

HIS 2002

Hybrid Intelligent Systems

Second International Conference on Hybrid Intelligent Systems December 01-04, Santiago, Chile Program

Sunday 1

8:45 - 9:30 Registration

9:30 - 13:30 Tutorials 1 – 5

13:30 - 15:00 Lunch

15:00 - 19:00 Tutorials 6 – 10

20:00 Opening Cocktail

Monday 2

8:15 - 8:45 Registration

8:45 - 9:00 Opening Ceremony

9:00 - 10:00 Independent Component Analysis (E. Oja)

10:00 - 11:00 Neuro-Fuzzy Control (Y. Dote)

11:00 - 11:30 Coffee Break

11:30 - 12:50 Parallel Sessions MO1:

Neural Systems I (4)

Fuzzy Sets (3)

Evolutionary Computation (3)

12:50 - 14:30 Lunch

14:30 - 15:30 Robots for the Human and Haptic Interaction (O. Khatib)

15:40 - 17:00 Parallel Sessions MO2:

Signal and Image Processing I (4)

Machine Learning I (4)

Features and Classification

17:00 - 17:30 Coffee Break

17:30 - 18:50 Parallel Sessions MO3:

Neural Systems II (4)

Machine Learning II (4)

Signal and Image Processing II (4)

Tuesday 3

8:15 - 9:00 Registration

- 9:00 - 10:00 Fuzzy Logic: A playground for Mathematicians (B. De Baets)
- 10:00 - 11:00 A hybrid genetic programming neural network classifier for use in drug discovery (W. Langdon)
- 11:00 - 11:30 Coffee Break
- 11:30 - 12:50 Parallel Sessions TU1:
Support Vector Machines and Kernel Methods
Hybrid Systems (2)
Signal and Image Processing III (3)
- 12:50 - 14:30 Lunch
- 14:30 - 15:30 Anticipatory Computing with Autopoietic and (M,R) Systems (J.C. Letelier)
- 15:30 - 15:50 Coffee Break
- 15:50 - 17:50 Parallel Sessions TU2:
Agent Architectures (5)
Web and Multimedia Applications (6)
- 20:30 Gala Dinner

Wednesday 4

- 8:15 - 9:00 Registration
- 9:00 - 10:00 Computing with words (J. Kacprzyk)
- 10:30 - 11:00 Coffee Break
- 11:00 - 13:00 Parallel Sessions WE1:
Industrial Applications (6)
Web Computing (5)
Data Mining I (5)
- 13:00 - 14:30 Lunch
- 14:30 - 15:30 Role of Soft Computing in Internet Security (A. Sung)
- 15:30 - 15:50 Coffee Break
- 15:50 - 17:50 Parallel Sessions WE2:
Interactive Systems (4)
Data Mining II (4)
Machine Learning III (3)

MONDAY 2

MO1:

Plenary Session I: Independent Component Analysis (E. Oja)

Chair: W. Langdon

Room: "Salón Gorbea" (Escuela Building)

Plenary Session II: Neuro- Fuzzy Control (Y. Dote)

Chair: J. Kacprzyk

Room: "Salón Gorbea" (Escuela Building)

Parallel Sessions MO1:

Session 1: Neural Systems and Applications I

Chair: *J. Sjoberg*

Room: "Auditorio Electrotecnologías" (Electrotecnologías Building)

The use of a Back Propagation Neural Network to determine the load distribution on a component

R. Amali, J. Vinney, S. Noroozi, V. Patel

Performance-guided Neural Network for Rapidly Self-Organising Active Network Management

S.W. Lee, D. Palmer-Brown, J. Tepper, C. Roadknight

An Automated Hybrid Reasoning System for Forecasting

F. Fdez-Riverola, J.M. Corchado

Rule Extraction from Bagged Neural Networks

G. Bologna

Session 2: Fuzzy Sets and Applications I

Chair: *E. Kerre*

Room: "Sala Seminarios" (Electrotecnologías Building)

A Fuzzy Relatedness Measure for Determining Interestingness of Association Rules

B. Shekar, R. Natarajan

Factor Analysis with Qualitative Factors as Fuzzy Numbers

E. Rakus-Andersson, L. Zakrzewski

An XML-based specification of fuzzy logic controllers

D. Mastropasqua, N. Mosca, F. Zambetta

Session 3: Evolutionary Computation and Applications

Chair: *W. Langdon*

Room: "Multimedia 1" (Escuela Building)

A Permutation Based Genetic Algorithm for RNA Secondary Structure Prediction

K.C. Wiese, E. Glen

Design of Strong Causal Fitness Functions

S. Hirche, I. Santibanez-Koref, I. Boblan

Noise and Elitism in Evolutionary Computation
T. Beker, L. Hadany

MO2:

Plenary Session III: Robots for the Human and Haptic Interaction (O. Khatib)
Chair: *Y. Dote*
Room: “Salón Gorbea” (Escuela Building)

Parallel Sessions MO2:

Session 1: Signal and Image Processing I

Chair: *J. Ruiz-del-solar*
Room: “Auditorio Electrotecnologías” (Electrotecnologías Building)

Eigenspace-based Face Recognition: A comparative study of different hybrid approaches
P. Navarrete, J. Ruiz-del-solar

Pattern Recognition with Ultrasonic Sensor using Classification Methods
N. Ait Oufroukh, E. Colle

A Color Pattern Recognition Problem based on the Multiple Classes Random Neural Network Model
J. Aguilar

Jigsawing : A Method to Create Virtual Examples in OCR data
S.V.N. Vishwanthan, M.N. Murty

Session 2: Machine Learning and Applications I

Chair: *D.W. Corne*
Room: “Multimedia 1” (Escuela Building)

An Efficient Algorithm in Optimal Partition Problem for Trees Induction
M. Asseraf

Condition Monitoring, Root Cause Analysis and Decision Support on Urgency of Actions
G. Weidl, A. Madsen, E. Dahlquist

Towards Landscape Analyses to Inform the Design of Hybrid Local Search for the Multiobjective Quadratic Assignment Problem
J.D. Knowles, D.W. Corne

Enhancing Real-World Applicability by Providing Confidence-in-Prediction in the XCS Classifier System
P.W. Dixon, D.W. Corne, M.J. Oates

Session 3: Features and Classification

Chair: *R. Weber*
Room: “Sala Seminarios” (Electrotecnologías Building)

A Trainable Classifier via k Nearest Neighbors

I. Mora-Jiménez, A. Lyhyaoui, J. Arenas-García, A. Navia-Vázquez, A.R. Figueiras-Vidal

Combining Classifiers with Multimethod Approach

M. Lenic, P. Kokol

Feature Extraction by Distance Neural Network in Classification Tasks

C. Maturana, R. Weber

Revealing Feature Interactions in Classification Tasks

D. Partridge, S. Cang

MO3:

Parallel Sessions MO3:

Session 1: Neural Networks and Applications II

Chair: *E. Oja*

Room: “Auditorio Electrotecnologías” (Electrotecnologías Building)

Nonlinear Principal Component Analysis to Preserve the Order of Principal Components

R. Saegusa, S. Hashimoto

A Neural Network Model of Rule-guided Behavior

T. Minami, T. Inui

Selection of Models for Time Series Prediction via Meta-Learning

R.B. Cavalcante Prudêncio, T.B. Ludermir

Spiking Neurons in Clustering of Diabetic Retinopathy Data

K. Cios, W. Jackson, W. Swiercz, L. Springhetti

Session 2: Machine Learning II and Applications II

Chair: *Y. Dote*

Room: “Sala Seminarios” (Electrotecnologías Building)

Towards a Unique Framework to Describe and Compare Diagnosis Approaches

C.H. Zanni, M. Le Goc, C.S. Frydman

Experimental Evaluation of the PLA-Based Permutation-Scheduling

J. Jedrzejowicz, P. Jedrzejowicz

A Study of K-Nearest Neighbour as an Imputation Method

Gustavo E. A. P. A. Batista, M.C. Monard

Determining The Degree of Generalization Using An Incremental Learning Algorithm

P. Zegers, M.K. Sundareshan

Session 3: Signal and Image Processing II

Chair: *O. Khatib*

Room: “Multimedia 1” (Escuela Building)

Model-Based Restoration of Short-Exposure Solar Images

M. Haindl, S. Šimberová

Using a Helper FFN to Represent the Cost Function for Training DRNN's by Gradient

Descent

R.K. Brouwer

Scene-Based Nonuniformity Correction Method Using the Inverse Covariance Form of the Kalman Filter

S. Torres, J. Pezoa

Adaptive Bias Compensation for Non-Uniformity Correction on Infrared Focal Plane Array Detectors

E. Vera, R. Reeves, S. Torres

TUESDAY 3

Plenary Session I: Fuzzy logic: A playground for mathematicians (B. De Baets)

Chair: *C.M. Held*

Room: "Salón Gorbea" (Escuela Building)

Plenary Session II: A hybrid genetic programming neural network classifier for use in drug discovery (W. Langdon)

Chair: *A. Abraham*

Room: "Salón Gorbea" (Escuela Building)

Parallel TU1:

Session 1: Support Vector Machines and Kernel Methods

Chair: *A. Sung*

Room: "Sala Seminarios" (Electrotecnologías Building)

An Empirical Comparison of Kernel Selection for Support Vector Machines

A.B.M. Shawkat Ali, A. Abraham

Adaptive Support Vector Classifications

Z. Liu, Y. Xu

Mercer's Kernel Based Learning for Fault Detection

B. Ribeiro, P. Carvalho

Performance Based Feature Identification for Intrusion Detection Using Support Vector Machines

S. Mukkamala, A.H. Sung

Session 2: Hybrid Systems and Applications

Chair: *H. Ishibuchi*

Room: "Multimedia 1" (Escuela Building)

Hybrid Evolutionary Multi-Objective Optimization Algorithms

H. Ishibuchi, T. Yoshida

Comparison of Fuzzy Rule Selection Criteria for Classification Problems

H. Ishibuchi, T. Yamamoto

Linguistic Hedges: a Quantifier Based Approach

M. De Cock

Session 3: Signal and Image Processing III

Chair: *M. Köppen*

Room: "Auditorio Electrotecnologías" (Electrotecnologías Building)

Accurate Human Face Extraction using Genetic Algorithm and Subspace Method

M. Murakami, M. Yoneyama, K. Shirai

The Evolutionary Learning Rule for System Identification in Adaptive Finite Impulse Filters

O. Montiel, O. Castillo, P. Melin, R. Sepulveda

2D-Histogram Lookup for Low-contrast Fault Processing

M. Köppen, R. Vicente Garcia, X. Liu, B. Nickolay

TU 2:

Plenary Session III: Anticipatory Computing with Autopoietic and (M,R) Systems (J.C. Letelier)

Chair: *A. Sung*

Room: "Salón Gorbea" (Escuela Building)

Parallel Sessions TU2:

Session 1: Agent Architectures

Chair: *H. Iba*

Room: "Multimedia 1" (Escuela Building)

Designing Not-So-Dull Virtual Dolls

F. Zambetta, G. Catucci

SADISCO: A Scalable Agent Discovery and Composition Mechanism

J.J. Nolan, A.K. Sood, R. Simon

MAYBE - Multi-Agent Yield-Based Engineering : Improve Training in the Emergency

Room Chain

S. Gouarderes, G. Gouarderes, P. Delpy

3D-CG Avatar Motion Design by means of Interactive Evolutionary Computation

H. Iba, N. Tokui, H. Wakaki

Alliance Formation with Several Coordinators

V. Marik, V. Mashkov

Session 2: Web and Multimedia Applications

Chair: *H C Fu*

Room: "Auditorio Electrotecnológicas" (Electrotecnológicas Building)

Clustering Web User Interests Using Self Organizing Maps

X. Wang, K.A. Smith

Web Traffic Mining Using a Concurrent Neuro-Fuzzy Approach

X. Wang, A. Abraham, K.A. Smith

Panoramic View System for Extracting Key Sentences based on Viewpoints and an Application to a Search Engine

W. Sunayama, M. Yachida

Frequent Flyer Points Calculator: More Than Just a Table Lookup

G.W. Rumantir

A Large Benchmark Dataset for Web Document Clustering

M.P. Sinka, D.W. Corne

Simulating an Information Ecosystem within the WWW

R.L. Walker

WEDNESDAY 4

WE 1:

Plenary Session I: Computing with words (J. Kacprzyk)

Chair: *B. De Baets*

Room: "Salón Gorbea" (Escuela Building)

Parallel Sessions WE1:

Session 1: Industrial Applications

Chair: *A. Abraham*

Room: "Auditorio Electrotecnológicas" (Electrotecnológicas Building)

A Railway Interlocking Safety Verification System Based on Abductive Paraconsistent Logic Programming

K. Nakamatsu, J.M. Abe, A. Suzuki

Complete Algorithm to realize CI Model-based Control and Monitoring Strategies on Microcontroller Systems

K.D. Kramer, S. Patzwahl, T. Nacke

Using Genetic Algorithms for Minimizing the Production Costs of Hollow Core Slabs

V.C. Castilho, M.C. Nicoletti, M.K. El Debs

Recognizing Malicious Intention in an Intrusion Detection Process

F. Cuppens, F. Autrel, A. Miège, S. Benferhat

A Self-growing Probabilistic Decision-based Neural Network with Applications to Anchor/Speaker Identification

S.S. Cheng, Y.H. Chen, C.L. Tseng, H.C. Fu, H.T. Pao

HyCAR - A Robust Hybrid Control Architecture for Autonomous Robots

F.J. Heinen, F.S. Osório

Session 2: Web Computing

Chair: *M. Marin*

Room: "Multimedia 1" (Escuela Building)

Balancing Volume, Quality and Freshness in Web Crawling

R. Baeza-Yates, C. Castillo

A Spatial Dimension for Searching the World Wide Web

M.A. Rodríguez

Building Yearbooks with RDF

E.K. Morales, C. Gutiérrez

A non-Deterministic versus Deterministic Algorithm for Searching Spatial Configurations

M.C. Jarur, M.A. Rodríguez

Parallel Text Query Processing using Composite Inverted Lists

M. Marin

Session 3: Data Mining I

Chair: *D.Sharma*

Room: "Sala Seminarios" (Electrotecnologías Building)

Sparse Distributed Memory with Adaptive Threshold

J.L. Aguilar, N. Perozo

UniLR: An Automated Fuzzy Legal Reasoner

D. Sharma

Set Approximation Quality Measures in the Variable Precision Rough Set Model

W. Ziarko

A Data Preparation Bayesian Approach for a Clustering Genetic Algorithm

E.R. Hruschka Jr., E.R. Hruschka, N.F.F. Ebecken

Reconstruction of conditional distribution field based on empirical data

C.A. Jakovlevich

WE 2:

Plenary Session II: Role of Soft Computing in Internet Security (A. Sung)

Chair: *J. Kacprzyk*

Room: "Salón Gorbea" (Escuela Building)

Parallel Sessions WE2:

Session 1: Interactive Systems

Chair: *M. Nicoletti*

Room: "Auditorio Electrotecnologías" (Electrotecnologías Building)

Human Reasoning In Soft Computing

V.S. Kumar

A Focus and Constraint-Based Genetic Algorithm for Interactive Directed Graph Drawing

H.A.D. do Nascimento, P. Eades

Dialogue Act Connectionist Detection in a Spoken Dialogue System

E. Sanchis, M.J. Castro

A Trial Method to Create a Natural Interaction in Interactive Genetic Algorithm

F. Sugimoto, M. Yoneyama

Session 2: Data Mining II

Chair: *M.C. Martins*

Room: "Sala Seminarios" (Electrotecnologías Building)

Bi-Directional Flow of Information in the Softboard Architecture

S. Macedo, E. Mamdani

Voice Codification using Self Organizing Maps as Data Mining Tool

J.D. Velásquez, H. Yasuda, T. Aoki, R. Weber

Identifying Patterns of Corporate Tax Payment

M. C. Martins, I.M. Garaffa

Self-Organized Data and Image Retrieval as a Consequence of Inter-Dynamic Synergistic Relationships in Artificial Ant Colonies

V. Ramos, F. Muge, P. Pina

Session 3: Machine Learning III

Chair: *M. Köppen*

Room: "Multimedia 1" (Escuela Building)

Active Learning Using One-class Classification

I. Gokcen, J. Peng, B.P. Buckles

Latent Semantic Indexing Based on Factor Analysis

N. Kawamae

Document Oriented Modeling of Cellular Automata

C. Veenhuis, M. Köppen