

ROBOT2017: ROBOT'2017 - THIRD IBERIAN ROBOTICS CONFERENCE

PROGRAM INDEXES

PROGRAM

Days: [Wednesday, November 22nd](#)
[Thursday, November 23rd](#) [Friday, November 24th](#)

Wednesday, November 22nd

View this program: [with abstracts](#) [session overview](#) [talk overview](#)

14:45-15:00 Session W: Welcome

LOCATION: Salón de actos

15:00-16:00 Session Plenary I: Ocean One: A Robotic Avatar for Oceanic Discovery.

Author: Oussama Khatib (Stanford University)

LOCATION: Salón de actos

16:00-17:30 Session WA1-R1: General track: Mobile robotics

CHAIRS: [Jose Lima](#) and [António Paulo Moreira](#)

LOCATION: R1 - Sala Juan Larrañeta

16:00 [Francisco Ferreira, Héber Sobreira, Germano Veiga](#) and [António Moreira](#)

Landmark detection for docking tasks (abstract)

16:15 [Goran Popović, Juraj Oršulić, Damjan Miklić](#) and [Stjepan Bogdan](#)

Rao-Blackwellized particle filter SLAM with prior map: An experimental evaluation (abstract)

16:30 [Pedro Relvas, Paulo Costa](#) and [António Moreira](#)
Object Tracking in a Moving Reference Frame (abstract)

16:45 [Emilio Garcia-Fidalgo, Alberto Ortiz](#) and [Miquel Massot Campos](#)

Vision-based Control for an AUV in a Multi-Robot Undersea Intervention Task (abstract)

17:00 [Ana Rodrigues, Pedro Costa](#) and [Jose Lima](#)
The K-Framed Quadtrees approach for path planning through a known environment (abstract)

17:15 [Marina B. A. Souza, Edimar J. Oliveira](#) and [Leonardo W. Oliveira](#)
Collision avoidance for Multi-robot Systems with Coincident Paths based on Fictitious Collision Points using Nonlinear Formulation (abstract)

16:00-17:30 Session WA1-R2: New particular developments in marine robotics

CHAIRS: [A. Pedro Aguiar](#) and [Fernando Lobo Pereira](#)

LOCATION: R2 - Salón de grados

16:00 [Juan Braga](#), [A. Pedro Aguiar](#) and [João Borges de Sousa](#)

Coordinated Multi-UAV Exploration Strategy for Large Areas with Communication Constrains ([abstract](#))

16:15 [R Praveen Kumar Jain](#), [Andrea Alessandretti](#), [A. Pedro Aguiar](#) and [Joao Sousa](#)

A Nonlinear Model Predictive Control for an AUV to Track and Estimate a Moving Target using Range Measurements ([abstract](#))

16:30 [Leopoldo Rodriguez](#), [Jose A. Cobano](#) and [Anibal Ollero](#)

Architecture of a Flight Endurance Enhancement System for Maritime Operations with Fixed Wing UAS ([abstract](#))

16:45 [Josep Bosch](#), [Klemen Istenič](#), [David Ribas](#), [Pere Ridao](#), [Nuno Gracias](#), [Rafael Garcia](#) and [Irena Radic](#)

Immersive Touring For Marine Archaeologywith an AUV. An application of a new compact omnidirectional camera to mapping the Gnalić shipwreck. ([abstract](#))

17:00 [Satja Sivcev](#), [Edin Omerdic](#), [Gerard Dooly](#), [Joseph Coleman](#) and [Daniel Toal](#)

Towards Inspection of Marine Energy Devices using ROVs: Floating Wind Turbine Motion Replication ([abstract](#))

17:15 [Cesar Martinez](#) and [Eduardo de Diego](#)

SHORT INDUSTRIAL PAPER: High reliability unmmaned vessels ([abstract](#))

16:00-17:30 Session WA1-R3: Cooperative and active perception for robotics

CHAIRS: [Jesus Capitan](#) and [Luis Merino](#)

LOCATION: R3 - Sala de juntas

16:00 [Tiago Pereira](#), [António Moreira](#) and [Manuela Veloso](#)

Multi-Robot Planning for Perception of Multiple Regions of Interest ([abstract](#))

16:15 [Iván Del Pino](#), [Víctor Vaquero](#), [Beatrice Masini](#), [Joan Solà](#), [Francesc Moreno-Noguer](#), [Alberto Sanfeliu](#) and [Juan Andrade-Cetto](#)

Low resolution lidar-based multi object tracking for driving applications ([abstract](#))

16:30 [Eduardo Ferrera](#), [Jesus Capitan](#) and [Pedro Jose Marron](#)

From Fast to Accurate Wireless Map Reconstruction for Human Positioning Systems ([abstract](#))

16:45 [Kruno Lenac](#), [Josip Ćesić](#), [Ivan Marković](#) and [Ivan Petrović](#)

Cooperative Cloud SLAM on Matrix Lie Groups ([abstract](#))

17:00 [Eman Hasan](#), [Khaled Alwahedi](#), [Jorge Dias](#) and [Belal Juma](#)

Circle Formation in Multi–Robot Systems with Limited Visibility ([abstract](#))

17:15

[Arturo Torres-Gonzalez](#), [Jesus Capitan](#), [Rita Cunha](#) and [Anibal Ollero](#)

A Multidrone Approach for Autonomous Cinematography Planning ([abstract](#))

16:00-17:30 Session WA1-R4: Ontologies and knowledge representation for robotics

CHAIRS: [Julita Bermejo-Alonso](#) and [Paulo Goncalves](#)

LOCATION: R4 - Aula 008

16:00 [John Bateman](#), [Michael Beetz](#), [Daniel Bessler](#),
[Asil Kaan Bozcuoglu](#) and [Mihai Pomarlan](#)
Heterogeneous ontologies and hybrid reasoning for service robotics: the EASE framework ([abstract](#))

16:15 [Julita Bermejo-Alonso](#) and [Ricardo Sanz](#)
Towards an Ontology for Task and Planning in Autonomous Systems: an Emergency Scenario ([abstract](#))

16:30 [Rodrigo Bernardo](#), [Rodolfo Farinha](#) and [Paulo Goncalves](#)
Knowledge and Tasks Representation for an Industrial Robotic Application ([abstract](#))

16:45 [Mohammed Diab](#), [Muhayy Ud Din](#), [Aliakbar Akbari](#) and [Jan Rosell](#)
Physics-based Ontology for Manipulation Planning ([abstract](#))

17:00 [Francisco Ramos](#), [Alberto Olivares-Alarcos](#),
[Andrés Salomón Vázquez](#) and [Raúl Fernández](#)
What Can Ontologies Do for Robot Design? ([abstract](#))

17:15 [Jakob Suchan](#) and [Mehul Bhatt](#)
Deep Semantic Abstractions of Everyday Human Activities: On Commonsense Representations of Human-Object Interactions ([abstract](#))

16:00-17:30 Session WA1-R5: Vision and Learning for robotics (I)

CHAIRS: [Eugenio Aguirre Molina](#) and [Miguel Cazorla](#)

LOCATION: R5 - Aula 009

16:00 [Fernando E. Casado](#), [Carlos V. Regueiro](#),
[Roberto Iglesias](#), [Xose M. Pardo](#) and [Eric Lopez](#)
Automatic selection of user samples for a non-collaborative face verification system ([abstract](#))

16:15 [Edmanuel Cruz](#), [José Carlos Rangel](#) and [Miguel Cazorla](#)
Robot Semantic Localization through CNN Descriptors ([abstract](#))

16:30 [Félix Escalona](#), [Francisco Gomez-Donoso](#) and [Miguel Cazorla](#)
3D object mapping using a labelling system ([abstract](#))

16:45 [Francisco Gomez-Donoso](#), [Sergio Orts-Escalano](#) and [Miguel Cazorla](#)
Robust Hand Pose Regression Using Convolutional Neural Networks ([abstract](#))

17:00 [Cristina Romero-González](#), [Jesus Martinez-Gomez](#) and [Ismael Garcia-Varea](#)

3D semantic maps for scene segmentation ([abstract](#))

17:15 [John Alejandro Castro](#), [Alberto Garcia-Garcia](#), [Sergiu Oprea](#), [Sergio Orts-Escalano](#) and [Jose Garcia-Rodriguez](#)

Detecting and manipulating objects with a social robot: an ambient assisted living approach ([abstract](#))

17:30-18:00 Coffee Break

18:00-19:30 Session WA2-R1: General track: Mobile Robotics Applications

CHAIRS: [Ana C. Murillo](#) and [José Luis Villaruel](#)

LOCATION: R1 - Sala Juan Larrañeta

18:00 [Paula Abad](#), [Miguel Franco](#), [Rosa Castillon](#), [Iñigo Alonso](#), [Ana B. Cambra](#), [Jorge Sierra](#), [Luis Riazuelo](#), [Luis Montano](#) and [Ana C. Murillo](#)

Integrating an autonomous robot on a dance and new technologies festival ([abstract](#))

18:15 [Gary Cornelius](#), [Patrice Caire](#), [Nico Hochgeschwender](#), [Holger Voos](#), [Miguel A. Olivares-Mendez](#), [Marcus Völp](#) and [Paulo Esteves-Verissimo](#)

A Perspective of Security for Mobile Service Robots ([abstract](#))

18:30 [Rilene Carolina Goelzer](#), [Letieri Avila](#) and [Vinicius Menezes de Oliveira](#)

Project and Trajectory Control of an Autonomous Aerator for Aquaculture ([abstract](#))

18:45 [Ely Repiso](#), [Anais Garrell](#) and [Alberto Sanfeliu](#)

On-line adaptive side-by-side human robot companion to approach a moving person to interact ([abstract](#))

19:00 [Danilo Tardioli](#), [Luis Riazuelo](#), [Teresa Seco](#), [Jesús Espelosín](#), [Jorge Lalana](#), [Jose Luis Villaruel](#) and [Luis Montano](#)

A robotized dumper for debris removal intunnels under construction ([abstract](#))

19:15 [Dominik B. O. Bösl](#) and [Martina Bode](#)

Roboethics and Robotic Governance – a Literature Review and Research Agenda ([abstract](#))

18:00-19:30 Session WA2-R2: Agricultural robotics and field automation

CHAIRS: [Raul Morais Santos](#) and [Filipe Neves Dos Santos](#)

LOCATION: R2 - Salón de grados

18:00 [Teresa Conceição](#), [Filipe Neves Dos Santos](#), [António P. Moreira](#) and [Paulo Costa](#)

Robot Localization System in a Hard Outdoor Environment ([abstract](#))

18:15 [Sedat Dogru](#) and [Lino Marques](#)

Improving Dead-Reckoning Performance of Skid-Steered Wheeled Robots Using an Improved Kinematic Model ([abstract](#))

18:30 [Sedat Dogru](#) and [Lino Marques](#)

A*-Based Solution to the Coverage Path Planning Problem ([abstract](#))

18:45 [Ferran Roure](#), [Germán Moreno](#), [Marcel Soler](#), [Davide Faconti](#), [Daniel Serrano](#), [Pietro Astolfi](#), [Gianluca Bardaro](#), [Alessandro Gabrielli](#), [Luca Bascetta](#) and [Matteo Matteucci](#)

GRAPE: Ground Robot for vineyArd Monitoring and ProtEction ([abstract](#))

19:00 [Luis Santos](#), [Filipe Santos](#), [Jorge Mendes](#), [Nuno André Ferraz](#), [José Lima](#), [Raul Morais](#) and [Pedro Costa](#)

Automatic recharging system for steep-slope vineyard robots ([abstract](#))

18:00-19:30 Session WA2-R3: WAF: Robots for healthcare

CHAIRS: [Raquel Fuentetaja](#) and [Angel Garcia Olaya](#)

LOCATION: R3 - Sala de juntas

18:00 [Anthony Remazeilles](#), [Miguel Prada](#) and [Iratí Rasines](#)

Appropriate Spherical Coordinate Model for Trocar Port Constraint in Robotic Surgery ([abstract](#))

18:15 [Francisco Martín Rico](#) and [Jonathan Ginés Clavero](#)

Practical aspects of deploying Robotherapy systems ([abstract](#))

18:30 [Enrique García Estévez](#), [Irene Díaz Portales](#), [José Carlos Pulido](#), [Raquel Fuentetaja](#) and [Fernando Fernandez](#)

Enhancing a Robotic Rehabilitation Model for Hand-Arm Bimanual Intensive Therapy ([abstract](#))

18:45 [Antonio Bandera](#), [Juan P. Bandera](#), [Pablo Bustos](#), [Fernando Fernandez](#), [Angel Garcia-Olaya](#), [Javier Garcia-Polo](#), [Ismael Garcia-Varea](#), [Luis J. Manso](#), [Rebeca Marfil](#), [Jesus Martinez-Gomez](#), [Pedro Nuñez](#), [Jose M. Perez-Lorenzo](#), [Pedro Reche-Lopez](#), [Cristina Romero-Gonzalez](#) and [Raquel Viciiana-Abad](#)

LifeBots I: Building the Software Infrastructure for Supporting Lifelong Technologies ([abstract](#))

19:00 [Dimitri Voilmy](#), [Cristina Suarez](#), [Adrian Romero-Garces](#), [Cristian Reuther](#), [Jose Carlos Pulido](#), [Rebeca Marfil](#), [Luis J Manso](#), [Karine Lan Hing Ting](#), [Ana Iglesias](#), [Jose Carlos Gonzalez](#), [Javier Garcia](#), [Angel Garcia-Olaya](#), [Raquel Fuentetaja](#), [Fernando Fernandez](#), [Alvaro Dueñas](#), [Luis Vicente Calderita](#), [Pablo Bustos](#), [T Barile](#), [Juan Pedro Bandera Rubio](#) and [Antonio Bandera](#)

CLARC: A Cognitive Robot for Helping Geriatric Doctors in Real Scenarios ([abstract](#))

19:15 [Juan-Carlos Cobos-Torres](#), [Adrián Rodríguez Sánchez](#), [Jordan Ortega Rodríguez](#), [Pablo J. Alhama Blanco](#) and [Mohamed Abderrahim](#)

Desarrollo de un sistema robótico de triaje rápido para situaciones de catástrofe ([abstract](#))

18:00-19:30 Session WA2-R4: Simulation in robotics

CHAIRS: [Artur Pereira](#) and [Luis Paulo Reis](#)

LOCATION: R4 - Aula 008

- 18:00 [Enrique Mancha](#), [José Emilio Traver](#), [Ines Tejado](#), [Blas M. Vinagre](#) and [Vicente Feliu](#)
Artificial Flagellum Microrobot. Design and Simulation in COMSOL ([abstract](#))
- 18:15 [Muhayy Ud Din](#), [Aliakbar Akbari](#) and [Jan Rosell](#)
Knowledge-oriented Physics-based Motion Planning for Grasping in the Presence of Uncertainty ([abstract](#))
- 18:30 [Adrián Peidró Vidal](#), [Oscar Reinoso](#), [José María Marín](#), [Arturo Gil](#), [Luis Paya](#) and [Yerai Berenguer](#)
A Simulation Tool for Visualizing the Assembly Modes and Singularity Locus of 3RPR Planar Parallel Robots ([abstract](#))
- 18:45 [Félix Orjales](#), [Fernando Lopez Peña](#), [Alejandro Paz-Lopez](#), [Alvaro Deibe](#) and [Richard Duro](#)
On the use of mixed reality for setting up controls and coordination strategies for teams of autonomous UAV ([abstract](#))
- 19:00 [Pedro Tavares](#), [João André Silva](#), [Pedro Costa](#), [Germano Veiga](#) and [António Paulo Moreira](#)
Flexible Work Cell Simulator using Digital Twin Methodology for Highly Complex Systems in Industry 4.0 ([abstract](#))

18:00-19:30 Session WA2-R5: Vision and learning for robotics (II)

CHAIRS: [Eugenio Aguirre Molina](#) and [Miguel Cazorla](#)

LOCATION: R5 - Aula 009

- 18:00 [Eugenio Aguirre](#), [Miguel García-Silvente](#) and [Marcelo García-Perez](#)
Learning leg pattern using laser lange finder in mobile robots ([abstract](#))
- 18:15 [Yerai Berenguer](#), [Luis Paya](#), [Oscar Reinoso](#), [Adrián Peidró Vidal](#) and [Luis Miguel Jiménez](#)
Movement Direction Estimation using Omnidirectional Images in a SLAM algorithm ([abstract](#))
- 18:30 [Ana B. Cambra](#), [Adolfo Muñoz](#) and [Ana C. Murillo](#)
How to transfer an autonomous driving model for semantic segmentation to other domains? ([abstract](#))
- 18:45 [Jacobo Lopez-Fernandez](#), [Roberto Iglesias](#), [Carlos V. Regueiro](#) and [Fernando F. Casado](#)
Inertial navigation with mobile devices: A robust step count model ([abstract](#))
- 19:00 [Manuel Zafra](#) and [Josemaría Cañas](#)
Fine 3D path following of a quadcopter ([abstract](#))

Thursday, November 23rd

View this program: [with abstracts](#) [session overview](#) [talk overview](#)

09:00-10:00 Session Plenary II: Soft Robotic Technologies for Safe, Robust, Smart Drones.

Author: Dario Floreano (Laboratory of Intelligent Systems - EPFL)

LOCATION: Salón de actos

10:00-10:30 Coffee Break

10:30-12:00 Session TM1-R1: Aerial robotics for inspection

CHAIRS: [Guillermo Heredia](#) and [Alberto Ortiz](#)

LOCATION: R1 - Sala Juan Larrañeta

10:30 [Francisco Bonnin-Pascual](#) and [Alberto Ortiz](#)
Testing the Control Architecture of a Micro-Aerial Vehicle for Visual Inspection of Vessels
([abstract](#))

10:45 [Luis Evaristo Caraballo de La Cruz](#), [Sergey Bereg](#) and [José-Miguel Díaz-Báñez](#)
Efficient inspection of underground galleries using k robots with limited energy ([abstract](#))

11:00 [Alexandre Gomes](#), [Bruno J. N. Guerreiro](#), [Rita Cunha](#), [Carlos Silvestre](#) and [Paulo Oliveira](#)
Sensor-based 3-D Pose Estimation and Control of Rotary-wing UAVs using a 2-D LiDAR ([abstract](#))

11:15 [Pedro Grau](#), [Alejandro Suarez](#), [Angel Rodriguez-Castano](#) and [Anibal Ollero](#)
Design of a High Performance Dual Arm Aerial Manipulator ([abstract](#))

11:30 [P. J. Sanchez-Cuevas](#), [Guillermo Heredia](#) and [Aníbal Ollero](#)
Experimental approach to the aerodynamic effects produced in multirotors flying close to obstacles. ([abstract](#))

11:45 [Francisco Alarcon](#), [Francisco Javier Mateos](#), [Jorge Juan Muñoz](#), [Antidio Viguria](#), [Javier Lara](#) and [Antonio Ramirez](#)
PANDORA ([abstract](#))

10:30-12:00 Session TM1-R2: Industrial track:
Integration of drones in low altitude aerial space

CHAIRS: [Daniel Montero](#) and [Antidio Viguria](#)

LOCATION: R2 - Salón de grados

10:30 [Francisco Javier Barcala](#) and [Antidio Viguria](#)
TARGUS, the evolution of a manned aircraft to an Optional Piloted Vehicle (OPV) for public services ([abstract](#))

10:45 [Eduardo Cruz Velasco](#) and [Daniel Montero](#)
Main challenges of RPAS in VLL operations ([abstract](#))

11:00 [Antidio Viguria](#)
Intelligent navigation systems. Application of automation technologies in VLL operations ([abstract](#))

11:15 [Jorge Bueno](#) and [Andrés Arranz](#)
RPAS operations at very low level in a 4G/5G environment ([abstract](#))

10:30-12:00 Session TM1-R3: Robotic Business Opportunities supported by RoboTT-Net – some robotic companies' initiatives

- Welcome and Introduction of RoboTT-Net (10 min)

- Presentation of business opportunities in Robotics in the framework of RoboTT-Net (5-6 initiatives, mainly from Spain and Portugal, selected between the 64 initiatives funded by RoboTT-Net (60 min)
- Conclusions (20 min)

CHAIR: [Jon Agirre Ibarbia](#)

LOCATION: R3 - Sala de juntas

10:30-12:00 Session TM1-R4: Machine learning in robotics

CHAIRS: [Brigida Monica Faria](#) and [Luis Merino](#)

LOCATION: R4 - Aula 008

10:30 [Ana Almeida](#), [Rui Figueiredo](#), [Alexandre Bernardino](#) and [José Santos-Victor](#)

Deep Networks for Human Visual Attention: A hybrid model using foveal vision ([abstract](#))

10:45 [David Simoes](#), [Nuno Lau](#) and [Luis Paulo Reis](#)
Mixed-Policy Asynchronous Deep Q-Learning ([abstract](#))

11:00 [Adrià Colomé](#), [Sergi Foix](#), [Guillem Alenyà](#) and [Carme Torras](#)

Reward-weighted GMM and its application to action-selection in robotized shoe dressing ([abstract](#))

11:15 [Carlos M. Costa](#), [Germano Veiga](#) and [Armando Sousa](#)

Pose Invariant Object Recognition Using a Bag of Words Approach ([abstract](#))

11:30 [Juan M. Gandarias](#), [Jesús M. Gómez-De-Gabriel](#) and [Alfonso García-Cerezo](#)

Tactile Sensing and Machine Learning for Human and Object Recognition in Disaster Scenarios ([abstract](#))

10:30-12:00 Session TM1-R5: Visual perception for robotics

CHAIRS: [Begoña Arrue](#) and [Jan Škoda](#)

LOCATION: R5 - Aula 009

10:30 [Javier Prada Delgado](#), [Pablo Ramon Soria](#), [B. C. Arrue](#) and [A. Ollero](#)

Bridge mapping for inspection using an UAV assisted by a total station ([abstract](#))

10:45 [Pablo Ramon Soria](#), [Fouad Sukkar](#), [Wolfram Martens](#), [B. C. Arrue](#) and [Robert Fitch](#)

Multi-View Probabilistic Segmentation of Pome Fruit with a Low-Cost RGB-D Camera ([abstract](#))

11:00 [Alejandro Suarez](#), [Guillermo Heredia](#) and [Anibal Ollero](#)

Vision-based Deflection Estimation in an Anthropomorphic, Compliant and Lightweight Dual Arm ([abstract](#))

11:15 [Jan Škoda](#) and [Roman Barták](#)
3D Navigation for a Mobile Robot ([abstract](#))

11:30 [Daniel Cores](#) and [Manuel Mucientes](#)

Reconstrucción 3D densa de escenas utilizando una cámara monocular ([abstract](#))

12:00-13:00 Session TM2-R1: General track: Aerial Robotics I

CHAIRS:

[Fernando Lobo Pereira](#) and [Angel Rodriguez-Castaño](#)

LOCATION: R1 - Sala Juan Larrañeta

12:00 [Katarina Borovina](#) and [John Hallam](#)

Simulation Environment for the Evaluation and Design of Reactive Obstacle Avoidance Algorithms in UAS Operating in Low Altitude Airspace ([abstract](#))

12:15 [Alojz Gomola](#), [João Borges de Sousa](#), [Fernando Lobo Pereira](#) and [Pavel Klang](#)

Obstacle Avoidance Framework Based on Reach Sets ([abstract](#))

12:30 [Francisco Real](#), [Angel Rodriguez-Castaño](#) and [Jesus Capitan](#)

A Montecarlo Reactive Navigation Algorithm for a Dual Arm Aerial Robot ([abstract](#))

12:45 [Rômulo T. Rodrigues](#), [Meysam Basiri](#), [A. Pedro Aguiar](#) and [Pedro Miraldo](#)

Feature Based Potential Field for Low-level Active Visual Navigation ([abstract](#))

12:00-13:00 Session TM2-R2: Industrial track: Robotic solutions for flexible manufacturing

CHAIRS: [Jon Agirre Ibarbia](#) and [Raul Suarez](#)

LOCATION: R2 - Salón de grados

12:00 [David Culla](#), [Jean Baptiste Izard](#), [Mariola Rodriguez](#), [Pierre Ellie Hervé](#), [Jose Gorrotxategi](#) and [Jesús Cañada](#)

Full production plant automation in industry using cable robotics with high load capacities and position accuracy ([abstract](#))

12:15 [Gi Hyun Lim](#), [Eurico Pedrosa](#), [Filipe Amaral](#), [Ricardo Dias](#), [Artur Pereira](#), [Nuno Lau](#), [Jose Azevedo](#) and [Bernardo Cunha](#)

Human-Robot Collaboration and Safety Management for Logistics and Manipulation Tasks ([abstract](#))

12:30 [Fernando Soler](#), [Abiud Rojas de Silva](#) and [Raúl Suárez](#)

Grasp Quality Measures for Transferring Objects ([abstract](#))

12:45 [Damien Sallé](#), [Héctor Herrero](#), [Mildred Puerto](#), [Maria Del Mar Otero](#) and [Enrique Gil](#)

Implementing mechatronic objects for versatile assembly lines: Aeronautic use cases ([abstract](#))

12:00-13:00 Session TM2-R4: Robots cooperating with sensor networks

CHAIRS:

[Jesus Fernandez-Lozano](#) and [Jose Ramiro Martinez de Dios](#)

LOCATION: R4 - Aula 008

12:00 [Julio L. Paneque](#), [Arturo Torres-González](#), [J. Ramiro Martinez-De Dios](#) and [Anibal Ollero](#)

Autonomous Localization of Missing Items with Aerial Robots in an Aircraft Factory ([abstract](#))

[abstract](#))

12:15 [J. Jesus Fernandez-Lozano](#), [Jose Antonio Gomez-Ruiz](#), [Miguel Martín Guzmán](#), [Juan Martín-Ávila](#), [Carlos Socarras Bertiz](#) and [Alfonso García-Cerezo](#)

Wireless sensor networks for urban information systems: preliminary results of integration of an electric vehicle as a mobile node ([abstract](#))

12:30 [Francisco J. Fernández-Jiménez](#) and [J. Ramiro Martínez-De Dios](#)

Design of a Robot-Sensor Network Security Architecture for Monitoring Applications ([abstract](#))

12:45 [Rui Gomes](#) and [Fernando Lobo Pereira](#)

A Robust Reach Set MPC Scheme For Formation Control of AUVs ([abstract](#))

12:00-13:00 Session TM2-R5: Educational robotics

CHAIRS: [Manuel Silva](#) and [Armando Sousa](#)

LOCATION: R5 - Aula 009

12:00 [Francisco Bellas](#), [Martin Naya](#), [Gervasio Varela](#), [Luis Llamas](#), [Moises Bautista](#), [Abraham Prieto](#) and [Richard Duro](#)

Robobo: The Next Generation of Educational Robot ([abstract](#))

12:15 [Alexander Ferrein](#), [Stefan Schiffer](#) and [Stephan Kallweit](#)

The ROSIN Education Concept: Fostering ROS Industrial-related robotics education in Europe ([abstract](#))

12:30 [Pedro Fonseca](#), [Paulo Pedreiras](#) and [Filipe Silva](#)
Mobile Robots as a Tool to Teach First Year Engineering Electronics ([abstract](#))

12:45 [Paola Ferrarelli](#), [Tamara Lapucci](#) and [Luca Iocchi](#)
Methodology and results on teaching Maths using mobile robots ([abstract](#))

13:00-14:00 Lunch Break

14:00-15:00 Session TA1-R1: General track: Aerial Robotics II

CHAIRS:

[José Ángel Acosta](#) and [Miguel A. Olivares-Mendez](#)

LOCATION: R1 - Sala Juan Larrañeta

14:00 [Abdulla Al-Kaff](#), [Juan Camilo Soto Triviño](#), [Raúl Sosa San Frutos](#), [Arturo de La Escalera](#) and [José María Armingol Moreno](#)

Aerial Image Mosaicking for Multi-purpose Civil Applications ([abstract](#))

14:15 [Carlos R. de Cos](#), [José Ángel Acosta](#) and [Anibal Ollero](#)

Command-filtered Backstepping redesign for Aerial Manipulators under aerodynamic and operational disturbances ([abstract](#))

14:30 [Manuel Castillo-Lopez](#), [Miguel A. Olivares-Mendez](#) and [Holger Voos](#)

Evasive Maneuvering for UAVs: An MPC Approach ([abstract](#))

14:45

Wojciech Giernacki, Tadeo Espinoza Fraire and
Piotr Kozierski

**Cuttlefish Optimization Algorithm in Auto
Tuning of Altitude Controller of Unmanned
Aerial Vehicle (UAV) ([abstract](#))**

14:00-15:00 Session TA1-R2: Industrial track:
Application of robotics to manufacturing processes in the
aeronautic industry

CHAIRS: [Raul Cano](#) and [Ricardo Marín](#)

LOCATION: R2 - Salón de grados

14:00 [José R. de Los Santos](#), [Raúl Cano](#), [Daniel Martínez](#), [Víctor Sánchez](#), [Anibal Ollero](#), [Ignacio Bermejo](#) and [Gracia Ramos](#)

**Sistema Robotizado para la Aplicación de
Sellante sobre Perfiles de Piezas
Aeronáuticas Recanteadas de Material
Compuesto ([abstract](#))**

14:15 [Paloma Vega](#), [Raúl Cano](#), [José R. De Los Santos](#), [Ricardo Marín](#), [Alfonso Bello](#), [Víctor Sánchez](#), [Elena Blanco](#), [Joaquín Rodríguez](#), [Daniel Martínez](#), [José Mª Barrientos](#) and [Aníbal Ollero](#)

**La Robotización de los Procesos de
Fabricación Aeronáutica en la Industria 4.0 ([abstract](#))**

14:30 [José R. De Los Santos](#), [Ricardo Marín](#), [Raúl Cano](#), [Aníbal Ollero](#), [Íñigo Rojas](#), [Óscar Ibáñez de Garayo](#) and [Miguel Á. Castillo](#)

**Sistema Robótico Flexible y de bajo Coste
para el Taladrado de Revestimientos en el
Sector Aeronáutico ([abstract](#))**

14:45 [Daniel Martínez](#), [Elena Blanco](#), [Raúl Cano](#), [Aníbal Ollero](#), [Alejandro González](#) and [Remedios Segado](#)

**Sistema Automatizado para el Pintado y
Detección de Defectos en Piezas
Aeronáuticas Complejas ([abstract](#))**

14:00-15:00 Session TA1-R4: Sensor technologies
oriented to computer vision applications

CHAIRS: [Carlos Cerrada](#) and [P. Javier Herrera](#)

LOCATION: R4 - Aula 008

14:00 [Antonio Adan Oliver](#), [David de La Rubia](#) and
[Andrés Salomón Vázquez](#)

**Obtaining and Monitoring Warehouse 3D
Models with Laser Scanner Data ([abstract](#))**

14:15 [José M. Bengoechea-Guevara](#), [Andujar Dionisio](#),
[Francisco L. Sanchez-Sardana](#), [Karla Cantuña](#)
and [Angela Ribeiro](#)

**3D monitoring of woody crops using a
medium-sized field inspection vehicle ([abstract](#))**

14:30 [Jaime Duque-Domingo](#), [P. Javier Herrera](#), [Carlos Cerrada](#) and [José A. Cerrada](#)

**A vision-based strategy to segment and
localize ancient symbols written in stone ([abstract](#))**

14:00-15:00 Session TA1-R5: Autonomous driving and
driver assistance systems (I)

CHAIRS: [Arturo de La Escalera](#) and [Paulo Oliveira](#)

LOCATION: R5 - Aula 009

14:00 [Andre Antunes](#), [Carlos Cardeira](#) and [Paulo Oliveira](#)

Application of Sideslip Estimation Architecture to a Formula Student Prototype ([abstract](#))

14:15 [João Antunes](#), [Carlos Cardeira](#) and [Paulo Oliveira](#)

Torque Vectoring for a Formula Student Prototype ([abstract](#))

14:30 [Jordi Perez Talamino](#) and [Alberto Sanfeliu](#)

Path and velocity trajectory selection in an anticipative kinodynamic motion planner for autonomous driving ([abstract](#))

14:45 [Seyed Amin Sajadi-Alamdarji](#), [Holger Voos](#) and [Mohamed Darouach](#)

Deadzone-Quadratic Penalty Function for Predictive Extended Cruise Control with Experimental Validation ([abstract](#))

15:00-16:00 Session TA2-R1: Robotic and unmanned vehicles for security

CHAIRS:

[Jesus Fernandez-Lozano](#) and [Alfonso García-Cerezo](#)

LOCATION: R1 - Sala Juan Larrañeta

15:00 [Kala Garapati](#), [Juan Jesús Roldán](#), [Jaime Del Cerro](#) and [Antonio Barrientos](#)

A game of drones: game theoretic approaches for multi-robot task allocation in security missions ([abstract](#))

15:15 [David Alfredo Garzon Ramos](#), [Mario Andrei Garzon Oviedo](#), [Jorge De León Rivas](#) and [Antonio Barrientos](#)

Enhancing RRT planning for interception with distance and probability maps based on FMM ([abstract](#))

15:30 [José Lima](#) and [Paulo Costa](#)

Ultra-wideband Time of Flight Based Localization System and Odometry Fusion for a Scanning 3 DoF Magnetic Field Autonomous Robot ([abstract](#))

15:45 [Santiago Garrido](#), [Luis Moreno](#), [Fernando Martín](#) and [David Álvarez](#)

Quality study of robot trajectories based on the Anisotropic Fast Marching Method ([abstract](#))

15:00-16:00 Session TA2-R2: Industrial track:

Application for robotics in shipbuilding

CHAIRS: [Pedro L. Galindo](#) and [Arturo Morgado Estévez](#)

LOCATION: R2 - Salón de grados

15:00 [Pedro L. Galindo](#), [Arturo Morgado-Estevez](#), [José Luis Aparicio](#), [Guillermo Bárcena](#), [José Andrés Soto](#), [Francisco Abad](#) and [Pedro Chavera](#)

Development of a customized interface for a robotic welding application at Navantia shipbuilding company ([abstract](#))

15:15 [Arturo Morgado-Estevez](#), [Pedro L. Galindo](#), [Jose-Luis Aparicio-Rodriguez](#), [Ignacio Diaz-Cano](#),

[Carlos Rioja-Del-Rio](#), [Jose A. Soto-Nuñez](#), [Pedro Chavera](#) and [Francisco J. Abad-Fraga](#)

Towards automated welding in big shipbuilding assisted by programed robotic arm using a measuring arm ([abstract](#))

15:30 [Daniel Moreno Nieto](#), [Victor Casal](#), [Elena Corrales-Estárico](#), [Francisco J. Abad Fraga](#) and [Sergio I. Molina](#)

Big format 3D printing for shipbuilding ([abstract](#))

15:45 [José Antonio Patiño](#), [Rafael Morgade](#), [Carlos Yañez](#), [Manuel Villadóniga](#), [José Ramón Franco](#) and [Daniel Gesto](#)

Advanced Manufacturing of Nodes for Wind Offshore Jacket Structures ([abstract](#))

15:00-16:00 Session TA2-R3: WAF: Cognitive architectures

CHAIRS: [Vicente Matellan](#) and [Domenec Puig](#)

LOCATION: R3 - Sala de juntas

15:00 [Jesús Balsa-Comerón](#), [Ángel Manuel Guerrero-Higueras](#), [Francisco Javier Rodríguez-Lera](#), [Camino Fernández-Llamas](#) and [Vicente Matellán](#)

Cybersecurity in autonomous systems: hardening ROS using encrypted communications and semantic rules ([abstract](#))

15:15 [Pablo Bernal](#) and [Humberto Martínez Barbera](#)

Triaxial Sensor Calibration: a Prototype for Accelerometer and Gyroscope Calibration ([abstract](#))

15:30 [Julián Cristiano](#), [Domènec Puig](#) and [Miguel Angel García](#)

Automatic Characterization of Phase Resetting Controllers for Quick Balance Recovery during Biped Locomotion ([abstract](#))

15:45 [Francisco Rodríguez-Sedano](#), [Pere Ponsa](#), [Pablo Blanco-Medina](#) and [Luis Miguel Muñoz](#)

Interface Design of Haptic Feedback on Teleoperated System ([abstract](#))

15:00-16:00 Session TA2-R4: Robot competitions

CHAIRS:

[Jose Joaquin Acevedo](#) and [Francisco J Rodríguez Lera](#)

LOCATION: R4 - Aula 008

15:00 [Alan Winfield](#), [Marta Palau](#), [Bernd Brüggemann](#), [Ayoze Castro](#), [Gabriele Ferri](#), [Fausto Ferreira](#), [Xingkun Liu](#), [Yvan Petillot](#), [Juha Roning](#), [Frank Schneider](#), [Erik Stengler](#), [Dario Sosa](#) and [Antidio Viguria](#)

euRathlon and ERL Emergency: a multi-domain multi-robot Grand Challenge for Search and Rescue Robots ([abstract](#))

15:15 [José Joaquín Acevedo](#), [Manuel García](#), [Antidio Viguria](#), [Pablo Ramon Soria](#), [Begoña Arrue](#) and [Aníbal Ollero](#)

Autonomous landing of a multicopter on a moving platform based on vision techniques ([abstract](#))

15:30 [Jonathan Ginés Clavero](#), [Francisco Martín Rico](#),
[Vicente Matellan](#), [Jesus Balsa](#) and [Francisco Lera](#)

3D mapping for a reliable long-term navigation ([abstract](#))

15:45 [María T. Lázaro](#), [Giorgio Grisetti](#), [Luca Iocchi](#),
[Jaime Pulido Fentanes](#) and [Marc Hanheide](#)

A lightweight navigation system for mobile robots ([abstract](#))

15:00-16:00 Session TA2-R5: Autonomous driving and driver assistance systems (II)

CHAIRS: [Arturo de La Escalera](#) and [Paulo Oliveira](#)

LOCATION: R5 - Aula 009

15:00 [Ana Rita Silva Gaspar](#), [Alexandra Pereira Nunes](#),
[Andry Pinto](#) and [Aníbal Matos](#)

Comparative study of visual odometry and SLAM techniques ([abstract](#))

15:15 [Alireza Asvadi](#), [Luis Garrote](#), [Cristiano Premeida](#), [Paulo Peixoto](#) and [Urbano Nunes](#)
Real-Time Deep ConvNet-based Vehicle Detection Using 3D-LIDAR Reflection Intensity Data ([abstract](#))

15:30 [Carlos Guindel Gómez](#), [David Martín Gómez](#) and [José María Armingol Moreno](#)

Modeling Traffic Scenes for Intelligent Vehicles using CNN-based Detection and Orientation Estimation ([abstract](#))

15:45 [Pablo Marín Plaza](#), [Ahmed Hussein](#), [David Martin Gomez](#) and [Arturo De La Escalera](#)
Complete ROS-based Architecture for Intelligent Vehicles ([abstract](#))

16:00-16:20 Coffee Break

16:20-18:20 Session RT: Round Table: Success cases in Robotic Innovations (Organized by CDTI)

- Enrique Pelayo (CDTI) - H2020 Projects
- Carlos Toledo (CDTI) - Spanish funding
- Success cases

LOCATION: Salón de actos

18:20-19:20 Session SA: SEIDROB Assembly

LOCATION: Salón de actos

21:00-23:30 Session : Dinner

Friday, November 24th

View this program: [with abstracts](#) [session overview](#) [talk overview](#)

09:00-10:00 Session Plenary III: Human-Robot Cooperation with Torque-Controlled Light-Weight Robots in the Context of Future Manufacturing and Personal Assistance.

Author: Alin Albu-Schäffer (DLR-German Aerospace Center)

LOCATION: Salón de actos

10:00-10:30 Session A: Awards

LOCATION: Salón de actos

10:30-11:00 Coffee Break

11:00-12:00 Session FM1-R1: Challenges in medical robotics in the frame of Industry 4.0

CHAIRS: [Josep Amat](#) and [Alicia Casals](#)

LOCATION: R1 - Sala Juan Larrañeta

11:00 [Carles Soler](#)

Health 4.0 oriented to non-surgical treatment (abstract)

11:15 [Álvaro Bertelsen](#), [Davide Scorza](#), [Camilo Cortés](#), [Jon Oñativia](#), [Álvaro Escudero](#), [Emilio Sánchez](#) and [Jorge Presa](#)

Collaborative Robots for Surgical Applications (abstract)

11:30 [Alicia Casals](#), [Narcís Sayols](#) and [Josep Amat](#)
New Technologies in Surgery (abstract)

11:45 [Carmen López-Casado](#), [Enrique Bauzano](#), [Irene Rivas-Blanco](#), [Víctor F. Muñoz](#) and [Juan C. Fraile](#)

Collaborative robotic system for hand-assisted laparoscopic surgery (abstract)

11:00-12:00 Session FM1-R2: Robotics and cyber-physical systems for Industry 4.0 (I)

CHAIRS: [Jose Lima](#) and [Germano Veiga](#)

LOCATION: R2 - Salón de grados

11:00 [Ricardo Silva](#), [Luís F. Rocha](#), [Pedro Costa](#) and [Manuel Silva](#)

Off-line Programming of Collision Free Trajectories for Palletizing Robots (abstract)

11:15 [Mohammad Safeeqa](#), [Richard Bearee](#) and [Pedro Neto](#)

End-effector precise hand-guiding for collaborative robots (abstract)

11:30 [Francisco Navarro](#), [Javier Fdez](#), [Mario Andrei Garzon Oviedo](#), [Juan Jesús Roldán](#) and [Antonio Barrientos](#)

Integrating 3D reconstruction and virtual reality: a new approach for immersive teleoperation (abstract)

11:45 [César Toscano](#), [Rafael Arrais](#) and [Germano Veiga](#)

Enhancement of Industrial Logistic Systems with Semantic 3D Representations for Mobile Manipulators (abstract)

11:00-12:00 Session FM1-R4: General track:

Manipulation

CHAIRS: [Itziar Cabanes](#) and [Santiago Garrido](#)

LOCATION: R4 - Aula 008

11:00 [Francisco Azevedo](#), [Joana Carmona](#), [Tiago Paulino](#) and [Plinio Moreno](#)

Estimating objects' weight in precision grips using skin-like sensors (abstract)

11:15 [Pablo Bengoa](#), [Asier Zubizarreta](#), [Itziar Cabanes](#), [Aitziber Mancisidor](#) and [Charles Pinto](#)

Kinematic Estimator for Flexible Links in Parallel Robots ([abstract](#))

11:30 [David Álvarez](#), [Maximo A. Roa](#) and [Luis Moreno](#)
Tactile Based In-hand Object Pose Estimation ([abstract](#))

11:00-12:00 Session FM1-R5: Communication-aware robotics (I)

CHAIRS: [Alejandro R. Mosteo](#) and [Danilo Tardioli](#)

LOCATION: R5 - Aula 009

11:00 [J.M. Aguilar](#), [Pablo Ramon Soria](#), [B.C. Arrue](#) and [A. Ollero](#)

Cooperative perimeter surveil using Bluetooth framework under communication constraints ([abstract](#))

11:15 [Hannes Harms](#), [Julian Schmiemann](#), [Jan Schattenberg](#) and [Ludger Frerichs](#)

Development of an Adaptable Communication Layer with QoS Capabilities for a Multi-Robot System ([abstract](#))

11:30 [Yaroslav Marchukov](#) and [Luis Montano](#)

Trajectory planning under time-constrained communication ([abstract](#))

11:45 [Luis Ramos Pinto](#), [Luis Almeida](#) and [Anthony Rowe](#)

Balancing Packet Delivery to Improve End-to-End Multi-hop Aerial Video Streaming ([abstract](#))

12:00-13:00 Session FM2-R1: Rehabilitation and assistive robotics

CHAIRS: [Brigida Monica Faria](#) and [Luis Paulo Reis](#)

LOCATION: R1 - Sala Juan Larrañeta

12:00 [Jorge Díez](#), [Andrea Blanco Iborra](#), [José María Catalán Orts](#), [Arturo Bertomeu-Motos](#) and [Nicolas Garcia-Aracil](#)

Mechanical design of a novel hand exoskeleton driven by linear actuators ([abstract](#))

12:15 [Guillermo Asín](#), [Jose Gonzalez](#), [José L. Pons](#) and [Juan C. Moreno](#)

Robotic Platform with Visual Paradigm to Induce Motor Learning in Healthy Subjects ([abstract](#))

12:30 [Juan Pedro Dominguez-Morales](#), [Angel Jimenez-Fernandez](#), [Saturnino Vicente-Diaz](#), [Alejandro Linares-Barranco](#), [Asuncion Olmo-Sevilla](#) and [Antonio Fernandez-Enriquez](#)

A Protocol Generator Tool for Automatic in-vitro HPV Robotic Analysis ([abstract](#))

12:00-13:00 Session FM2-R2: Robotics and cyber-physical systems for Industry 4.0 (II)

CHAIRS: [Jose Lima](#) and [Germano Veiga](#)

LOCATION: R2 - Salón de grados

12:00 [Tomislav Petković](#), [Ivan Marković](#) and [Ivan Petrović](#)

Human Intention Recognition in Flexible Robotized Warehouses based on Markov Decision Processes ([abstract](#))

12:15 [Thadeu Brito](#), [Jose Lima](#), [Pedro Costa](#) and [Luis Piardi](#)

Dynamic collision avoidance system for a manipulator based on RGB-D data ([abstract](#))

12:30 [Luis Piardi](#), [José Lima](#), [Paulo Costa](#) and [Thadeu Brito](#)

Development of a Dynamic Path for a Toxic Substances Mapping Mobile Robot in Industry Environment ([abstract](#))

12:45 [Pedro Tavares](#), [Pedro Costa](#), [Germano Veiga](#) and [Antonio Paulo Moreira](#)

Poses Optimization Methodology for High Redundancy Robotic Systems ([abstract](#))

12:00-13:00 Session FM2-R4: Legged locomotion robots

CHAIRS: [Mario Andrei Garzon Oviedo](#) and [Manuel Silva](#)

LOCATION: R4 - Aula 008

12:00 [Jorge De León Rivas](#), [Mario Andrei Garzon Oviedo](#), [Antonio Barrientos](#) and [David Garzón-Ramos](#)

Study of Gait Patterns for an Hexapod Robot in Search and Rescue Tasks ([abstract](#))

12:15 [Mohammadreza Mohades Kasaei](#)

An Hybrid ZMP-CPG Based Walk Engine for Biped Robots ([abstract](#))

12:30 [Italo Oliveira](#), [Ramiro Barbosa](#) and [Manuel Silva](#)

Modelling, Trajectory Planning and Control of a Quadruped Robot Using Matlab R /SimulinkTM ([abstract](#))

12:00-13:00 Session FM2-R5: Communication-aware robotics (II)

CHAIRS: [Alejandro R. Mosteo](#) and [Danilo Tardioli](#)

LOCATION: R5 - Aula 009

12:00 [Teresa Seco](#), [Carlos Rizzo](#), [Jesús Espelosín](#) and [José Luis Villarreal](#)

Discrete Robot Localization in tunnels ([abstract](#))

12:15 [Samuel Barrios](#), [Natalia Ayuso](#), [Danilo Tardioli](#), [Luis Riazuelo](#), [Alejandro R. Mosteo](#), [Francisco Lera](#) and [José Luis Villarreal](#)

Low-Bandwidth Telerobotics in Fading Scenarios ([abstract](#))

12:30 [Carlos Rizzo](#), [Francois Chataigner](#), [Marcel Soler](#), [Pedro Cavestany](#), [Daniel Serrano](#), [Francisco Lera](#) and [Jose Luis Villarreal](#)

Wireless Propagation Characterization of Underground Sewers towards Autonomous Inspections with Drones ([abstract](#))

13:00-13:30 Session CS: Closing Session

LOCATION: Salón de actos