez Ortiz, Rosa Colmenarejo, Juan Carlos Fernández Caballero and César Hervás Martínez

Integration of fuzzy systems and genetic algorithm in permeability prediction

Ahmad Ja'Fari and Rasoul Hamidzadeh Moghaddam

Annotating Fuzzy Chance Degrees when Debugging XPath Queries

Jesus M. Almendros-Jimenez, Alejandro Luna Tedesqui and Gines Moreno

An Unfolding-based Preprocess for Reinforcing Thresholds in Fuzzy Tabulation

Pascual Julian-Iranzo, Jesús Medina-Moreno, P. J. Morcillo, Gines Moreno and Manuel Ojeda-Aciego

Session 13-1C (9:00-11:00).-Self organizing network

Chairman: Fangyue Chen

Self-regulating Neurons in the Sensorimotor Loop

Frank Pasemann

Comparison of two memristor based neural network learning schemes for crossbar architecture

Janusz Starzyk and Basawaraj

Geometrical complexity of data approximators

Eugeny Mirkes, Andrei Zinovyev and Alexander Gorban

Self-Organization Process in Large Spiking Neural Networks Leading to Formation of Working Memory Mechanism

Mikhail Kiselev

Self-organized Learning by Self Enforcing Networks

Christina Klüver and Jürgen Klüver

Session 13-6A (11:30-13:00).- Bioinformatics/Biomedicine in Computational intelligence (Part I)

Chairman: Dusan Sovilj

Parametric and Non-parametric feature selection for kidney transplants

Raimundo García Del Moral, Alberto Guillen, Luis Javier Herrera, Antonio Cañas and Ignacio Rojas

Acute Lymphoblastic Leukemia Identification Using Blood Smear Images and a Neural Classifier

Prof. Dr. Adnan Khashman and Hayder Hassan Abbas

Modeling of survival curves in food microbiology using fuzzy wavelet neural networks

Vassilis Kodogiannis and Ilias Petrounias

Evaluating multiple sequence alignments using a LS-SVM approach with a heterogeneous set of biological features

Francisco Ortuño, Olga Valenzuela, Hector Pomares and Ignacio Rojas

Modeling Tissue Temperature Dynamics during Laser Exposure

Loris Fichera, Diego Pardo and Leonardo S. Mattos

Session 13-6B (11:30-13:10).-Video and Image Processing (Part I)

Chairman: José García Rodríguez

Image Noise Detection in Global Illumination Methods based on Fast Relevance Vector Machine

Joseph Constantin, André Bigand, Ibtissam Constantin and Denis Hamad

Improving 3D Keypoint Detection from Noisy

Jose Garcia-Rodriguez, Miguel Cazorla, Sergio Orts-Escolano and Vicente Morell

Football Video Annotation Based on Player Motion Recognition Using Enhanced Entropy

Markos Mentzelopoulos, Alexandra Psarrou, Anastassia Angelopoulou and Jose Garcia-Rodriguez

Model-based Multi-View Registration for RGB-D Sensors

Marcelo Saval-Calvo, Jorge Azorín-López and Andrés Fuster-Guilló

3D Hand Pose Estimation with Neural Networks

Jose Antonio Serra, Jose Garcia-Rodriguez, Sergio Orts-Escolano, Juan Manuel Garcia-Chamizo, Anastassia Angelopoulou, Alexandra Psarrou, Markos Mentzelopoulos, Javier Montoyo Bojo and Enrique Dominguez

Session 13-2C (11:30-13:10).-Metaheuristics (Part I)

Chairman: José A. Moreno and Julio Brito

Model Probability in Self-organising Maps

Anastassia Angelopoulou, Alexandra Psarrou, Jose Garcia-Rodriguez and Markos Mentzelopoulos

Topological Effects on the Performance of Island model of Parallel Genetic Algorithm

Guan Wang and Kwok Yip Szeto

Artificial Bee Clustering Search

Tarcísio Costa and Alexandre César Muniz de Oliveira

A Metaheuristic Approach for the Seaside Operations in Maritime Container Terminals

Eduardo Lalla Ruiz, Christopher Expósito Izquierdo, Belén Melián Batista and José Marcos Moreno Vega

Restricted Dynamic Heterogeneous Fleet Vehicle Routing Problem with Time Windows

Jesica De Armas, Belén Melián-Batista and José A. Moreno-Pérez

Invited Talk 2 (13:10-14:10)

”Extreme Learning Machine: A Robust Modeling Technique? Yes!”

Prof. Amaury Lendasse

Session 13-7A (16:00-18:00).- Bioinformatics/ Biomedicine in Computational intelligence (Part II)

Chairman: Diego Esteban Pardo Ayala

Selection of wavelet decomposition level for electro-oculographic saccadic de-noising

Rodolfo García-Bermúdez, Fernando Rojas, Roberto Antonio Becerra García, Luis Velázquez and Roberto Rodríguez

Identification of Postural Transitions Using a Waist-Located Inertial Sensor

Daniel Rodríguez Martín, Albert Samà, Carlos Pérez López, Andreu Català, Joan Cabestany and Alejandro Rodríguez Molinero

Animal Vibrissae: Modeling and Adaptive Control of bio-inspired Sensors

Carsten Behn, Tonia Schmitz, Hartmut Witte and Klaus Zimmermann

Brain Signal Based Continuous Authentication: Functional NIRS Approach

Michitaro Shozawa, Ryota Yokote, Seira Hidano, Chi-Hua Wu and Yasuo Matsuyama

Activity recognition based on a multi-sensor meta-learner

Oresti Baños, Miguel Damas, Héctor Pomares and Ignacio Rojas

Out of Core Computation of HSPs for large biological sequences

Andrés Rodríguez Moreno, Óscar Torreño Tirado and Oswaldo Trelles Salazar

Session 13-7B (16:00-17:00).-Fuzzy Logic and Soft Computing Applications (Part II)

Chairman: Manuel Ojeda-Aciego and Pablo José Cordero Ortega

On Galois Connections and Soft Computing

Manuel Ojeda-Aciego, F. Garcia-Pardo, I.P. Cabrera and P. Cordero

A Proximity-based Method for Discovery of Generalized Knowledge and its incorporation to the Bousi Prolog System

Pascual Julian-Iranzo and Clemente Rubio-Manzano

Fuzzy property-oriented concept lattices in morphological image and signal processing

Cristina Alcalde, Ana Burusco, Juan Carlos Díaz, Ramón Fuentes-González and Jesús Medina-Moreno

Session 13-8B (17:00-18:00).-Video and Image Processing (Part II)

Chairman: José García Rodríguez

Computer-Aided Diagnosis in Wound Images With Neural Networks

María Navas, Rafael M. Luque-Baena, Laura Morente, David Coronado, Rafael Rodríguez and Francisco J. Veredas

Hierarchical Self-Organizing Networks for Multispectral Data Visualization

Esteban José Palomo, Ezequiel López-Rubio, Enrique Dominguez and Rafael Marcos Luque Baena

A self-organizing map for traffic flow monitoring

Rafael Marcos Luque-Baena, Ezequiel López-Rubio, Enrique Dominguez, Esteban José Palomo and Jose M. Jerez

Session 13-3C (16:00-18:00).-Advances in Computational intelligence (Part I)

Chairman: Christina Klver

Improved swap heuristic for the Multiple Knapsack Problem

Yacine Laalaoui

Hybrid Approach for 2D Strip Packing Problem using Genetic Algorithm

Jaya Thomas and Narendra S Chaudhari

An Ensemble of Computational Intelligence Models for Software Maintenance Effort Prediction

Hamoud Aljamaan, Mahmoud Elish and Irfan Ahmad

Sleep stage classification using advanced intelligent methods

José Manuel Sánchez Pascualvaca, Carlos Fernandes, Alberto Guillen, Antonio Mora, Rogerio Largo, Agostinho Rosa and Luis Javier Herrera

An n-spheres based synthetic data generator for supervised classification

Javier Sánchez-Monedero, P. A. Gutiérrez, María Pérez-Ortiz and César Hervás-Martínez

Friday, June 14

Session 14-8A (9:00-11:00).- Bioinformatics/Biomedicine in Computational intelligence (Part III)

Chairman: Yasuo Matsuyama

An ensemble of classifiers guided by the AAL brain atlas for Alzheimer's disease detection

Alexandre Savio and Manuel Graña

Saccadic points classification using Multilayer Perceptron and Random Forest classifiers in EOG recordings of patients with Ataxia SCA2

Roberto Antonio Becerra García, Gonzalo Joya Caparrós, Rodolfo Valentín García Bermúdez, Luis Velázquez Pérez, Roberto Rodríguez Labrada and Carmen Pino Ávila

PCG Signal Segmentation for Telemedicine Environments

Santiago Murillo Rendón, Cristian Castro, Carlos Travieso Gonzales and Germán Castellanos

Risk Prediction of Femoral Neck Osteoporosis Using Machine Learning and Clinical Decision Methods

Tae Keun Yoo, Sung Kean Kim, Ein Oh and Deok Won Kim

Bio-Cirrus: a framework for running legacy bioinformatics applications with cloud computing resources

Tor Johan Mikael Karlsson, Óscar Torreño Tirado, Daniel Ramet, Juan Lago, Juan Falgueras Cano, Noura Chelbat and Oswaldo Trelles

Indoor activity recognition by combining one-vs-all neural network classifiers exploiting wearable and depth sensors

Benoît Delachaux, Julien Rebetz, Andres Perez-Urbe and Hector Fabio Satizabal Mejia

Session 14-9B (9:00-11:00).- Biological and bio-inspired dynamical systems for computational intelligence

Chairman: Vladimir Rasvan and Daniela Danciu

A FPGA Spike-based Robot Controlled with Neuro-inspired VITE

Fernando Perez-Peña, Arturo Morgado-Estevez, Alejandro Linares-Barranco, Angel Jimenez-Fernandez, Juan Lopez-Coronado and Jose Luis Muñoz-Lozano

A CNN Based Approach for Solving a Hyperbolic PDE Arising from a System of Conservation Laws - the Case of the Overhead Crane

Daniela Danciu

Reflections on neural networks as repetitive structures with several equilibria and stable behavior

Vladimir Rasvan

A retina-inspired neurocomputing circuit for image representation

Hui Wei, Qing-Song Zuo and Bo Lang

Evolutionary Approach in Inventory Routing Problem

Dragan Simić and Svetlana Simić

Network Anomaly Detection with Bayesian Self-Organizing Maps

Emiro De La Hoz Franco, Andrés Ortiz García, Julio Ortega Lopera, Eduardo De La Hoz Correa and Alberto Prieto Espinosa

Session 14-D-Alix project-C (9:30-10:00).-Project D-ALix: Neural Access Point of Western Africa and Canary Islands. Towards the ICT market and the technological resources in the Canary Islands. (Council of Tenerife). <http://www.d-alix.com/>

Session 14-4C (10:00-11:00).-Metaheuristics (Part II)

Chairman: José A. Moreno and Julio Brito

An Ant System Algorithm for the Neutralization Problem

Ramazan Algin, Ali Alkaya, Vural Aksakalli and Dindar Öz

Solving credit card fraud detection problem by the new metaheuristics migrating birds optimization

Ekrem Duman and Ilker Elikucuk

Effect of the Initial Solutions to Balance Routes in Vehicle Routing Problem with Time Windows

Alondra De Santiago, Belén Melián-Batista, Ada Álvarez and Francisco Angelbello

Session 14-9A (11:30-12:50).-Brain-Computer Interfaces and Neurotechnologies

Chairman: Ricardo Ron Angevin

BCI-based Navigation in Virtual and Real Environments

Francisco Velasco-Alvarez, Ricardo Ron-Angevin and Miguel Angel Lopez-Gordo

A Motor Imagery Based Brain-Computer Interface Speller

Bin Xia, Jing Yang, Chonghui Cheng and Hong Xie

A new method for BCI spelling using a 7 segments display

N. Galea-Sevilla, Miriam España, Alberto Guillén and Ignacio Rojas

Motor Imagery EEG-Based Person Verification

Phuoc Nguyen, Dat Tran, Xu Huang and Wanli Ma

Session 14-10B (11:30-12:50).- Artificial Intelligence and Games

Chairman: Raul Lara Cabrera

Designing and Evolving an Unreal Tournament 2004 Expert Bot

Antonio Mora, Francisco Aisa, Ricardo Caballero, Pablo García Sánchez, Jj Merelo, Pedro Castillo and Raúl Lara

Evolving the strategies of agents for the ANTS game

José Carpio, Pablo García Sánchez, Antonio Mora, Jj Merelo and Carlos Cotta

Interactive Techniques for Entertainment Applications Using Mobile Devices

José Luis Gutiérrez Rivas, Pedro Cano Olivares and Javier Díaz Alonso

Car setup optimization via evolutionary algorithms

Carlos Cotta, Antonio J. Fernández-Leiva, Alberto Fuentes Sánchez and Raul Lara-Cabrera

Session 14-5C (11:30-12:50).-Advances in Computational intelligence (Part II)

Chairman: Dragan Simic and Hao Wu

Improving the Classification Performance of Optimal Linear Associative Memory in the Presence of Outliers

Ana Luiza Bessa de Paula Barros and Guilherme Barreto

SMBSRP: A Search Mechanism Based On Interest Similarity, Query Relevance and Distance Prediction

Fen Wang, Changsheng Xie, Liang Hong and Xiaotao Huang

A constructive neural network to predict pitting corrosion status of stainless steel

Daniel Urda, Rafael Marcos Luque, Maria Jesus Jiménez, Ignacio Turias, Leonardo Franco and Jose Manuel Jerez

Ant Colony Optimization inspired algorithm for 3D object segmentation

Rafael Arnan and Leopoldo Acosta

Invited Talk 3 and Closing Ceremony (12:50-14:00)

"It's as easy as ABC Introducing Anthropology-Based Computing"

Prof. John N. A. Brown
