

IWINAC2019

8th INTERNATIONAL WORK-CONFERENCE
ON THE INTERPLAY BETWEEN NATURAL
AND ARTIFICIAL COMPUTATION

FULL PROGRAM

Almería, Spain.

June 3–7, 2019

Organized by

Universidad Nacional de Educación a Distancia (UNED)

Universidad Politécnica de Cartagena



<http://www.iwinac.org/iwinac2019/>

Contents

Acknowledgements	3
Scope	3
Conference Organization	4
Program Outline	8
Detailed Sessions Program	10
Other Technical Sessions	19
Social Program	19
Registration Fees	20
Technical Secretariat	20
General Information and Congress Venue	21

Acknowledgments

IWINAC2019 still owes too much to our friend Prof. Mira. As a pioneer in the field of Cybernetics, he enthusiastically promoted and organized the first editions of these interdisciplinary meetings. We still miss him and we want to dedicate IWINAC2019 in memoriam to Prof. Mira.

IWINAC2019 has been organized by Universidad Nacional de Educación a Distancia (UNED) and Universidad Politécnica de Cartagena (UPCT) in cooperation with Universidad de Granada, Universidad de Almería and UNED-Almería Associated Center.

We acknowledge the sponsorship and/or technical and logistic support from:

- Spanish Ministerio de Ciencia, Innovación y Universidades.
Red Nacional en Computación Natural y Artificial (TIN2016-82011-REDT).
- Universidad Nacional de Educación a Distancia.
- Universidad Politécnica de Cartagena.
- Universidad de Granada.
- Universidad de Almería
- Ayuntamiento de Almería.
- UNED-Almería Associated Center.
- Fundación Séneca – Agencia de Ciencia y Tecnología de la Región de Murcia.
- Apliquem Microones 21, s.l.

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 in both directions, from Computation to Sciences of Natural, and vice versa, 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.

Conference Organization

General Chair

JOSÉ MANUEL FERRÁNDEZ VICENTE *Univ. Politécnica de Cartagena (Spain)*

Organizing Committee

JOSÉ RAMÓN ÁLVAREZ-SÁNCHEZ *Univ. Nacional de Educación a Distancia (Spain)*

FÉLIX DE LA PAZ LÓPEZ *Univ. Nacional de Educación a Distancia (Spain)*

FCO. JAVIER TOLEDO MOREO *Univ. Politécnica de Cartagena (Spain)*

Honorary Chairs

HOJJAT ADELI *Ohio State University (USA)*

CHANGJIU ZHOU *Singapore Polytechnic (Singapore)*

RODOLFO LLINÁS *New York University (USA)*

Local Organizing Committee

JUAN MANUEL GÓRRIZ SÁEZ *Univ. de Granada (Spain)*

MANUEL CANTÓN GARBÍN *Univ. de Almería (Spain)*

MANUEL BERENGUEL SORIA *Univ. de Almería (Spain)*

JAVIER RAMÍREZ PÉREZ DE INESTROSA *Univ. de Granada (Spain)*

ANDRÉS ORTIZ GARCÍA *Univ. de Málaga (Spain)*

FRANCISCO JESÚS MARTÍNEZ MURCIA *Univ. de Granada (Spain)*

DIEGO SALAS GONZÁLEZ *Univ. de Granada (Spain)*

IGNACIO ÁLVAREZ ILLÁN *Univ. de Granada (Spain)*

FERMÍN SEGOVIA ROMÁN *Univ. de Granada (Spain)*

DIEGO CASTILLO BARNÉS *Univ. de Granada (Spain)*

Invited Speakers

HOJJAT ADELI
FRANCISCO HERRERA
JOHN SUCKLING
HIROAKI WAGATSUMA

Ohio State University (USA)
Universidad de Granada (Spain)
University of Cambridge (UK)
Kyushu Institute of Technology (Japan)

Field Editors

Jose Santos Reyes, Spain
Ramiro Varela Arias, Spain
Arturo Martínez-Rodrigo, Spain
Antonio Fernández-Caballero, Spain
Jose García-Rodríguez, Spain
Enrique Domínguez, Spain
David Tomás, Spain
Rafael Verdú Monedero, Spain
José Luis Sancho Gómez, Spain
Jaime Oswaldo Salvador Meneses, Ecuador
Zoila Ruiz, Ecuador
Javier de Lope Asiain, Spain
Manuel Graña, Spain
Alfredo Cuesta Infante, Spain
Juan José Pantrigo, Spain
Antonio S. Montemayor, Spain
Juan Manuel Górriz Sáez, Spain
Javier Ramirez Pérez de Inestrosa, Spain

International Scientific Committee

Ajith Abraham, Norway
Michael Affenzeller, Austria
Peter Ahnelt, Austria
Boris Almonacid, Chile
Amparo Alonso Betanzos, Spain
Antonio Anaya, Spain
Diego Andina, Spain
Davide Anguita, Italy
Manuel Arias Calleja, Spain
Jose Luis Aznarte Mellado, Spain
José M. Azorín, Spain
Jorge Azorin Lopez, Spain
Margarita Bachiller Mayoral, Spain
Antonio Bahamonde, Spain
Emilia I. Barakova, The Netherlands
Alvaro Barreiro, Spain
Senén Barro Ameneiro, Spain
María Consuelo Bastida Jumilla, Spain
Francisco Bellas, Spain
Rafael Berenguer Vidal, Spain
Guido Bologna, Italy
Maria Bonomini, Argentina
Juan Carlos Burguillo Rial, Spain
Enrique J. Carmona Suarez, Spain
Juan Castellanos, Spain
German Castellanos Dominguez, Colombia
José Carlos Castillo, Spain
Miguel Cazorla, Spain
Joaquin Cerdá Boluda, Spain
Alexander Cerquera, USA
Santi Chillemi, Italy
Carlos Colodro Conde, Spain
Ricardo Contreras, Chile
Carlos Cotta, Spain
José Manuel Cuadra Troncoso, Spain
Adriana Dapena, Spain
Angel P. del Pobil, Spain
Ana E. Delgado García, Spain
Jose Dorronsoro, Spain
Richard Duro, Spain
Patrizia Fattori, Italy
Paulo Félix Lamas, Spain
Eduardo Fernandez, Spain
Manuel Fernández Delgado, Spain
Miguel A. Fernandez Graciani, Spain
Jose Luis Fernández Vindel, Spain
Cipriano Galindo, Spain
Vicente Garceran Hernandez, Spain
Francisco Javier Garrigos Guerrero, Spain
Elena Gaudioso, Spain
Pedro Gomez Vilda, Spain
Pascual González, Spain
Francisco Guil Reyes, Spain
Juan Carlos Herrero, Spain
Cesar Hervas Martinez, Spain
Tom Heskes, The Netherlands
Eduardo Iáñez, Spain
Roberto Iglesias, Spain
Fernando Jimenez Barrionuevo, Spain
Jose M. Juarez, Spain
Joost N. Kok, The Netherlands
Elka Korutcheva, Spain
Ryo Kurazume, Japan
Jorge Larrey Ruiz, Spain
Jerome Leboeuf, Mexico
Álvar-Ginés Legaz Aparicio, Spain
Emilio Leton Molina, Spain
Maria Teresa Lopez Bonal, Spain
Mguel Angel Lopez Gordo, Spain
Tino Lourens, The Netherlands
Manuel Luque, Spain
Saturnino Maldonado, Spain
Ángeles Manjarrés, Spain
Dario Maravall, Spain
Jose Javier Martinez Alvarez, Spain
Antonio Martínez Álvarez, Spain
Rosa-María Menchón Lara, Spain
Sergio Miguel Tomé, Spain
Jesus Minguillon, Spain
Victor Mitrana, Spain
Jose Maria Molina Garcia Pardo, Spain
Jose Manuel Molina Lopez, Spain
Juan Morales Sanchez, Spain
Ana Belen Moreno Diaz, Spain

Roberto Moreno Diaz, Spain
Elena Navarro, Spain
Pablo Padilla, Spain
Jose T. Palma Mendez, Spain
Miguel Angel Patricio Guisado, Spain
Francisco Peláez, Brazil
Francisco Pelayo, Spain
Mario J. Perez Jimenez, Spain
Maria Pinninghoff, Chile
Blanca Priego , Spain
Carlos Puntonet, Spain
Alexis Quesada Arencibia, Spain
Andonie Razvan, USA
José C. Riquelme, Spain
Victoria Rodellar, Spain
Miguel Rodriguez Artacho, Spain
Jesus Rodriguez Presedo, Spain
Daniel Ruiz, Spain
Ramon Ruiz Merino, Spain
Jose M Sabater Navarro, Spain

Pedro Salcedo Lagos, Chile
Angel Sanchez, Spain
Eduardo Sánchez Vila, Spain
Olga C. Santos, Spain
Ricardo Sanz, Spain
Antonio Sanz, Spain
Luis Sarro, Spain
Guido Sciavicco, Italy
Amari Shun-ichi, Japan
Juan A. Sigüenza, Spain
Jordi Solé i Casals, Spain
Maria Jesus Taboada, Spain
Antonio J. Tallón Ballesteros, Spain
Rafael Toledo Moreo, Spain
Jan Treur, The Netherlands
Daniel Varela, Spain
Hujun Yin, UK
Juan Zapata, Spain
Changjiu Zhou, Singapore

PROGRAM OUTLINE

Monday June 3	
morning	<i>Free time</i>
17:00–20:00	<i>Registration at Technical Secretariat desk</i>

Tuesday June 4			
09:00–10:00	<i>Opening Ceremony</i>		
10:00–11:00	<i>Plenary Session I: Prof. Hojjat Adeli</i>		
11:00–11:30	<i>Coffee break</i>		
	Room A:	Room B:	Room C:
11:30–13:50	<i>MaLeNe-I</i>	<i>AC-SA-I</i>	<i>DeepLearn</i>
14:00–	<i>Lunch</i>		
16:00–17:20	<i>MaLeNe-II</i>	<i>AC-SA-II</i>	
	<i>Free time</i>		
21:00–	<i>Welcome reception and cocktail</i>		

Please, see detailed session contents and social events in pages [10](#) through [19](#).

PROGRAM OUTLINE

Wednesday June 5			
09:00–10:00	<i>Plenary Session II: Prof. Francisco Herrera</i>		
10:00–11:00	<i>Plenary Session III: Prof. John Suckling</i>		
11:00–11:30	<i>Coffee break</i>		
11:30–13:50	Room A:	Room B:	Room C:
	<i>IBCSCNSA</i>	<i>MLBDAPV</i>	<i>BioInsp. Eng. I</i>
14:00–	<i>Lunch</i>		
16:00–17:00	<i>Posters</i>		
17:00–18:00	<i>RTNAC members meeting</i>		
	<i>Free time</i>		
19:00–21:00	<i>Sightseeing excursion</i>		
21:00–	<i>Official Dinner</i>		

Thursday June 6			
09:00–10:00	<i>Plenary Session IV: Prof. Hiroaki Wagatsuma</i>		
	Room A:	Room B:	Room C:
10:00–11:00	<i>BioInsp. Eng. II</i>	<i>Robotics</i>	<i>BioInsp. Eng. III</i>
11:00–11:30	<i>Coffee break</i>		
11:30–13:30	<i>BICA</i>	<i>BMIDUA</i>	<i>Comp. Neuroscience</i>
13:30–13:40	<i>Closing Ceremony</i>		
afternoon	<i>Free time</i>		

Friday June 7	
09:00–13:00	<i>Reserved only for special working groups meetings</i>
afternoon	<i>Free time</i>

Please, see detailed session contents and social events in pages [10](#) through [19](#).

- Session: Plenary I June, 4. 10:00–11:00 Room: A
“Invited speaker Prof. Hojjat Adeli”
- Session: MaLeNe-I June, 4. 11:30–13:50 Room: A
“Special Workshop on Machine Learning in Neuroscience (MALENE) I”
 Organizer & Chair: Juan M. Górriz
 Co-Chair: Francisco Martínez Murcia or Fermín Segovia
 - “Automating Autoencoder Architecture Configuration: an Evolutionary Approach” *Francisco Charte, Antonio J Rivera, Francisco Martínez, María J del Jesus*
 - “Periodogram Connectivity of EEG Signals for the Detection of Dyslexia” *Francisco Jesus Martínez-Murcia, Andres Ortiz García, Roberto Morales-Ortega, Pedro Javier López-Pérez, Juan Luis Luque, Diego Castillo-Barnes, Fermín Segovia, Ignacio Alvarez Illan, Julio Ortega, Javier Ramirez, Juan M Gorriz*
 - “Isosurface modelling of DatSCAN images for Parkinson Disease diagnosis” *Andres Ortiz García, Diego Salas-Gonzalez, Juan M Gorriz, Javier Ramirez, Manuel Martínez, Jorge Munilla*
 - “An anomaly detection approach for Dyslexia diagnosis using EEG signals” *Andres Ortiz García, Pedro Javier López, Juan Luis Luque, Francisco Jesus Martínez-Murcia, Diego Ariel Aquino Britez, Julio Ortega*
 - “Comparison between affine and non-affine transformations applied to I[123]-FP-CIT SPECT images used for Parkinson’s Disease diagnosis” *Diego Castillo-Barnes, Francisco Jesus Martínez-Murcia, Fermín Segovia, Ignacio Alvarez Illan, Diego Salas-Gonzalez, Juan M Gorriz, Javier Ramirez*
 - “Deep learning on brain images in autism: what do large samples reveal of its complexity?” *Matthew Leming, John Suckling*
- Session: AC-SA-I June, 4. 11:30–13:50 Room: B
“Affective Computing and Sentiment Analysis I”
 Organizer & Chair: Arturo Martínez-Rodrigo
 Co-Chair: Antonio Fernández-Caballero
 - “Assessing an Application of Spontaneous Stressed Speech - Emotions Portal” *Daniel Palacios-Alonso, Andrés Gómez-Rodellar, Víctor Nieto-Lluis, Victoria Rodellar, Pedro Gomez Vilda, Carlos Lázaro-Carrascosa, Agustín López-Arribas, Guillermo Meléndez-Morales, Andrés Loro-Álavez, Athanasios Tsanas*
 - “Empowering UX of elderly people with Parkinson’s Disease via BCI Touch” *Gómez López, Francisco Montero, Maria Teresa Lopez Bonal*
 - “Advanced Trajectory Generator for Two Carts with RGB-D Sensor on Circular Rail” *Antonio Fernández-Caballero, Rafael Morales, Ramón Panduro, Eva Segura, Lidia Belmonte, Paulo Novais, Jesús Benet*

- “On the use of lateralization for lightweight and accurate methodology for EEG real time emotion estimation using Gaussian-Process classifier”
Mikel Val-Calvo, Jose Ramon Alvarez-Sanchez, Alejandro Díaz, Jose Manuel Ferrandez, Eduardo Fernandez
- “Stress Identification from Electrodermal Activity by Support Vector Machines”
Arturo Martinez-Rodrigo, Antonio Fernández-Caballero, Roberto Sánchez-Reolid
- “Trajectory Planning of a Quadrotor to Monitor Dependent People”
Lidia Belmonte, Rafael Morales, Eva Segura, Paulo Novais, Antonio Fernández-Caballero, Arturo S. García
- “Development and Validation of Basic Virtual Human Facial Emotion Expressions”
Arturo S. García, Antonio Fernández-Caballero, Miguel Á. Vicente-Querol, Patricia Fernández-Sotos, Roberto Rodriguez-Jimenez

• Session: DeepLearn June, 4. 11:30–13:50 Room: C
“Deep Learning”

Organizer & Chair: Alfredo Cuesta

Co-Chair: Juan J. Pantrigo or Antonio S. Montemayor

- “Artificial Semantic Memory with Autonomous Learning applied to Social Robots”
Francisco Martin Rico, Miguel Cazorla, Francisco Gomez Donoso, Felix Escalona, Jose Garcia Rodriguez
- “A Showcase of the Use of Autoencoders in Feature Learning Applications”
David Charte, Francisco Charte, María J del Jesus, Francisco Herrera
- “Automatic Image-Based Waste Classification”
Victoria Ruiz, Angel Sanchez, Jose Velez, Bogdan Raducanu
- “Propositional Rules Generated at the Top Layers of a CNN”
Guido Bologna
- “Deep ordinal classification based on the proportional odds model”
Víctor Manuel Vargas Yun, Pedro Antonio Gutierrez, Cesar Hervas Martínez
- “Data preprocessing for automatic WMH segmentation with FCNNs”
Pablo Duque, Ester Jimenez, José Manuel Cuadra Troncoso, Mariano Rincon Zamorano
- “FER in Primary School Children for Affective Robot Tutors”
Luis-Eduardo Imbernón, Ángeles Manjarrés, Félix de la Paz López

- Session: MaLeNe-II June, 4. 16:00–17:20 Room: A
“Special Workshop on Machine Learning in Neuroscience (MALENE) II”
 Organizer & Chair: Javier Ramírez
 Co-Chair: Andrés Ortiz

- “Multivariate pattern analysis of electroencephalography data in a Demand-Selection Task”
David López-García, Juan M Gorriz, Alberto Sobrado, Jose María González Peñalver, María Ruz
- “Support vector machine failure in imbalanced datasets”
Ignacio Alvarez Illan, Juan M Gorriz, Javier Ramirez, Francisco Jesus Martínez-Murcia, Diego Castillo-Barnes, Fermin Segovia, Diego Salas-Gonzalez
- “Machine Learning Methods for Environmental-EnrichmentRelated Variations in Behavioral Responses of laboratory Rats”
Karmele Ipina, Cristina Requejo, Hodei Cepeda, Elsa Fernandez de Segura, Pilar Maria Calvo, Jose Vicente Lafuente

- Session: AC-SA-II June, 4. 16:00–17:20 Room: B
“Affective Computing and Sentiment Analysis II”
 Organizer & Chair: Arturo Martínez-Rodrigo
 Co-Chair: Antonio Fernández-Caballero

- “Brushstrokes of the emotional brain: cortical asymmetries for valence dimension”
Jennifer Sorinas, José Manuel Ferrandez, Eduardo Fernandez
- “Multiple-instance lasso regularization via embedded instance selection for emotion recognition”
Julian Camilo Caicedo Acosta, David Cárdenas-Peña, Diego Fabian Collazos-Huertas, Jorge Ivan Padilla Buritica, German Castellanos-Dominguez, Germán Castaño-Duque
- “Emotion Detection in Aging Adults Through Continuous Monitoring of Electro-Dermal Activity and Heart-Rate Variability”
Arturo Martinez-Rodrigo, Jose Moncho-Bogani, Antonio Fernández-Caballero, José Miguel Latorre, Luz Fernández-Aguilar
- “Game-based human robot interaction promotes self-disclosure for people with a visual and intellectual disability”
Jelle-Jan De Groot, Emilia Barakova, Tino Lourens, Evelien van Wingerden, Paula Sterkenburg

- Session: Plenary II June, 5. 09:00–10:00 Room: A
“Invited speaker Prof. Francisco Herrera”
- Session: Plenary III June, 5. 10:00–11:00 Room: A
“Invited speaker Prof. John Suckling”
- Session: IBCSCNSA June, 5. 11:30–13:50 Room: A
“Interplay Between Cyberphysical Systems and Computational Neuroethology: Synergistic Applications”
 Organizer & Chair: Manuel Graña
 Co-Chair: Javier de Lope
 - “A Short Review of Some Aspects of Computational Neuroethology”
Manuel Graña, Javier de Lope
 - “Deep learning prediction of gait based on inertial measurements”
Javier de Lope, Manuel Graña, Pedro Romero-Hernandez
 - “Recognizing cognitive activities through eye tracking”
Javier de Lope, Manuel Graña, Sara Moraleda
 - “An approach to teach Nao dialogue skills”
Manuel Graña, Alexander Triguero
 - “Boosting Object Detection in Cyberphysical Systems”
José Miguel Buenaposa Biencinto, Luis Baumela Molina
 - “Fusion of inertial motion sensors and electroencephalogram for activity detection”
Manuel Graña, Javier de Lope, Ibai Baglietto, Xabier Garmendia
 - “BIOTHINGS: A pipeline creation tool for PAR-CLIP sequence analysis”
Manuel Graña, Oier Echaniz
- Session: MLBDAPV June, 5. 11:30–13:50 Room: B
“Machine Learning Methods Applied to Big Data Analysis, Processing and Visualization (MLBDAPV)”
 Organizer & Chair: José García-Rodríguez
 Co-Chair: Enrique Domínguez or David Tomás or Jaime Oswaldo Salvador Meneses or Zoila Ruiz
 - “Content Based Image Retrieval by Convolutional Neural Networks”
Safa Hamreras, Rafaela Benítez-Rochel, Bachir Boucheham, Miguel A. Molina-Cabello, Ezequiel López-Rubio
 - “Deep Learning networks with p-norm loss layers for spatial resolution enhancement of 3D medical images”
Karl Thurnhofer-Hemsi, Ezequiel Lopez-Rubio, Núria Roé-Vellvé, Miguel A. Molina-Cabello

- “Analysis of dogs’s abandonment problem using georeferenced multi-agent systems” *Zoila Ruiz, Jaime Salvador, Cristina Mejía-Astudillo, Soledad Diaz-Quilachami*
- “Background modeling by shifted tilings of stacked denoising autoencoders”
Jorge García-González, Juan Miguel Ortiz-de-Lazcano-Lobato, Rafael Marcos Luque-Baena, Ezequiel Lopez-Rubio
- “Deep learning-based security system powered by low cost hardware and panoramic cameras” *Jesus Benito-Picazo, Enrique Dominguez, Esteban Palomo, Ezequiel Lopez-Rubio*
- “Real-Time Emotional Recognition for Sociable Robotics Based on Deep Neural Networks Ensemble”
Nadir Kamel Benamara, Mikel Val-Calvo, Jose Ramon Alvarez-Sanchez, Eduardo Fernandez, Jose Manuel Ferrandez, Tarik Boudghene Stambouli

- Session: **BioInsp. Eng. I** June, 5. 11:30–13:50 Room: C
Chair: Antonio Fernández-Caballero
Co-Chair: Rafael Toledo-Moreo

- “Hardware and Software for Integrating Brain–Computer Interface with Internet of Things”
Francisco Laport, Adriana Dapena, Francisco J. Vazquez-Araujo, Paula M. Castro
- “Gesture Control Wearables for Human-Machine Interaction in Industry 4.0” *Luis Roda-Sanchez, Teresa Olivares, Celia Garrido-Hidalgo, Antonio Fernández-Caballero*
- “A principled two-step method for example-dependent cost binary classification”
Javier Mediavilla, Aitor Gutiérrez, Marcelino Lázaro, Aníbal R. Figueiras
- “Improving Scheduling Performance of a Real-Time System by Incorporation of an Artificial Intelligence Planner”
Jesus Fernandez-Conde, Rafael Toledo-Moreo, Pedro Cuenca-Jimenez
- “An indoor illuminance prediction model based on Neural Networks for visual comfort and energy efficiency optimization purposes”
María Martell, María del Mar Castilla, Francisco Rodriguez, Manuel Berenguel
- “Using probabilistic context awareness in a deliberative planner system”
Jonatan Gines Clavero, Francisco Martin Rico, Francisco J Rodriguez-Lera, Angel Manuel Guerrero, Vicente Matellán
- “Deep Support Vector Classification and Regression”
David Díaz-Vico, Jesús Prada, Adil Omari, José R. Dorronsoro

• Session: **Posters**

June, 5. 16:00–17:00 Room: P

Chair: Diego Andina

Co-Chair: Rafael Martínez-Tomás

1. “Design and implementation of a robotics learning environment to teach physics in secondary schools”
Félix de la Paz López, Elena Gaudioso, Samantha Orlando
2. “How to improve spatial and numerical cognition with a Game-based and Technology-Enhanced learning approach”
Michela Ponticorvo, Massimiliano Schembri, Orazio Miglino
3. “Gaming the Attention with a SSVEP-based Brain-computer Interface”
Miguel Lopez, Eduardo Perez, Jesus Minguillon
4. “Conceptual Description of Nature-Inspired Cognitive Cities: Properties and Challenges”
Agusti Solanas, Juvenal Machin
5. “Autonomic modulation during a cognitive task using a wearable device”
Maria Paula Bonomini, Mikel Val-Calvo, Alejandro Díaz, Jose Manuel Ferrandez, Eduardo Fernandez
6. “Symbiotic Autonomous Systems with Consciousness using Digital Twins”
Felipe Fernandez, Angel Sanchez, Jose Velez, Ana Belen Moreno Diaz
7. “Convolutional Neural Networks for Olive Oil Classification”
Belén Vega, Andrea Carminati, Natividad Jurado, Andrés Martín, Lourdes Arce, Cristina Rubio, Isabel Nepomuceno
8. “Multi-robot user interface for cooperative transportation tasks”
Majd Kassawat, Angel P. del Pobil, Enric Cervera Mateu
9. “Midpoint: a Tool to Build Artificial Models of Numerical Cognition”
Onofrio Gigliotta, Michela Ponticorvo, Fabrizio Doricchi, Orazio Miglino
10. “HAPAN: Support Tool for Practicing Regional Anesthesia in Peripheral Nerves”
Jose Alberto Hernandez Muriel
11. “Group differences in time-frequency relevant patterns for user-independent BCI applications”
Luisa Velasquez, Jorge Padilla, German Castellanos-Dominguez, Frank Zapata-Castaño
12. “Analysis of the consumption of household appliances for the detection of anomalies in the behaviour of older people”
Miguel Angel Patricio Guisado, Jose Manuel Molina Lopez, Daniel Gonzalez, Antonio Berlanga
13. “Computing the missing lexicon in students using Bayesian networks”
Ricardo Contreras, Pedro Salcedo Lagos, Maria Punninghoff
14. “Ontologies for early detection of the Alzheimer Disease and other Neurodegenerative Diseases”
Alba Gómez-Valadés, Rafael Martinez Tomas, Mariano Rincon Zamorano

- Session: Plenary IV June, 6. 09:00–10:00 Room: A
 “Invited speaker Prof. Hiroaki Wagatsuma”
- Session: **BioInsp. Eng. II** June, 6. 10:00–11:00 Room: A
 Chair: Richard Duro
 Co-Chair: Eduardo Sánchez Vila
 - “Optimization of Bridges Reinforcements with Tied-Arch Using Moth Search Algorithm” *Broderick Crawford, Ricardo Soto, José Lemus-Romani, Gino Astorga, Agustín Salas-Fernández, Óscar Carrasco*
 - “Bootstrapping Autonomous Skill Learning in the MDB Cognitive Architecture”
Richard Duro, Francisco Bellas, José Antonio Becerra, Alejandro Romero
 - “Uninformed methods to build optimal choice-based ensembles”
Eduardo Sánchez Vila, Ameer Almomani
- Session: **Robotics** June, 6. 10:00–11:00 Room: B
 Chair: Roberto Iglesias
 Co-Chair: Jose Manuel López-Guede
 - “Precise positioning and heading for autonomous scouting robots in a harsh environment”
David Obregón-Castellanos, Raúl Arnau, María Campo-Cossio, Juan G. Arroyo-Parras, Michael Pattinson, Smita Tiwari
 - “Control of transitory take-off regime in the transportation of a pendulum by a quadrotor” *Julian Estevez, Jose Manuel López-Guede*
 - “Robust Heading Estimation in Mobile Phones”
Fernando E. Casado, Adrián Nieto, Roberto Iglesias, Carlos Vazquez Regueiro, Senén Barro Ameneiro
- Session: **BioInsp. Eng. III** June, 6. 10:00–11:00 Room: C
 Chair: Cristina Soto-Sánchez
 Co-Chair: Faheem Hassan Zunjani
 - “Neurolight alpha: interfacing computational neural models for stimulus modulation in cortical visual neuroprostheses” *Cristina Soto-Sánchez, Francisco Javier Garrigos Guerrero, Jose Javier Martinez-Alvarez, José Manuel Ferrandez, Eduardo Fernandez, Antonio Lozano, Juan Sebastián Suárez*
 - “Combining Data-Driven and Domain Knowledge Components in an Intelligent Assistant to Build Personalized Menus”
Miquel Sànchez-Marrè, Karina Gibert, Beatriz Sevilla-Villanueva
 - “Cognitive AI Systems Contribute to Improving Creativity Modeling and Measuring Tools” *Faheem Hassan Zunjani, Ana-Maria Olteteanu*

- Session: BICA June, 6. 11:30–13:30 Room: A
“Bio-Inspired Computing Approaches”
 Organizer & Chair: José Santos Reyes
 Co-Chair: Ramiro Varela Arias

- “Crowding differential evolution for protein structure prediction”
José Santos Reyes, Daniel Varela
- “Bacterial resistance algorithm. An application to CVRP”
Ricardo Contreras, Maria Pinninghoff, Jose Orellana
- “Genetic Algorithm to evolve ensembles of rules for on-line scheduling on single machine with variable capacity”
Ramiro Varela Arias, Francisco J. Gil-Gala
- “Multivariate Approach to Alcohol Detection in Drivers by Sensors and Artificial Vision”
Paul D. Rosero-Montalvo, Diego Peluffo, Vivian F. Lopez-Batista, Vanessa Erazo-Chamorro, Ricardo P. Arciniega-Rocha
- “Repairing Infeasibility in Scheduling via Genetic Algorithms”
Raúl Mencía, Carlos Mencía, Ramiro Varela Arias
- “Application of Koniocortex-Like Networks to cardiac arrhythmias classification”
Santiago Torres-Alegre, José Manuel Ferrandez, Diego Andina, Yasmine Benchaib

- Session: BMIDUA June, 6. 11:30–13:30 Room: B
“Bio-Medical and Industrial Data Understanding Applications”
 Organizer & Chair: Rafael Verdú Monedero
 Co-Chair: José Luis Sancho Gómez

- “Neuroacoustical Stimulation of Parkinson’s Disease Patients: A Case Study”
Gerardo Gálvez García, Andrés Gómez-Rodellar, Daniel Palacios-Alonso, Guillermo de Arcas Castro, Pedro Gomez Vilda
- “Evaluating Instability on Phonation in Parkinson’s Disease and Aging Speech”
Andrés Gómez-Rodellar, Daniel Palacios-Alonso, Jiri Mekyska, Pedro Gomez Vilda, Agustín Álvarez-Marquina, José Manuel Ferrandez
- “Automatic measurement of ISNT and CDR on retinal images by means of a fast and efficient method based on mathematical morphology and active contours”
Rafael Verdú-Monedero, Juan Morales Sanchez, Rafael Berenguer-Vidal, Inmaculada Sellés-Navarro, Ana Palazón-Cabanes
- “Bihemispheric Beta Desynchronization during an upper-limb motor task in chronic stroke survivors”
Juan Barios, Arturo Bertomeu, Eduardo Fernandez, Nicolas Garcia-Aracil, Santiago Ezquerro, Luis Donis

- “Modeling and Estimation of Non-Functional Properties: Leveraging the Power of QoS Metrics”
Cristina Vicente-Chicote, Daniel García-Pérez, Pablo García-Ojeda, Juan Francisco Inglés-Romero, Adrián Romero-Garcés, Jesús Martínez
- “Machine-health Application Based on Machine Learning Techniques for Prediction of Valve Wear in a Manufacturing Plant”
María Elena Fernández-García, Jorge Larrey-Ruiz, Antonio Ros Ros, Aníbal Figueiras-Vidal, Jose Luis Sancho-Gomez

• Session: **Comp. Neuroscience** June, 6. 11:30–13:30 Room: C

Chair: Guido Sciavicco

Co-Chair: Sergio Miguel-Tomé

- “The effect of tDCS on EEG-based functional connectivity in gait motor imagery”
Jorge Gaxiola, Marisol Rodríguez-Ugarte, Eduardo Iáñez, Mario Ortiz, David Gutiérrez, José M. Azorín
- “Towards a General Method for Logical Rule Extraction from Time Series”
Guido Sciavicco, Ionel Eduard Stan, Alessandro Vaccari
- “Distinguishing Aging Clusters and Mobile Devices by Hand-Wrist Articulation: A Case of Study”
Daniel Palacios-Alonso, Carlos Lázaro-Carrascosa, Andrés Gómez-Rodellar, Pedro Gomez Vilda, Raquel Mas-García, José Manuel Ferrandez
- “Differentiation between Ischemic and Heart Rate Related Events Using the Continuous Wavelet Transform”
Carolina Fernandez Biscay, Anderson Rincon Soler, Pedro D. Arini, Maria Bonomini
- “The Assessment of Visuospatial Abilities with Tangible Interfaces and Machine Learning”
Antonio Cerrato, Michela Ponticorvo, Onofrio Gigliotta, Paolo Bartolomeo, Orazio Miglino
- “An experimental study on the relationships among neural codes and the computational properties of neural networks”
Sergio Miguel-Tomé

Other Technical Sessions

June 5, Wednesday

17:00–18:00 h. *Room A*: (meeting, in Spanish, for RTNAC members)
Reunión de la Red Nacional en Computación Natural y Artificial (RTNAC).

Social Program

Coffee break June 4, 5 and 6, from 11:00 to 11:30 h.

Lunch June 4 and 5, for registered participants (standard and attendant A) and accompanying persons with lunch ticket. Served at 14:00 h. in the restaurant inside the Congress Venue (Hotel Barceló Cabo de Gata).

June 4, Tuesday

21:00 h. – **Welcome reception and cocktail** served in *Hotel Barceló Cabo de Gata* (Congress Venue).

June 5, Wednesday

19:00 – 21:00 Sightseeing **excursion** to *Almería* city (buses will depart from Congress Venue) that will end at the place of the official dinner.

21:00 h. – Congress **official dinner** (casual wear) in *Gran Hotel Almería* situated on Avenida Reina Regente, 8, Almería. Plus Code: [8C8VRGMP+RJ](#)
Buses will depart from Congress Venue at 19:00h.

Internet connection

During the conference venue 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 completed with the Conference Technical Secretariat, Hispania Viajes by BCD Travel (please, see the address below), 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	Until April 30th	After April 30th
Standard (*) (+) (#)	€525	€625
Session Organizer (*) (+) (#)	€425	€525
Attendant A (*) (+)	€200	€225
Attendant B (+)	€125	€150
2nd paper and more (#)	€325	€375

(*) Includes attending the sessions, coffee breaks and lunches.

(+) Includes social events (welcome reception cocktail and sight-seeing tour) and official dinner.

(#) Includes the “Lecture Notes in Computer Science” books (Springer-Verlag) of the work-conference proceedings.

Technical Secretariat of the Conference

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

Hispania Viajes by BCD Travel

Avenida Maisonnave, 11, 7^o

E-03002 Alicante (Spain)

Phone: (+34) 965-22-83-93

E-mail: congresos@viajeshispania.es

Starting 17:00 h. **June 3**, and during the Conference, the Secretariat will maintain a desk at the congress venue. Previous registration will be necessary to attend the Conference (<https://bit.ly/2ozkIJR>).



Congress URL <http://www.iwinac.org/iwinac2019/>

General Information

Congress venue

HOTEL BARCELÓ CABO DE GATA

Avenida Juegos de Casablanca, s/n. Urbanización El Toyo

04131 Retamar, Almería

Spain

Plus Code: [8C8VRMQG+9C](#)

* Special reduced prices for accommodation in the hotel and near it through our Technical Secretariat (see contact in the previous page).

Travel Information

Almería airport (international code “LEI”) with flights mainly from Spain and Europe, is located 4 km from the Congress venue. Taxi rates from the airport to the congress venue are around 20 euros. In the airport there are shuttle buses and shared rides that can be cheaper.

Please, contact our [Technical Secretariat](#) (Hispania Viajes by BCD Travel) for more detailed information on travel and accommodation.

Language

English will be the official language of IWINAC2019. Simultaneous translation will *not* be provided.

Climate

Almería is located at about 36°50'N and 2°27'W, near the coast by the Mediterranean Sea in southeast Spain. The Congress Venue is by the sea in a touristic zone about 10 km away the main city and near the Cabo de Gata-Níjar Nature Park. Almería has warm semi-arid climate. The temperature in June can vary from 24-28°C by day (sunny) to 15-19°C by night.

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 traveler’s checks.

Currency

The monetary unit in Spain is the *EURO* (symbol €). The euro is divided into a hundred cents (symbol ¢). Coins: 1, 2, 5, 10, 20 and 50 cents; 1 and 2 euros. Banknotes: 5, 10, 20, 50, 100, 200 and 500 euros. Banknotes of 500 euros are usually only accepted at bank offices. The maximum cash payment allowed is 2500 euros.

All international credit cards (Visa, American Express, Master Card, Euro-card, Diners Club, etc.) are widely accepted by hotels, restaurants and shops, and also in many ATMs or cashpoints.

Tipping

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

Electricity

Electric supply is AC 220 V / 50 Hz standard continental European, with two round pin plugs for appliances.

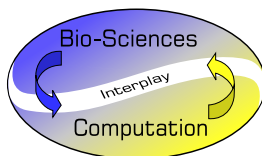
Assistance and insurance

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, tourism, visits, etc.) about Almería through the web pages:

- <https://www.turismodealmeria.org/en/>
- <https://www.andalucia.org/en/destinations/provinces/almeria/>
- <https://en.wikipedia.org/wiki/Almeria>
- <http://www.andalucia.org/en/natural-spaces/natural-parks/cabo-de-gata-nijar/>
- <https://www.degata.com/en/>



IWINAC2019



Universidad Nacional de
Educación a Distancia



Universidad Politécnica
de Cartagena



Universidad de Granada



Universidad de Almería



Ministerio de Ciencia,
Innovación y Universidades



Ayuntamiento de Almería

apliquem uO

APLIQUEM MICROONES 21, S.L.

Apliquem, s.l.

f SéNeCa⁽⁺⁾

Agencia de Ciencia y Tecnología
Región de Murcia

Fundación Séneca

Congress Venue:

Hotel Barceló Cabo de Gata, Almería (Spain)

June 3–7, 2019

<http://www.iwinac.org/iwinac2019/>

