IWINAC2007

INTERNATIONAL WORK-CONFERENCE ON THE INTERPLAY BETWEEN NATURAL AND ARTIFICIAL COMPUTATION

FINAL PROGRAM

La Manga del Mar Menor, Murcia, Spain.

June 18–21, 2007

Organized by

Universidad Nacional de Educación a Distancia (UNED).

in cooperation with

Universidad Politécnica de Cartagena
Universidad de Murcia
and Cartagena UNED Associated Center

with the collaboration of:
NiSIS (Nature-inspired Smart Information Systems) project

Contact URL http://www.iwinac.uned.es/iwinac2007/

Scope

This interdisciplinary meeting, with focus on the interplay between Nature and Computation, expands the scope of neural computation at the physical level to cope with symbols and knowledge level models of cognitive and social processes. The global purpose is to offer a forum for discussion and exchange of ideas between scientists and engineers from fields such as Electronic Engineering, Artificial Intelligence, Knowledge Engineering, Physics, Mathematics, Computation, Artificial Vision, Situated Robotics, Neurophysiology, Cognitive Science, Linguistics and Philosophy, trying to contribute to the answer of two basic questions:

I: **From Computation to Sciences of Natural.**

What can Physics, Mathematics, Engineering, Computation, Artificial Intelligence (AI) and Knowledge Engineering (KE) contribute to the understanding of Nervous System, Cognitive Processes and Social Behavior? This is the scope of Computational Neuroscience and Cognition, which uses computation to model and improve our understanding of natural phenomena.

II: **From Sciences of Natural to Computation.**

How can Engineering, Mathematics, Computation, AI and KE find inspiration in the behavior and internal functioning of physical, biological and social systems to conceive, develop and build-up new concepts, materials, mechanisms and algorithms of potential value in real world applications? This is the scope of the new Bionics, known as Bioinspired Engineering and Computation, as well as of Natural Computing.

Acknowledgements

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Javier Toledo Moreo
José Javier Martínez Álvarez

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Invited Speakers

Gheorge Paun   Univ. de Sevilla (Spain)
Javier Monserrat   Univ. Autónoma de Madrid (Spain)
Álvaro Pascual-Leone   Harvard Medical School (USA)

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PROGRAM OUTLINE

Monday June 18			
	Room A	Room B	Room C
09:00–	*Registration at Technical Secretariat desk*		
09:30–10:20	*Conference Opening*		
10:20–11:20	Plenary Session I: Prof. Javier Monserrat Puchades		
	Coffee break		
11:40–13:40	Computational Neuroscience I	Natural Computing I	Bioinspired Applications I
14:00–	*Lunch*		
18:30–20:30	*Sightseeing Tour*		
20:30–21:30	*Welcome Reception*		
21:30–	*Reception Cocktail*		

Tuesday June 19			
	Room A	Room B	Room C
09:00–10:00	Plenary Session II: Prof. Gheorghe Paun		
10:00–11:40	Computational Neuroscience II	Natural Computing II	Robotics I
	Coffee break		
12:00–13:40	ANNs I	Evolutive I	Vision I
14:00–	*Lunch*		
17:00–18:00	Posters session		

Wednesday June 20			
	Room A	Room B	Room C
09:00–10:00	Plenary Session III: Prof. Alvaro Pascual-Leone		
10:00–11:40	ANNs II	Robotics II	Vision II
	Coffee break		
12:00–13:40	Vision III	Agents	Robotics III
14:00–	*Lunch*		
16:00–20:00		*Meeting: "NBIC Technologies"*	
21:00–	*Official dinner*		

Thursday June 21			
09:00–10:20	ANNs III	Data Mining	Evolutive II
10:20–11:40	Bioinspired Applications II	Bioinspired Applications III	Bioinspired Applications IV
11:40	*Conference Closing*		

- Session: Plenary I   June, 18. 10:20–11:20 Room: A
  "Neural Networks and Quantum Neurology: Speculative Heuristic towards the Architecture of Psychism"   (I–1)
  Javier Monserrat Puchades

- Session: **Computational Neuroscience I**   June, 18. 11:40–13:40 Room: A
  Chair: Jose Manuel Ferrández
  Co-Chair: Andreas Schierwagen

    - "Brain Organization and Computation"   (I–31)
      Andreas Schierwagen
    - "Concepts and Models for the Future Generation of Emotional and Intelligent Systems"   (I–41)
      José Antonio Martín H., Javier de Lope
    - "Modeling Consciousness for Autonomous Robot Exploration"   (I–51)
      Raul Arrabales Moreno, Agapito Ledezma Espino, Araceli Sanchis de Miguel
    - "An Insect-Inspired Active Vision Approach for Orientation Estimation with Panoramic Images" (I–61)
      Wolfgang Stuerzl, Ralf Moeller
    - "A network of interneurons coupled by electrical synapses behaves as a coincidence detector" (I–81)
      Santi Chillemi, Michele Barbi, Angelo Di Garbo
    - "Functional Identification of Retinal Ganglion Cells based on Neural Population Responses" (I–113)
      María Paula Bonomini, Jose Manuel Ferrández, Eduardo Fernández

- Session: **Natural Computing I**   June, 18. 11:40–13:40 Room: B
  Chair: Gheorghe Paun
  Co-Chair: Claudio Zandron

    - "Solving Subset Sum in Linear Time by Using Tissue P Systems with Cell Division"   (I–170)
      Daniel Díaz Pernil, Miguel Angel Gutiérrez-Naranjo, Mario J. Pérez Jiménez, Agustín Riscos Núñez
    - "On a Paun's Conjecture in Membrane Systems"   (I–180)
      Giancarlo Mauri, Mario J. Pérez Jiménez, Claudio Zandron
    - "A Parallel DNA Algorithm Using a Microfluidic Device to Build Scheduling Grids"   (I–193)
      Marc García-Arnau, Daniel Manrique, Alfonso Rodriguez-Paton
    - "P System Models of Bistable, Enzyme Driven Chemical Reaction Networks"   (I–203)
      Stanley Dunn, Peter Stivers
    - "Morphisms of ANN and the Computation of Least Fixed Points of Semantic Operators"   (I–224)
      Anthony Karel Seda
    - "Grammar-guided neural architecture evolution"   (I–437)
      Jorge Couchet, Daniel Manrique, Luis Porras

- Session: Bioinspired Applications I   June, 18. 11:40–13:40 Room: C
  "Image Understanding"
  Organizer & Chair: Jesús Serrano
  Co-Chair: Juan Morales Sánchez

    - "Novel Strategies for the Optimal Registration of Biomedical Images"   (II–130)
      Jorge Larrey-Ruiz, Juan Morales Sánchez, Rafael Verdú-Monedero
    - "Characterization of artificial muscles by using image processing"   (II–142)
      Rafael Berenguer Vidal, Rafael Verdú-Monedero, Juan Morales Sánchez, Jorge Larrey-Ruiz
    - "Segmentation of sequences of stereoscopic images for modelling artificial muscles"   (II–152)
      Santiago González-Benitez, Rafael Verdú-Monedero, Rafael Berenguer Vidal, Pedro J. García-Laencina
    - "A Support Vector Method for Estimating Joint Density of Medical Images"   (II–162)
      Jesús Serrano, Pedro J. García-Laencina, Jorge Larrey-Ruiz, José Luis Sancho-Gómez
    - "Segmentation of moving objects with information feedback between description levels"   (II–171)
      Mariano Rincón Zamorano, Enrique J. Carmona Suárez, Margarita Bachiller Mayoral, Encarnación Folgado Zúñiga
    - "Normalising Brain PET Images"   (II–54)
      Elia Ferrando Julia, Daniel Ruiz Fernández, Antonio Soriano Payá

- Session: Plenary II   June, 19. 09:00–10:00 Room: A
  "Spiking Neural P Systems. Power and Efficiency"   (I–153)
  Gheorghe Paun

- Session: **Computational Neuroscience II**   June, 19. 10:00–11:40 Room: A
  Chair: Eduardo Fernández
  Co-Chair: Pedro Gómez Vilda

  - "A Bio-Inspired Architecture for Cognitive Audio"   (I–132)
    Pedro Gómez Vilda, Jose Manuel Ferrández, Victoria Rodellar, Agustin Alvarez Marquina, Luis Miguel Mazaira Fernandez

  - "An Adaptable Multichannel Architecture for Cortical Stimulation"   (I–143)
    Jose Manuel Ferrández, Enrique Liaño, María Paula Bonomini, Eduardo Fernández

  - "Theoretical Study on the Capacity of Associative Memory with Multiple Reference Points" (I–292)
    Enrique Merida-Casermeiro, Domingo López-Rodríguez, Gloria Galán-Marín, Juan M. Ortiz-de-Lazcano-Lobato

  - "ANF Stochastic Low Rate Stimulation"   (I–103)
    Ernesto A. Martínez Rams, Vicente Garceran Hernández

  - "Towards a Neural-Networks Based Therapy for Limbs Spasticity"   (I–124)
    Alexandre Moreira Nascimento, Diego Andina, Francisco Javier Ropero Peláez

- Session: **Natural Computing II**   June, 19. 10:00–11:40 Room: B
  Chair: Joost N. Kok
  Co-Chair: José Santos Reyes

  - "Gaining Insights into Laser Pulse Shaping by Evolution Strategies"   (I–467)
    Ofer M. Shir, Joost N. Kok, Thomas Bäck, Marc J. J. Vrakking

  - "Simulated Evolution of the Adaptability of the Genetic Code Using Genetic Algorithms" (I–478)
    Ángel Monteagudo, José Santos Reyes

  - "GCS with Real-Valued Input"   (I–488)
    Lukasz Cielecki, Olgierd Unold

  - "A Study on Genetic Algorithms for the DARP Problem"   (I–498)
    Claudio Cubillos, Broderick Crawford, Jose Nibaldo Rodriguez

  - "Fusion of Neural Gas"   (I–558)
    Sebastián Moreno, Héctor Allende, Rodrigo Salas, Carolina Saavedra

- Session: Robotics I   June, 19. 10:00–11:40 Room: C
  "Intelligent Robotic Systems"
  Organizer & Chair: Dario Maravall
  Co-Chair: Javier de Lope

  - "Combining the Best of the Two Worlds: Inheritance versus Experience. Evolutionary Knowledge-based Control and Q-learning To Solve Autonomous Robots Motion Control Problems" (II–337)
    Dario Maravall, Javier de Lope, José Antonio Martín H.

  - "Evolving Robot Behaviour at Micro (Molecular) and Macro (Molar) Action Level" (II–357)
    Michela Ponticorvo, Orazio Miglino

  - "Discretization of ISO-learning and ICO-learning to be included into reactive neural networks for a robotics simulator" (II–367)
    José Manuel Cuadra Troncoso, José Ramón Álvarez Sánchez, Félix de la Paz López

  - "Natural Interaction with a Robotic Head"   (I–71)
    Oscar Deniz Suarez, Modesto Castrillon Santana, Javier Lorenzo Navarro, Luis Anton-Canalis

  - "Feed-forward learning: fast reinforcement learning of controllers" (II–277)
    Marek Musial, Frank Lemke

- Session: **ANNs I** June, 19. 12:00–13:40 Room: A
  Chair: Jose Dorronsoro
  Co-Chair: Salvador España Boquera

  - "Predicting Human Immunodeficiency Virus (HIV) Drug Resistance using Recurrent Neural Networks" (I–234)
    Isis Bonet, María Matilde García Lorenzo, Yvan Saeys, Yves Van de Peer, Ricardo Grau

  - "Error weighting in artificial neural networks learning interpreted as a metaplasticity model" (I–244)
    Diego Andina, Aleksandar Jevtic, Alexis Marcano, José Miguel Barrón Adame

  - "Filtering Documents with an Hybrid Neural Network Model" (I–261)
    Guido Bologna, Mathieu Boretti, Paul Albuquerque

  - "Efficient BP Algorithms for General Feedforward Neural Networks" (I–327)
    Salvador España Boquera, Francisco Zamora Martínez, María José Castro Bleda, Jorge Gorbe Moya

  - "Coefficient Structure of Kernel Perceptrons and Support Vector Reduction" (I–337)
    Daniel García, Ana González, Jose Dorronsoro

- Session: Evolutive I June, 19. 12:00–13:40 Room: B
  "**Genetic Algorithms for Optimization and Constraint Satisfaction**"
  Organizer & Chair: Ramiro Varela Arias
  Co-Chair: Camino Rodríguez Vela

  - "A New Rough Set Reduct Algorithm Based on Particle Swarm Optimization" (I–397)
    Benxian Yue, Weihong Yao, Ajith Abraham, Hongfei Teng, Hongbo Liu

  - "Improving cutting-stock plans with multi-objective genetic algorithms" (I–528)
    César Muñoz, María Sierra Sánchez, Jorge Puente Peinador, Camino Rodríguez Vela, Ramiro Varela Arias

  - "Sensitivity Analysis for the Job Shop Problem with Uncertain Durations and Flexible Due Dates" (I–538)
    Inés González Rodríguez, Jorge Puente Peinador, Camino Rodríguez Vela

  - "Comparative Study of Meta-heuristics for Solving Flow Shop Scheduling Problem under Fuzziness" (I–548)
    Noelia González, Camino Rodríguez Vela, Inés González Rodríguez

  - "Evolutionary combining of basis function neural networks for classification" (I–447)
    César Hervás Martínez, Francisco José Martínez Estudillo, Mariano Carbonero Ruiz, Cristóbal Romero Morales, Juan Carlos Fernández Caballero

- Session: **Vision I** June, 19. 12:00–13:40 Room: C
  Chair: Antonio Fernández-Caballero
  Co-Chair: Alexandre Bur

  - "An Implementation of a General Purpose Attentional Mechanism for Artificial Organisms" (II–99)
    Juan Luis Crespo Mariño, Andrés Faíña Rodríguez-Vila, Richard Duro

  - "Towards a Semi-Automatic Situation Diagnosis System in Surveillance Tasks" (II–90)
    José Mira, Rafael Martínez Tomás, Mariano Rincón Zamorano, Margarita Bachiller Mayoral, Antonio Fernández-Caballero

  - "Optimal Cue Combination for Saliency Computation: A Comparison with Human Vision" (II–109)
    Alexandre Bur, Heinz Hügli

  - "The Underlying Formal Model of Algorithmic Lateral Inhibition in Motion Detection" (II–119)
    José Mira, Ana E. Delgado García, Antonio Fernández-Caballero, Maria Teresa López Bonal, Miguel A. Fernández

  - "A Computational Structure for Generalized Visual Space-Time Chromatic Processing" (I–90)
    David Freire-Obregón, Roberto Jr. Moreno-Diaz, Roberto Moreno-Diaz, Gabriel De Blasio-Garcia, Arminda Moreno Díaz

- Session: **Posters** June, 19. 17:00–18:00 Room: P
  Chair: Jose Manuel Ferrández
  Co-Chair: Ramón Ruiz Merino

  - "Physical Basis of Quantum Computation and Cryptography" (I–21)
    Manuel Calixto

  - "Physiological laws of sensory visual system in relation to scaling power laws in biological neural networks" (I–96)
    Isabel Gonzalo, Miguel A. Porras

  - "A Novel Improvement of Neural Network Classification Using Further Division of Partition Space" (I–214)
    Lin Wang, Bo Yang, Zhenxiang Chen, Ajith Abraham, Lizhi Peng

  - "A first approach to birth weight prediction using RBFNN's" (I–253)
    Alberto Guillén, Ignacio Rojas, Jesús González, Hector Pomares, Luis J. Herrera

  - "Classification and diagnosis of heart sounds and murmurs using artificial neural networks" (I–303)
    Juan Martínez-Alajarín, José López Candel, Ramón Ruiz Merino

  - "A Learning Based Widrow-Hoff Delta Algorithm for Noise Reduction in Biomedical Signals" (I–377)
    Jorge Mateo Sotos, César Sánchez Meléndez, Carlos Vayá Salort, Raquel Cervigon Abab, José Joaquín Rieta Ibáñez

  - "Hopfield Neural Network and Boltzmann Machine Applied to Hardware Resource Distribution on Chips" (I–387)
    Matilde Santos Peñas, F. Javier Sánchez Jurado

  - "Use of Kohonen Maps as Feature Selector for Selective Attention Brain-Computer Interfaces" (I–407)
    Miguel Angel López, Hector Pomares, Miguel Damas, Alberto Prieto, Eva María de la Plaza Hernández

  - "Nature-Inspired Congestion Control: Using a Realistic Predator-Prey Model" (I–416)
    Morteza Analoui, Shahram Jamali

  - "Non-linear Robust Identification: Application to a thermal process" (I–457)
    Juan M. Herrero Durá, Xavier Blasco, Miguel Martínez Iranzo, Jose Vicente Salcedo Romero

  - "Optimization of the compression parameters of a phonocardiographic telediagnosis system using genetic algorithms" (I–508)
    Juan Martínez-Alajarín, Francisco J. Garrigos Guerrero, Ramón Ruiz Merino

  - "Decision making graphical tool for multiobjective optimization problems" (I–568)
    Xavier Blasco, Juan M. Herrero Durá, Javier Sanchis, Miguel Martínez Iranzo

  - "High Performance Implementation of an FPGA-based Sequential DT-CNN" (II–1)
    Jose Javier Martinez Álvarez, Francisco J. Garrigos Guerrero, Javier Toledo Moreo, Jose Manuel Ferrández

  - "HANNA: A Tool for Hardware Prototyping and Benchmarking of ANNs" (II–10)
    Francisco J. Garrigos Guerrero, Jose Javier Martinez Álvarez, Javier Toledo Moreo, Jose Manuel Ferrández

  - "Improvement of ANNs performance to generate fitting surfaces for analog CMOS circuits" (II–19)
    José Ángel Díaz Madrid, Pedro Monsalve Campillo, Juan Hinojosa Jiménez, Victoria Rodellar, Ginés Doménech Asensi

  - "Improved Likelihood Ratio Test detector using a jointly gaussian probability distribution function" (II–37)
    O. Pernía, Juan Manuel Górriz, Javier Ramírez, Carlos G. Puntonet, I. Turias

  - "Performance monitoring of closed-loop controlled systems using dFasArt" (II–45)
    Jose-Manuel Cano-Izquierdo, Julio Ibarrola, Miguel Almonacid

  - "Automatic segmentation of single and multiple neoplastic hepatic lesions in CT images" (II–63)
    Marcin Ciecholewski, Marek Romuald Ogiela

  - "Biometric and Color Features Fusion for Face Detection and Tracking in" (II–72)
    Juan Zapata, Ramón Ruiz Merino

  - "Profitability Comparison Between Gas Turbines and Gas Engine in Biomass-based Power Plants using Binary Particle Swarm Optimization" (II–328)
    Pedro Reche López, Manuel Gómez González, Nicolás Ruiz Reyes, Francisco Jurado

- "Towards the Automatic Learning of Reflex Modulation for Mobile Robot Navigation" (II–347)
  Cipriano Galindo, Juan-Antonio Fernández-Madrigal, Javier González

- "Sharing Gaze Control in an Robotic System" (II–469)
  Jose Daniel Hernandez Sosa, Jorge Cabrera Gamez, Angel Naranjo Cabrera, Antonio Carlos Dominguez Brito, Jose Isern Gonzalez

- "Tackling the Error Correcting Code Problem via the Cooperation of Local-Search-Based Agents" (II–490)
  Jhon Edgar Amaya, Carlos Cotta, Antonio Fernández

- "The INGENIAS Methodology for Advanced Surveillance Systems Modelling" (II–541)
  José M. Gascueña, Antonio Fernández-Caballero

- "Application of Neural Networks to Atmospheric Pollutants Remote Sensing" (II–589)
  Esteban García Cuesta, Susana Briz, Isabel Fernandez-Gómez, Antonio J. de Castro

- "A preliminary neural model for movement direction recognition based on biologically plausible plasticity rules" (II–628)
  Eduardo Akira Kinto, Emílio Del Moral Hernandez, Alexis Marcano, Francisco Javier Ropero Peláez

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- Session: Plenary III   June, 20. 09:00–10:00 Room: A
  "**The metamodal organization of the brain**" -
  Alvaro Pascual-Leone

- Session: ANNs II   June, 20. 10:00–11:40 Room: A
  "**Learning with Multiple Tasks**"
  Organizer & Chair: Pedro J. García-Laencina
  Co-Chair: José Luis Sancho-Gómez

  - "A Single Layer Perceptron Approach to Selective Multi-Task Learning" (I–272)
    Jaisiel Madrid-Sanchez, Miguel Lazaro-Gredilla, Anibal R. Figueiras-Vidal

  - "Multi-Task Neural Networks for Dealing with Missing Inputs" (I–282)
    Pedro J. García-Laencina, Jesús Serrano, Anibal R. Figueiras-Vidal, José Luis Sancho-Gómez

  - "Requirements for Machine Lifelong Learning" (I–313)
    Daniel L. Silver, Ryan Poirier

  - "Multitask Learning with Data Editing" (I–320)
    Andrés Bueno-Crespo, Antonio Sánchez-García, Juan Morales Sánchez, José Luis Sancho-Gómez

  - "The Max-Relevance and Min-Redundancy Greedy Bayesian Network Learning Algorithm" (I–346)
    Feng Liu, QiLiang Zhu

- Session: Robotics II   June, 20. 10:00–11:40 Room: B
  "**Robotics and Neuroscience**"
  Organizer & Chair: Emilia I. Barakova
  Co-Chair: Eris Chinellato

  - "Social interaction in robotic agents emulating the mirror neuron function" (II–389)
    Emilia I. Barakova

  - "Integration of stereoscopic and perspective cues for slant estimation in natural and artificial systems" (II–399)
    Eris Chinellato, Angel P. del Pobil

  - "An approach to visual scenes matching with curvilinear regions" (II–409)
    José Manuel Pérez-Lorenzo, Antonio Bandera, Pedro Reche López, Rebeca Marfil, Ricardo Vázquez-Martín

  - "Towards Automatic Camera Calibration under Changing Lighting Conditions through Fuzzy Rules" (II–379)
    Mercedes Valdés-Vela, David Herrero-Pérez, Humberto Martínez-Barberá

  - "The Coevolution of Robot Behavior and Central Action Selection" (II–439)
    Fernando M. Montes-Gonzalez

- Session: Vision II June, 20. 10:00–11:40 Room: C
  "**Extending perception systems using Context-Based Information**"
  Organizer & Chair: Miguel Angel Patricio Guisado
  Co-Chair: José Manuel Molina López

  - "Complex Permittivity Estimation by Bio-Inspired Algorithms for Target Identification Improvement"
    (II–232)
    David Poyatos, David Escot, Ignacio Montiel, Ignacio Olmeda Martos

  - "Context Information for Human Behavior Analysis and Prediction" (II–241)
    Julio Calvo, Miguel Angel Patricio Guisado, Carlos Cuvillo, Luis Usero

  - "Road Sign Analysis Using Multisensory Data" (II–251)
    Roberto Javier López Sastre, Sergio Lafuente-Arroyo, Pedro Gil Jiménez, Philip Siegmann, Saturnino Maldonado-Bascón

  - "Video Tracking Association Problem using Estimation of Distribution Algorithms in Complex Scenes"
    (II–261)
    Miguel Angel Patricio Guisado, Jesús García Herrero, Antonio Berlanga de Jesús, José Manuel Molina López

  - "Context Information For Understanding Forest Fire Using Evolutionary Computation" (II–271)
    Luis Usero, Angel Arroyo, Julio Calvo

- Session: Vision III June, 20. 12:00–13:40 Room: A
  "**Video interpretation based surveillance**"
  Organizer & Chair: Mariano Rincón Zamorano
  Co-Chair: Rafael Martínez Tomás

  - "Knowledge-based Road Traffic Monitoring" (II–182)
    Antonio Fernández-Caballero, Francisco J. Gómez, Juan López-López

  - "Comparison of Classifiers for Human Activity" (II–192)
    Óscar Pérez Concha, Massimo Piccardi, Jesús García Herrero, José Manuel Molina López

  - "A multi-robot surveillance system simulated in Gazebo" (II–202)
    Encarnación Folgado Zúñiga, Mariano Rincón Zamorano, José Ramón Álvarez Sánchez, José Mira

  - "Context data to improve association in visual tracking systems" (II–212)
    Ana María Sánchez, Miguel Angel Patricio Guisado, Jesús García Herrero, José Manuel Molina López

  - "Automatic Control of Video Surveillance Camera Sabotage" (II–222)
    Pedro Gil Jiménez, Roberto Javier López Sastre, Philip Siegmann, Javier Acevedo Rodriguez, Saturnino Maldonado-Bascón

- Session: **Agents** June, 20. 12:00–13:40 Room: B
  Chair: Joost Broekens
  Co-Chair: Marina V. Sokolova

  - "Strategies for Affect-Controlled Action-Selection in Soar-RL" (II–501)
    Eric Hogewoning, Joost Broekens, Jeroen Eggermont, Ernst G.P. Bovenkamp

  - "An Agent-based Decision Support System for Ecological-Medical Situation Analysis" (II–511)
    Marina V. Sokolova, Antonio Fernández-Caballero

  - "A Meta-Ontological Framework for Multi-agent Systems Design" (II–521)
    Marina V. Sokolova, Antonio Fernández-Caballero

  - "Design of an Agent-based System for Passenger Transportation using PASSI" (II–531)
    Claudio Cubillos, Sandra Gaete

  - "On Affect and Self-Adaptation: Potential Benefits of Valence-Controlled Action-Selection" (I–357)
    Joost Broekens, Walter A. Kosters, Fons J. Verbeek

- Session: **Robotics III**   June, 20. 12:00–13:40 Room: C
  Chair: Massimo De Gregorio
  Co-Chair: Rafael Toledo-Moreo

    – "WiSARD and NSP for robot global localization"   (II–449)
      Massimo De Gregorio, Paolo Coraggio

    – "Design and Implementation of an Adaptive Neuro-controller for Trajectory Tracking of Nonholo-
      nomic Wheeled Mobile Robot"   (II–459)
      Francisco García-Córdova, Antonio Guerrero-González, Fulgencio Marín-García

    – "An AER-based Actuator Interface for controlling an Anthropomorphic Robotic Hand"   (II–479)
      Alejandro Linares-Barranco, Angel Jimenez-Fernandez, R. Paz, Sergio Varona, G. Jimenez

    – "Supervised dFasArt: a Neuro-Fuzzy Dynamic Architecture for Maneuver Detection in Road Vehicle
      Collision Avoidance Support Systems"   (II–419)
      Rafael Toledo-Moreo, Miguel Pinzolas, Jose-Manuel Cano-Izquierdo

    – "Neuro-Fuzzy based Maneuver Detection for Collision Avoidance in Road Vehicles"   (II–429)
      Miguel Ángel Zamora-Izquierdo, Rafael Toledo-Moreo, Mercedes Valdés-Vela, David Gil-Galván

- Session: **ANNs III**   June, 21. 09:00–10:20 Room: A
  Chair: Paola Baldassarri
  Co-Chair: Diego Andina

    – "Detecting Anomalous Traffic using Statistical Discriminator and Neural Decisional Motor"   (I–367)
      Paola Baldassarri, Anna Montesanto, Paolo Puliti

    – "Neural Networks to Predict Schooling Failure / Success"   (II–571)
      María Angélica Pinninghoff Junemann, Pedro Antonio Salcedo Lagos, Ricardo Contreras Arriagada

    – "Air Pollutant Level Estimation Applying a Self-organizing Neural Network"   (II–599)
      *José Miguel Barrón Adame, Jesus Antonio Herrera Delgado, María Guadalupe Cortina Januchs,
      Diego Andina, Antonio Vega-Corona*

    – "Classification of Biomedical Signals using a Haar 4 Wavelet Transform and a Hamming Neural
      Network"   (II–637)
      Orlando José Arévalo Acosta, Matilde Santos Peñas

- Session: **Data Mining**   June, 21. 09:00–10:20 Room: B
  Chair: Roque Marín
  Co-Chair: Philip Hoelgaard

    – "A Possibilistic Approach for Mining Uncertain Temporal Relations from Diagnostic Evolution Databases"
                                                                              (I–597)
      Francisco Guil-Reyes, Jose M. Juarez, Roque Marín

    – "Temporal abstraction of states through fuzzy temporal constraint neworks"   (I–607)
      Manuel Campos, Jose M. Juarez, José Salort, José T. Palma Méndez, Roque Marín

    – "An Adaptive Michigan Approach PSO for Nearest Prototype Classification"   (II–287)
      Alejandro Cervantes, Inés Galván, Pedro Isasi

    – "Behavioural Modelling by Clustering based on Utility Measures"   (II–297)
      Philip Hoelgaard, Angel Valle, Fernando Corbacho

- Session: **Evolutive II** June, 21. 09:00–10:20 Room: C
  Chair: Richard Duro
  Co-Chair: Alejandro Diaz-Morcillo

  - "Evolutionary Tool for the Incremental Design of Controllers for Collective Behaviors" (I–587)
    Pilar Caamaño, Abraham Prieto, Jose Antonio Becerra Permuy, Richard Duro, Francisco Bellas

  - "Electromagnetic Interference Reduction in Electronic Systems Cabinets by Means of Genetic Algorithms Design" (I–578)
    Antonio Lozano-Guerrero, Alejandro Diaz-Morcillo, Juan Vicente Balbastre-Tejedor

  - "Application of Genetic Algorithms for Microwave Oven Design: Power Efficiency Optimization" (II–580)
    Juan Monzo-Cabrera, Alejandro Diaz-Morcillo, Elsa Dominguez-Tortajada, Antonio Lozano-Guerrero

  - "Application of Genetic Algorithms in the Determination of Dielectric Properties of Materials at Microwave Frequencies" (II–608)
    Alejandro Diaz-Morcillo, Juan Monzo-Cabrera, Maria E. Requena-Perez, Antonio Lozano-Guerrero

- Session: **Bioinspired Applications II** June, 21. 10:20–11:40 Room: A
  Chair: Broderick Crawford
  Co-Chair: Jose A. Gámez

  - "EDNA: Estimation of Dependency Networks Algorithm" (I–427)
    Jose A. Gámez, Juan L. Mateo, Jose M. Puerta

  - "An integrated resolution of joint production and maintenance scheduling problem in hybrid flowshop" (I–518)
    Fatima Benbouzid-Sitayeb, Mourad Tirchi, Abid Mahloul

  - "Two-Stage Ant Colony Optimization for solving the Traveling Salesman Problem" (II–307)
    Amilkar Puris, Rafael Bello, Yailen Martínez, Ann Nowe

  - "Solving Dial-a-ride Problems with a Low-level Hybridization of Ants and Constraint Programming" (II–317)
    Broderick Crawford, Carlos Castro, Eric Monfroy

- Session: **Bioinspired Applications III** June, 21. 10:20–11:40 Room: B
  Chair: Francisco Guil-Reyes
  Co-Chair: Denysde Medina

  - "Propos: A Dynamic Web Tool For Managing Possibilistic and Probabilistic Temporal Constraint Networks" (II–551)
    Francisco Guil-Reyes, Ivan Gomez-Sanchez, Jose M. Juarez, Roque Marín

  - "Putting Artificial Intelligence Techniques into a Concept Map to build Educational Tools" (II–617)
    Denysde Medina, Natalia Martinez, Zoila Zenaida García Valdivia, María del Carmen Chavez, María Matilde García Lorenzo

  - "BIRD: Biomedical Information Integration and Discovery with Semantic Web Services" (II–561)
    Juan Miguel Gomez, Mariano Rico, Francisco García-Sánchez, Ying Liu, Marília Terra de Mello

- Session: **Bioinspired Applications IV** June, 21. 10:20–11:40 Room: C
  Chair: Guido Bologna
  Co-Chair: Ángel Sánchez Calle

  - "Spieldose: An Interactive Genetic Software for Assisting to Music Composition Tasks" (I–617)
    Ángel Sánchez Calle, Juan José Pantrigo, Jesús Virseda, María Gabriela Pérez

  - "Wavelet network for nonlinearities reduction in multicarrier systems" (II–28)
    Jose Nibaldo Rodriguez, Claudio Cubillos, Orlando Duran

  - "Identifying Major Components of Pictures by Audio Encoding of Colours" (II–81)
    Guido Bologna, Benoît Deville, Thierry Pun, Michel Vinckenbosch

Social Program

June 18, Monday

18:30-20:30 h. Sightseeing Tour.

20:30-21:30 h. Cartagena Town Council Welcome Reception.

21:30 h. - Reception Cocktail at "Patio del Hospital de Marina de la Universidad Politécnica de Cartagena" (casual wear).

June 20, Wednesday

21:00 h. - Official Conference Dinner (casual wear).

Internet connection

During the conference there will be wireless access (802.11b/802.11g compatible) to Internet available inside and near the conference rooms, and also some wired connections in a specific place.

Registration Fees

The registration form must be fulfilled with the Conference Technical Secretariat (ESOC, please, see the address in the next page) at your earliest convenience. The form must be accompanied by the payment in Euros. No registration will be considered until the payment is received.

Registrations fees	Before April 30 th	After April 30 th
Standard (*)	450 €	550 €
Session Organizer (*)	350 €	450 €
Accompanying Person (**)	250 €	250 €

(*) Includes coffee breaks, meals, social events (welcome reception cocktail and official dinner), and the "Lecture Notes in Computer Science" books of the work-conference proceedings.

(**) Includes meals, social events (welcome reception cocktail and official dinner).

General Information

Congress venue

HOTEL SOL GALÚA ★★★★
    Hacienda Dos Mares
    La Manga del Mar Menor
    E-30380 Murcia (Spain)
    Tel: (+34) 968-563-200
    Fax: (+34) 968-140-630
    Email: sol.galua@solmelia.com
http://www.solgalua.solmelia.com

Technical Secretariat of the Conference

Please, contact the Technical Secretariat for any information or details about registration, accommodation, travels, etc.

    ESOC, s.l.
    Poeta Vila y Blanco, 8 - 1º
    E-03003 Alicante (Spain)
    Phone: (+34) 965-22-99-40
    Fax: (+34) 965-92-23-46
    E-mail: info@esoc.es, or iwinac@grupoesoc.es

Since 9:00 h. June 18, and during the Conference, the Secretariat will maintain a desk at the congress venue. Previous registration will be necessary to attend the Conference (`http://www.iwinac.uned.es/iwinac2007/registration.html`).

<div align="center">Contact URL `http://www.iwinac.uned.es/iwinac2007/`</div>

Travel Information

There are two airports near La Manga del Mar Menor.

- The nearest airport is Murcia-San Javier (international code "MJV") with some flights from Europe, it is 42 Km. far away from the Hotel. Taxi rates from San Javier airport to La Manga are around 45 euros.

- The other airport is Alicante (international code "ALC") with more international flights, but that is 127 Km. far away from La Manga by motorway (some parts have a toll). From Alicante airport, a taxi to La Manga may cost 80 euros more or less.

There will be available a coach from Murcia-San Javier and Alicante airports to the Hotel Sol-Galúa in La Manga on the 17th and back to the airports on the 22nd. If you are interested in using this service, please contact ESOC by email `iwinac@grupoesoc.es` sending your flight details and asking for rates.

Also, it is possible to go to Cartagena by train from Madrid or Barcelona, and then take a bus (the bus station is near the railway station) to arrive La Manga del Mar Menor.

Please, contact our Technical Secretariat (ESOC) for a more detailed information on travel and accommodation.

Language

English will be the official language of IWINAC2007. Simultaneous translation will *not* be provided.

Climate

La Manga del Mar Menor is located at about 37.66°N, 0.72°W. It is a very narrow stripe of land just between Mar Menor (very salty water lake) and the Mediterranean Sea. The climate in La Manga is sunny and warm, with some wind. The temperature in June can vary from more than 28°C daily to 19°C nightly with an average temperature of 23°C.

Banks

Business is transacted from 09:00 to 14:00 h. Monday to Friday. Money can be changed outside normal banking hours at Hotels, Travel Agencies and other business, displaying a "*Cambio/Change*" sign. Take your Passport or Identity Card with you when changing travellers checks.

Currency

The monetary unit in Spain is the *EURO*. Coins: 1, 2, 5, 10, 20 and 50 cents; 1 and 2 Eur. Banknotes: 5, 10, 20, 50, 100, 200 and 500 Euros. All international Credit Cards (Visa, American Express, Master Card, Eurocard, Diners Club, etc.) are widely accepted by Hotels, Restaurants and Shops.

Tipping

Since the service charge is normally included in restaurant, hotel and taxi bills, tipping is optional.

Electricity

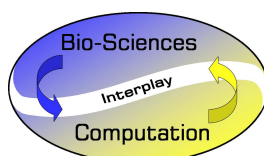Electric supply is AC 220 V. / 50 Hz. Standard continental two round pin plugs for appliances.

Assistance and insurance

Participants are advised to make their own arrangements regarding travel insurance and medical assistance during the Conference. Neither the Organization nor the Conference Secretariat is able to accept any responsibility whatsoever for damage or injury to persons or their belongings during the Conference.

Additional information

You can find more information (maps, addresses, etc.) through the web pages:

- Touristic information about La Manga del Mar Menor:
  http://www.marmenor.net/
  http://lamangawind.com/home.html

- Town Council of Cartagena
  http://www.cartagena.es/ (in Spanish)

- Town Council of San Javier
  http://turismosanjavier.net/ (in Spanish)

IWINAC2007

Universidad Nacional de Educación a Distancia (UNED)

Universidad Politécnica
de Cartagena

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de Murcia

Ministerio de Educación y Ciencia

Fundación Séneca

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Congress Venue:
Hotel Sol Galúa (La Manga del Mar Menor, Murcia, Spain)
June 18–21, 2007
http://www.iwinac.uned.es/iwinac2007/