

IWINAC-2019 Sessions Schedule.

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- Session: Plenary I June, 4. 10:00–11:00 Room: A
“Invited speaker Prof. Hojjat Adeli”
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- 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, Fermin 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, Fermin 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
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- 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 Martínez-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
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- 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 Martinez
- “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

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- 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

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- 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

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- Session: Plenary II June, 5. 09:00–10:00 Room: A
“Invited speaker Prof. Francisco Herrera”
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- Session: Plenary III June, 5. 10:00–11:00 Room: A
“Invited speaker Prof. John Suckling”
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- 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 Buenaposada Biencinto, Luis Baumela Molina
 - “Fusion of inertial motion sensors and electroencephalogram for activity detection”
Manuel Graña, Javier de Lope, Ibai Baglietto, Xabier Garmendia
 - “BIOTINGS: A pipeline creation tool for PAR-CLIP sequence analysys”
Manuel Graña, Oier Echaniz
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- 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
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• 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
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• 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 Gaudio, 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
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- Session: Plenary IV June, 6. 09:00–10:00 Room: A
“Invited speaker Prof. Hiroaki Wagatsuma”
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- 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, Amed Almomani
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- 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
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- Session: **BioInsp. Eng. III** June, 6. 10:00–11:00 Room: C
Chair: Cristina Soto-Sánchez
Co-Chair: Ana-Maria Olteteanu

- “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
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- Session: BICA
“**Bio-Inspired Computing Approaches**”
Organizer & Chair: José Santos Reyes
Co-Chair: Ramiro Varela Arias

June, 6. 11:30–13:30 Room: A

- “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. Arciniiega-Rocha
- “Repairing Infeasibility in Scheduling via Genetic Algorithms”
Raúl Mencía, Carlos Mencia, Ramiro Varela Arias
- “Application of Koniocortex-Like Networks to cardiac arrhythmias classification”
Santiago Torres-Alegre, José Manuel Ferrandez, Diego Andina, Yasmine Benchaib

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- Session: BMIDUA
“**Bio-Medical and Industrial Data Understanding Applications**”
Organizer & Chair: Rafael Verdú Monedero
Co-Chair: José Luis Sancho Gómez

June, 6. 11:30–13:30 Room: B

- “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 Sciacicco

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 Sciacicco, 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
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