FINAL PROGRAM

28-30 October 2019

Palma de Mallorca, Spain

Organized by

Sponsored by
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General Information

1. Conference Location

The ESM'2019 Conference is being held at

Universitat de les Illes Balears
Sa Riera Hall
C/ de Miquel dels Sants Oliver, 2
07122 Palma, Spain
Tel: +34 971 17 30 14
Email: pilar.fuster@uib.es

BEWARE SA RIERA HALL IS LOCATED IN THE CITY CENTRE NOT ON THE UNIVERSITY CAMPUS

The registration desk will be placed in the hallway downstairs from Monday morning October the 28th onwards, where registration will start at 08.15 a.m. and will end at 5.00 p.m. On Tuesday October 29th registration will be from 9.00 a.m. - 5.00 p.m. with Wednesday registration only from 9.00 a.m.- 9.30 a.m. The way to the conference and desk will be signposted.

ALL MAJOR MAPS ARE AT THE BACK OF THIS PROGRAMME

How to reach the conference location in Palma de Mallorca:

By Plane

As Palma de Mallorca is a popular tourist destination it is easily reachable by plane from all over Europe. When arriving by plane in Palma de Mallorca, you will land at Palma de Mallorca Airport located 8 km east of Palma, Majorca, Spain.

The airport consists of four modules:

- **Module A** is located in the north of the airport. It has 28 gates of which 8 have airbridges. This is the only Module that has double airbridges attached to gates. The Pier is mainly used by flights to non-Schengen destinations including the UK and Ireland. This part of the terminal building used to be closed during winter months and is only used in the summer. For winter 2018/2019 it will remain open.

- **Module B** is the smallest module, located in the north east. It has 8 gates located on the ground floor, of which none have airbridges. It is used by regional aircraft of Air Nostrum, mainly operating flights to Ibiza Airport, Menorca Airport, Valencia Airport, Lleida Airport, Asturias Airport and Santiago de Compostela Airport.

- **Module C** is the largest of the Modules located in the east. It has 33 gates of which 9 have airbridges. It is used by Condor along with EasyJet and Norwegian Air Shuttle flights to Schengen destinations. The majority of airbridges have airberlin.com written on them.
General Information

- **Module D** is located in the south. It has 19 gates of which 10 have airbridges. All odd numbered gates are gates with a bus transfer.

From **Palma de Mallorca Airport** you can take either bus or taxi to Palma de Mallorca.

**By Bus**: If your choice is using the bus for transportation you will get a bus stop within the airport compound. The airport service bus is route 1. To get to Palma city you will have to part with €1.85 per adult. The buses are available every 15 minutes from 6.10 am to 1.10 am during winter and up to 2.15 am during summer. Different towns have different bus routes to get there. **By Taxi**: Taxis are available at the taxi ranks outside the arrivals area. Generally, taxi charges are charged per kilometre with a minimum charge. The prices also change depending on the **time of day or whether it is a holiday**.

**By Car**: There are car hire services available at Palma Airport. In total, there are five companies offering this service. Autos Anca offers a variety of vehicles to fit a large range of clientele. Similarly, these services can be obtained from Avis, Cicar, Europcar or Hertz. The services are available on arrival at the airport. The hiring price of vehicles ranges from about €140 to €300 per week, depending on your vehicle of choice. The price also varies according to the season.

**By Ferry**

You can reach Mallorca from Barcelona, València and Dénia with **Balearia**, and from Barcelona and València with **Transmediterranea**. You can also reach Mallorca from Toulon with **Corsica ferries**.

**By Train and Metro**

Mallorca has a small railway service that connects the capital, Palma, with several towns and villages on the island. It's divided into three routes which run between Palma and Inca, Sa Pobla, Manacor, Marratxí, Santa Maria, Consell, Binissalem, Lloseta, Muro, Sineu and Petra. There are also two metro lines in the city of Palma. Train and metro routes are operated by SFM (Serveis Ferroviaris de Mallorca). All of them depart and end at Palma 'Estació Intermodal', situated in Plaça d'Espanya. Updated information can also be found on the TIB (Transports de les Illes Balears) website.

Train and metro timetables vary depending on the day of the week. Fares depend on the journey as there are four different price zones, with single tickets ranging from €1.60 to €4.10 and return tickets from €3.20 to €8.20. Children under 4 years old travel for free.

You can purchase tickets from the ticket offices and automatic ticket machines at the stations of Palma, Inca and Manacor or from the train
General Information

Conductors will have some change so you don't need the exact money but many won't accept a note larger than €20. Guide dogs are allowed on all trains. Most lines also allow bikes on board, please enquire before boarding the train.

Palma has the shortest metro system in Spain, with just 16 kilometres and 15 stations divided into two lines. Metro services run from 'Estació Intermodal' in Plaça d'Espanya to Palma's northern outskirts. The Palma Metro is a train/metro line serving the Palma city area. It serves nine stations. From the transportation hub of Plaça d'Espanya it passes through Jacint Verdaguer, Son Fortesa - Son Costa, Son Fuster Vell, Son Castello, Gran Via Asima, Cami dels Reis, Son Sardina and Universitat de les Illes Balears. Trains run every 15 to 30 minutes between 06:30 and 22:00 from Monday to Friday. Metro 1 runs from Estació Intermodal to Son Espanyol and the university campus (with service on Saturday mornings). Metro 2 runs from Estació Intermodal to Marratxí.

By Bus

Palma has its own bus service run by EMT (look out for the blue buses). You pay for your journey when you get on board - single tickets only (€1.50, or €3 for journeys on line 1 to the port). Drivers won’t usually accept a note larger than €10. You can also buy a set of 10 journeys at a discounted rate of €10 in tobacco shops and the EMT office (Josep Anselm Clavé 5, around the corner from Olivar Market).

A night bus runs on Friday and Saturday nights - and on nights before a public holiday (fiesta time!). It starts on Avenida Gabriel Alomar and goes past Plaça Espanya, Avenida Argentina, Passeig Maritim, Port de Palma and Porto Pí roundabout. They run approximately every 25 minutes. Single tickets cost €1.50.

By Taxi

Taxis in Palma are white cars with a red and yellow stripe across the middle; they display a green light when free. They all have meters and will always use them so you do not need to worry about being overcharged.

The minimum taxi charge is €4,95 from Monday to Friday. All taxi drivers must display their taxi license and number at all times, and the taxi rates are displayed on the inside of the passenger window.

You will usually be able to hail a taxi at any central location and alternatively you can call Taxis Palma Radio for one on +34 971 401 414 or +34 971 400 004 (both lines are open 24 hours a day).
General Information

1. Badges
Each registrant will receive a name badge upon registration. The badge must be worn, in order to be admitted to the technical sessions, lunches and social event.

2. Tickets
Extra tickets for the social event and lunches are available from the registration desk. Price: (or equivalent in another currency) for extra tickets

<table>
<thead>
<tr>
<th>Extra conference dinner</th>
<th>€ 60</th>
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<tbody>
<tr>
<td>Extra lunch ticket</td>
<td>€ 25</td>
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</table>

3. Registration
The ESM’2019 Registration Desk will be open for information and registration:

- Monday, October 28 .......... 8.15 a.m. to 5.00 p.m.
- Tuesday, October 29 .......... 9.00 a.m. to 5.00 p.m.
- Wednesday, October 30 ....... 9.00 a.m. to 9.30 a.m.

The location of the registration desk will be signposted

4. Conference Proceedings
Each fully paid registrant will be provided with a copy of the Conference Proceedings (printed format). This is NOT applicable to students who are not authors and who have not fully registered.
(Extra copies are available on a cash and carry basis at special rates during ESM’2019)

Price: (or equivalent in another currency) for an extra copy

| ESM’2019 Proceedings CASH AND CARRY | € 50 |

6. Meeting Rooms and WIFI
The ESM’2019 conference will be held in rooms designated A (ASSEMBLY HALL), B (CLASSROOM 4) in this programme.

The way to the rooms will be signposted. WIFI-Internet is available and login information will be available at the conference.

7. Need Help?
Please see the conference desk for your questions
8. Social Event and Lunches

All registrants are invited to

All Coffee Breaks are served in Sa Siera Hall, Universitat de les Illes Balears

Universitat de les Illes Balears
Sa Riera Hall
C/ de Miquel dels Sants
Oliver, 2
07122 Palma, Spain
Tel:+34 971 17 30 14
Email: pilar.fuster@uib.es

Lunches served on Monday October 28th at

the restaurant of the
Hotel Palladium
Paseo Mallorca, 40
07012 Palma de Mallorca
Spain
(4 mins to Conference site on foot)

Lunches served on Tuesday October 29th at

the restaurant of the
HM Jaime III
Paseo Mallorca 14B
07012 Palma de Mallorca
Spain
(5 mins to Conference site on foot)
The Conference Dinner
All participants are invited to the conference dinner on TUESDAY the 29th of October. As we need to give an exact number of participants we would appreciate your confirmation at the desk before Monday lunchtime. The dinner location will be communicated at the conference.

9. Room Legend
The parallel meeting rooms will be designated ROOM A (Assembly Hall) and B. (Classroom 4) Signposts will indicate the room number above each door.

10. Best Paper Award
During the conference the papers, which were accepted as extended papers will be judged by the committee and conference participants in order to choose the best paper of the ESM'2019 conference. The best paper author of the conference receives a certificate and a free registration to any EUROSIS event held within 2 years after receiving the best paper award. This registration waiver is only VALID FOR 2 YEARS AFTER RECEIPT AND FOR 1 (ONE) PERSON. In case of multiple authors, one (1) author only can use the registration waiver.
Session Chairs information

ALL SESSION CHAIRPERSONS IN THIS PROGRAM ARE PROVISIONAL

Session Chairs are chosen on a voluntary basis by proposals by either authors or local committee members or are appointed by the Track Chairs, General Program Chair or General Conference Chair. They are responsible for their assigned session. They make sure their speakers are available, take care of the timing within the session, chair the discussion after each presentation and introduce each speaker based on the CV’s given to them by the authors. If a session chair is not available then the first author takes on the responsibility to chair. In case they chair a session featuring extended papers, then they are required to distribute and collect the reviews of that or those papers at the beginning and end of the session. If they have time they should also indicate in their papers the number of session participants.

THE NUMBERS NEXT TO THE PRESENTATIONS DENOTE THE PAGE-NUMBERS IN THE PROCEEDINGS. IF NO NUMBERS ARE MENTIONED THEN THIS PAPER IS NOT PUBLISHED IN THE PROCEEDINGS

THE AUTHORS WHO ARE UNDERLINED ARE NORMALLY THE PRESENTERS

PAPERS IN GREY BOXES ARE THE EXTENDED PAPERS ELIGIBLE FOR THE BEST PAPER AWARD

CHECK OUT THE OTHER EUROSIS EVENTS ON OUR WEBSITE:

http://www.eurosis.org
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<td>09.00-09.30</td>
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<td>09.30-10.30</td>
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Monday, 28th October 2019

HALLWAY
Registration
08.15 - 17.00

ROOM A – ASSEMBLY HALL
09.00 – 09.30
Opening ESM’2019 and Welcome

Welcome Address

Pilar Fuster-Parra, Universitat de les Illes Balears, Palma de Mallorca, Spain

ESM’2019 General Conference Chair

ROOM A – ASSEMBLY HALL - 09.30-10.30
KEY
KEYNOTE SPEAKER
Chair: Pilar Fuster-Parra, UIB, Palma de Mallorca, Spain

KEY_01
The ordered weighted Average: Theory and Applications
José M. Merigó, University of Chile and University of Technology (Sydney)
Monday, 28th October 2019

10.30 - 11.00
COFFEE BREAK

11.00 – 13.00

ROOM A – ASSEMBLY HALL - 11.00-13.00
AI-BASED DATA ANALYSIS
Chair: Pilar Fuster-Parra, UIB, Palma de Mallorca, Spain

AGENT_03
Multi-Agent Solution for a Distributed Intelligent Photo Fixation
Anton Ivaschenko, Arkady Krivosheev and Pavel Sitnikov

AI_01
Fault Detection of Elevator System Using Profile Extraction and Deep Autoencoder Feature Extraction
Krishna Mohan Mishra, John-Eric Saxen, Jerker Bjorkqvist and Kalevi J. Huhtala

AI_02
Predicting Motor Policy Loss – A ZAIG Model or a Two Stage Neural Network Approach?
Luke Aarohi and David Suda

FUZ_02
On Aggregation of Generalized Distances and an Application to Analysis of Algorithms
José Guerrero, Juan-José Miñana and Óscar Valero

N_01
The Evolution of Artificial Intelligence towards Autonomous Systems with Personality Simulation
Joël Colloc

ROOM B – CLASSROOM 4 - 11.00-13.00
ENGINEERING SIMULATION
Chair: Antoni Burguera, UIB, Palma de Mallorca, Spain

ENG_04_PAR
Classification of Electrical Power Peaks of Parallel Operating Machines
Armin Siegel
Monday, 28th October 2019

ENG_02
Application of Machine Learning to model a Biological Reactor in a Wastewater Treatment Plant
Jan Studziński and Andrzej Ziółkowski

METH_06_PAR
Analyzing the Coupling Process of Distributed Mixed Real-Virtual Prototypes
Peter Baumann, Oliver Kotte, Lars Mikelsons and Dieter Schramm

TOOLS_03_VR
Virtual Reality for a Realistic Simulation with Dynamic Motion Platforms
E. Thöndel

13.00 - 14.00
LUNCH BREAK

14.00 – 15.00

ROOM A – ASSEMBLY HALL - 14.00-15.00
FINANCIAL DATA SIMULATION I
Chair: Pilar Fuster-Parra, UIB, Palma de Mallorca, Spain

METH_04
Information Technology for Structural Flowsheet Synthesis, based on the Constraint Satisfaction Methods
Alexander Zuenko, Andrey Oleynik, Yuri Oleynik, Valeri Birukov and Roman Nikitin

METH_01
Improvement of Commercial Activities through a better Identification of Exporting Companies using unstructured Data
Kenneth Van den Bergh, Dries Van Nieuwenhuyse, Younes Ghammad, Andres Van Rompaey and Lode Vermeersch

ROOM B – CLASSROOM 4 - 14.00-15.00
LOGISTICS SIMULATION I
Chair: Gerrit Janssens, Hasselt University, Hasselt, Belgium
Monday, 28th October 2019

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15.30 – 17.30

ROOM A – ASSEMBLY HALL - 15.30-17.30

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Chair: José Javier Ramasco, UIB, Palma de Mallorca, Spain

RAND_01_LOGIS
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Mihai Neagoe, Mohammad Sadegh Taskhiri, Paul Turner and Hans-Henrik Hvolby ................................................................. 279

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17.30 - ……
FREE EVENING
Tuesday, 29th October 2019

HALLWAY
Registration
09.00 - 17.00

09.30 – 10.30

ROOM A- ASSEMBLY HALL- 09.30-10.30
KEYNOTE
Chair: Óscar Valero, UIB, Palma de Mallorca, Spain

KEY_02
Mobile Phone Records to feed Activity-based Travel Demand Models
José Javier Ramasco, (IFISC, UIB), Palma de Mallorca, Spain

10.30 - 11.00
COFFEE BREAK

11.00 - 13.00

ROOM A- ASSEMBLY HALL - 11.00-13.00
INTERNET OF THINGS
Chair: Jan Studzinski, Systems Res. Institute, Warsaw, Poland

IOT_01
Dynamic Anomaly Detection based on Recursive Independent Component Analysis of Multi-Variate Residual Signals
Edwin Lughofer, Mahardhika Pratama, Christian Eitzinger and Thomas Radauer

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LUNCH BREAK
Tuesday, 29th October 2019

14.00 - 15.00

ROOM A – ASSEMBLY HALL - 14.00-15.00
TUTORIAL
Chair: Carles Mulet, UIB, Palma de Mallorca, Spain

TUT_01
Consolidating unpredictable power sources - SMARTGRID
Janos Sebestyen Janosy, Centre for Energy Research, Hungarian Academy of Sciences, Budapest, Hungary

ROOM B – CLASSROOM 4 - 14.00-15.00
MEDICAL SIMULATION I
Chair: Óscar Valero, UIB, Palma de Mallorca, Spain

FUZ_05
Finding an Agreement with Midpoints between Fuzzy Sets in Medicine
Pilar Fuster-Parra, Javier Martin, Beatriz Romero-Ferrando and Óscar Valero

FUZ_01
Using Machine Learning and Heart Rate Variability Features to Predict Epileptic Seizures
Antoni Burguera

15.00 - 15.30
COFFEE BREAK
Tuesday, 29th October 2019

15.30 - 17.30

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<th>ROOM A – ASSEMBLY HALL - 15.30-17.30</th>
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<td><strong>SMART GRID AND CLOUD SIMULATION</strong></td>
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<tr>
<td><strong>Chair:</strong> Janos Janosy Sebestyen, Hungarian Acad. of Sci, Budapest, Hungary</td>
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Tuesday, 29th October 2019

BIO_03
On using EEG Signals for Emotion Modeling and Biometrics
Miguel Arevalillo-Herráez, Guilhermo Chicote-Huete, Francesc J. Ferri, Aladdín Ayesh, Jesús G. Boticario, Stamos Katsigiannis, Naeem Ramzan and Pablo Arnau-González

BIO_01
Mathematical Modelling of the Response of Male and Female Subjects to Vibration under Whole Body Vibration Training Conditions
Naser Nawayseh and Sadeque Hamdan

19.30 - 22.30

CONFERENCE DINNER – 19.30 -22.30

All registered participants are invited to the conference dinner, which will be held from 19.30 to 22.30. As we need to give an exact number of participants we would appreciate your confirmation at the desk before Monday lunchtime.

The dinner location will be communicated at the conference.
Wednesday, 30th October 2019

HALLWAY
Registration
09.00 - 09.30

09.30 – 10.30

ROOM A – ASSEMBLY HALL - 09.30-10.30
KEYNOTE SPEAKER
Chair: Carles Mulet, UIB, Palma de Mallorca, Spain

KEY_03
New Framework for Multi-Agent Systems: A Possibilistic Viewpoint
José Guerrero, Dep. of Mathematics and Computer Science, Universitat de les Illes Balears, Palma de Mallorca, Spain

ROOM B – CLASSROOM 4 - 09.30-10.30
SIMULATION OPTIMIZATION
Chair: Philippe Geril, ETI, Ostend, Belgium

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Wednesday, 30th October 2019

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Chair: José Guerrero, UIB, Palma de Mallorca, Spain

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Chair: Carles Mulet, UIB, Palma de Mallorca, Spain

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Michaela Jánošíková, Jozef Ristvej, Maroš Lacinák and Michaela Kollárová

ROOM A – ASSEMBLY HALL - 13.00 - 13.15
CLOSING SESSION AND BEST PAPER AWARD
Chair: Pilar Fuster-Parra, Universitat de les Illes Balears, Palma de Mallorca, Spain

Pilar Fuster-Parra, Universitat de les Illes Balears, Palma de Mallorca, Spain
Philippe Geril, EUROSIS, Ostend, Belgium
SEE YOU ALL AT
ESM'2020, October 2020
(exact dates to be confirmed shortly)

Toulouse, France

Track proposals and tutorial proposals can be sent in by
January 30th, 2020
Proposals for future ESM locations can be emailed to
philippe.geril@eurosis.org

Other upcoming EUROSIS conferences
SCIFI-IT’2020, March 23-25, 2020, De Krook, Ghent, Belgium
FOODSIM’2020, April 6-9, 2020, University of Leuven Research
Centre, Ghent, Belgium
ISC’2020, June 8-10, 2020, UCD Dublin, Ireland
GAME-ON’2020, September 23-25, 2020, Department of
Communication and Art, University of Aveiro, Aveiro, Portugal
MESM’2020 – GAME-ON ARABIA’2020, November 2020, American
University of Sharjah, UAE
ISC’2021, June 2-4, 2021, University of Malta, Valletta, Malta
ESM’2021, October 2021, Link Campus University, Rome, Italy
Conference Site Maps

Mallorca Train Metro Maps
EUROSIS was borne out of discussions with the European Community to set up a new kind of Society, which would be project-driven instead of driven by pure membership and conferences.

The aim of the Society is to set up and manage topic related Technical Committees which will link directly to European Projects in the field of computer simulation and related areas and to act as a knowledge pool for future European Networks of Excellence, like MOSAIC, HORIZON2020 by seeking out the latest innovations in simulation, modelling and AI research.

If you would like to receive more information about EUROSIS, please contact

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