

FINAL PROGRAM



24-26 October 2023



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AREA42



ESM®'2023 FOR THIS YEAR IS A HYBRID EVENT

ONLINE PRESENTATIONS ARE DENOTED BY _ONL AFTER THE PAPER CODE

The ESM®'2023 final programme also gives you info on how to virtually attend the event. A personalised email with login info will be forwarded to all registered participants

ESM'2023 at Conference Registration Form

Please legibly print or type and fill out completely. (Check appropriate boxes where necessary)

FIRST NAME	LAST NAME	M.I.
COMPANY OR AFFILIATION		
Mailing address (tick one): <input type="checkbox"/> HOME <input type="checkbox"/> BUSINESS		
STREET		
CITY		
ZIPCODE	COUNTRY	
TELEPHONE	FAX	
E-MAIL		
DATE	SIGNATURE	
1. <input type="checkbox"/> EUROSIS member € 595 Member Number: _____		€ _____
2. <input type="checkbox"/> Members of Sponsor or Affiliate Society € 595		€ _____
3. <input type="checkbox"/> Non-Member Participant € 635		€ _____
4. <input type="checkbox"/> Students, <u>who are not authors</u> but who wish to attend the conference, or ONE DAY PARTICIPANTS pay: € 465		€ _____
(Above registration fees include, one copy of the PROCEEDINGS, all midday meals, cocktail, refreshments, coffees and social program.) One Day Participants and Non-Author Students cannot participate in the conference dinner. – NOT APPLICABLE		
5. <input type="checkbox"/> Conference Dinner Ticket for Companion € 65 <input type="checkbox"/> Lunch Ticket for Companion €25 /day		€ _____
6. <input type="checkbox"/> Extra Conference Proceedings € 65 Cash and Carry		€ _____
VAT Number if applicable: _____		
TOTAL AMOUNT DUE		€ _____
		€ _____
TOTAL AMOUNT REMITTED		€ _____

Pay by **CREDIT CARD** and fill in the information below:

Charge my (tick one): ☐ Visa ☐ Euro/Mastercard ☐ American Express

CARD NO: _____ : _____ : _____ : _____ EXP.DATE: ____ / ____

Authorizing Signature: _____

Print Signature in CAPITALS



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, ERASMUS+ by seeking out the latest innovations in simulation, modelling and AI research.

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

Philippe Geril
EUROSIS-ETI
 Bluebridge – Ostend Science Park
 Torhoytsesteenweg 162 Bix 04.02
 B- 8400 Ostend, Belgium
 ☎ Tel: +32.473.231.297
 ✉ Email: Philippe.Geril@eurosis.org

Please send me info on EUROSIS:

Name:
 Address:

 Telephone
 Fax:
 Email:

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General Information

1. Conference Location

The **ESM®'2023 Conference** is being held at



ISAE-SUPAERO

First Floor - Pôle d'Enseignement I, 10, avenue Édouard-Belin, 31400 Toulouse, France

Tel: +33 (0) 5 61 33 80 80

Email: rob.vingerhoeds@isae-superaero.fr

supaero.fr

ISAE-SUPAERO is located at about 4 kilometers from the city centre.

The registration desk will be placed next to the **Entrance Gate** at 10 avenue Édouard-Belin from Tuesday morning October the 24th onwards, where registration will start at 08.00 a.m. and will end at 5.00 p.m. On Wednesday October 25th the registration will be open from 08.30 a.m. until 05.00 p.m. On Thursday October 26th registration will only be open 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 INCLUDING THE MAPS SHOWING THE LOCATION OF THE DAILY SHUTTLE BUSES TO AND FROM TOULOUSE CITY CENTRE AND ISAE-SUPAERO

How to reach the conference location in Toulouse

By Plane

When arriving by plane in Toulouse you will be arriving at The International [Toulouse-Blagnac Airport](#). As of April 2017, the airport features flights to 74 destinations mostly in Europe and Northern Africa with a few additional seasonal long-haul connections.

From [Toulouse-Blagnac Airport](#) you can take either **tram, airport shuttle, bus, coach or taxi** to Toulouse city centre and to LAAS.

By Tram from the Airport

The tramway line T2 offers you a direct way between the Toulouse city center and the airport. Travel time to the city centre:

Aéroport - Arènes: 21 minutes - connection to Metro line A

Aéroport - Palais de Justice: 32 minutes - connection to Metro line B

You can download the schedule [here](#) in pdf.

To find out about fares please use this [link](#).

By Airport Shuttle from the Airport

Shuttle buses to Toulouse city centre stop outside Hall B every 20 minutes. Faster than the tram, they take approximately 20 minutes to reach the city

ESM'2024



**SEE YOU ALL AT
ESM'2024, October 2024**

Locations and exact dates to be confirmed shortly

Track proposals and tutorial proposals can be sent in by
January 15th, 2024

Proposals for future ESM locations can be emailed to
philippe.geril@eurosis.org

Other upcoming EUROSIS conferences



MESM'2023, November 20-22, 2023, Al-Farahidi University, Baghdad, Iraq

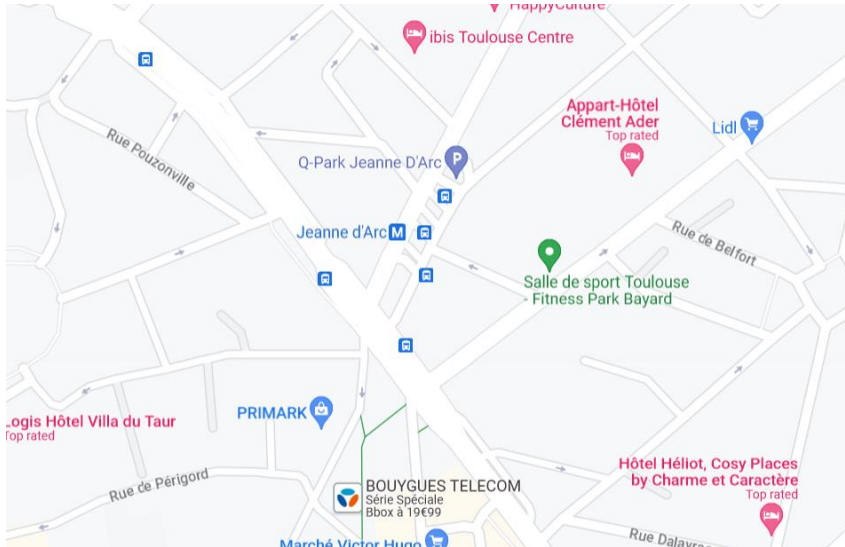


FOODSIM'2024 April 7-11, 2024, [University of Leuven/Campus Ghent](#), Ghent, Belgium

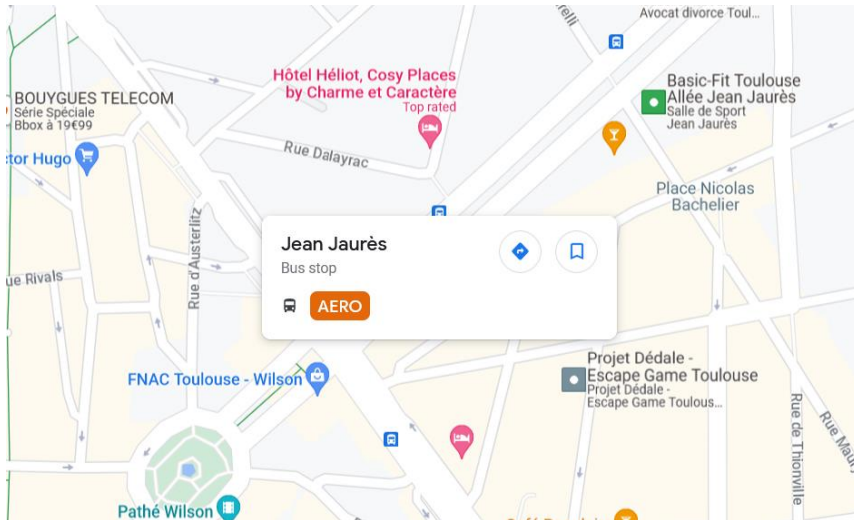


ISC'2024 June 3-5, 2024, [Universitat Politècnica de Valencia](#), Valencia, Spain

STOP AT JEANNE D'ARC



STOP AT JEAN JAURES



General Information

centre, stopping at Compans-Caffarelli and Jeanne d'Arc (both on [Metro Line B](#)), Jean Jaurès ([Metro Line A](#) and B) and at [Toulouse-Matabiau railway station](#)

Stops: **Ground floor gate C2, arrival levels.**

Duration: approximately 20 minutes, depending on traffic conditions.

Shuttle: Air-conditioned and wheelchair-friendly bus.

You can plan your shuttle trip using this [interactive map](#).

Each day the first bus departs at Toulouse airport from 5.40 a.m. and from Toulouse to the airport at 5.05 a.m.

Each day the last bus departs at Toulouse airport from 0.10 a.m. and from Toulouse to the airport at 9.40 p.m.

Price is €8

[By Bus](#) from the Airport

Many buslines can bring you to Toulouse-Blagnac Airport. You can use the connection with the metro lines at the airport's shuttles stop. Line serving Toulouse airport: Line 30 : Fenouillet Centre Commercial - Aéroport Toulouse-Blagnac You can see [here](#) the bus stop at the airport and those near.

The Department Council of Haute-Garonne has opened a new bus route to the Toulouse-Blagnac Airport: la ligne 88. This line serves Grenade, Ondes, Merville, Seilh, Beauzelle, Blagnac and Toulouse. Schedules correspond to a service for employees (morning, afternoon and evening). The bus stop is located outside of the B3 door. Bus : 55 places capacity.

You can work out the price using this [webpage](#).

By Taxi from the Airport

Taxis are available at the taxi ranks outside the arrivals area.

Arriving at Toulouse by plane at Toulouse-Blagnac airport and going directly to ISAE-SUPAERO

Taxi: 25 minutes

Shuttle Airport: every 15 minutes bringing you to Toulouse Matabiau train station, the shuttle also stops at the Allées Jean Jaurès, Place Jeanne d'Arc and Compans Caffarelli, total duration 45 minutes.

Bus + Subway: take the airport shuttle to the city center - 1/2 hour stop: Jeanne d'Arc Station, take metro line B towards Ramonville, Faculty of Pharmacy down station, then take the bus 78* or lower station Ramonville Saint- Agne, then take the bus 37 * or 27 *, stop "ISAE-SUPAERO".

By Train

When arriving by train in Toulouse you arrive at [Toulouse-Matabiau station](#). Toulouse-Matabiau station is well connected with the [French national railgrid](#) and is reachable from all major French cities town

General Information

Arriving at Toulouse by train at Matabiau Railway station and going directly to ISAE-SUPAERO

Taxi: 15 minutes

Metro: Take the subway, in the Railway Station, get off station Jean Jaurès, this station is the only point of correspondence between lines A and B underground.

Take line B, direction Ramonville, Faculty of Pharmacy down station, then take the bus 78 * or lower station Ramonville Saint-Agne, then take the bus - 37 * or 27 *, stop "ISAE-SUPAERO".

Metro: Take the 27* towards Ramonville, stop "ISAE-SUPAERO"

By Metro

Metro Lines A and B cross each other in the city centre of Toulouse as can be seen in this map. Line B is the one connecting the city centre with ISAE-SUPAERO.

Leaving the metro at Paul Sabatier Station and going directly to ISAE-SUPAERO

Leave the metro at the Université Paul Sabatier Station which is between Pharmacie station and Ramonville station

Outside Université Paul Sabatier station you walk to ISAE-SUPAERO

This takes about 10min to reach ISAE-SUPAERO.

By Car

Arriving in Toulouse by car (from beltway) and going directly to ISAE-SUPAERO

Exit 20, direction "Complexe scientifique de Rangueil"

Toulouse Train/Tram/Metro/Bus Maps

You can download all respective maps from this [link](#).

Or further maps here: <https://websites.isae-supaero.fr/2fnirs/conference-venue/travel-transportation/how-to-reach-the-city>

ESM®'2023 VIRTUAL PARTICIPATION AND PRESENTATION

As some ESM®'2023 participants have opted for an online presentation, we are opening up a virtual environment for the ESM®'2023 presentations using ZOOM: <https://zoom.us/> A first trial is envisaged on Friday the 20th of October from 14h00 to 15h00.

SHUTTLE BUS OVERVIEW



The bus company taking the participants to ISAE-SUPAERO and back is VERBUS

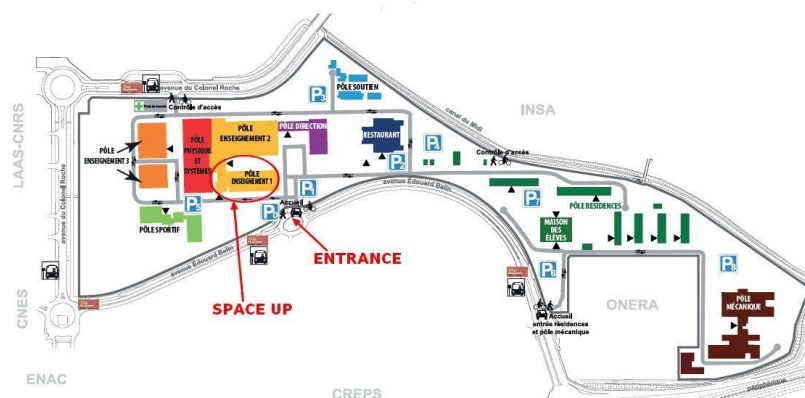
<https://www.verbus.com/>

Tuesday October 24
07.45 AM: Bus departs from Rue Jean Jaures at the Navette Aeroport Stop
08.00 AM: Bus halts at the Navette Aeroport stop Jeanne d'Arc to leave for ISAE-SUPAERO
17.45 P.M.: Bus departs from ISAE-SUPAERO and halts at Rue Jean Jaures at the Navette Aeroport Stop and at the Navette Aeroport stop Jeanne d'Arc
Wednesday October 25
07.45 AM: Bus departs from Rue Jean Jaures at the Navette Aeroport Stop
08.00 AM: Bus halts at the Navette Aeroport stop Jeanne d'Arc to leave for ISAE-SUPAERO
17.45 P.M.: Bus departs from ISAE-SUPAERO and halts at Rue Jean Jaures at the Navette Aeroport Stop and at the Navette Aeroport stop Jeanne d'Arc
Thursday October 26
07.45 AM: Bus departs from Rue Jean Jaures at the Navette Aeroport Stop
08.00 AM: Bus halts at the Navette Aeroport stop Jeanne d'Arc to leave for ISAE-SUPAERO
13.00 P.M.: Bus departs from ISAE-SUPAERO and halts at Matabiau, at Rue Jean Jaures at the Navette Aeroport Stop and at the Navette Aeroport stop Jeanne d'Arc
13.30 P.M.: Bus departs from ISAE-SUPAERO for AIRBUS.
14.30 P.M.: Bus arrives at AIRBUS Blagnac
16.05 P.M.: Bus departs from AIRBUS Blagnac to the Blagnac Airport (16.15 P.M.) while halting afterwards at Matabiau Station (17.15 P.M.) at Rue Jean Jaures at the Navette Aeroport (17.30 P.M.) and Stop and at the Navette Aeroport stop Jeanne d'Arc

CAMPUS MAP Overview of the Conference Site



Plan du campus ISAE-SUPAERO
10 avenue Edouard Belin - Toulouse



General Information

2.Login

Each registrant will receive a **name login** upon registration. The login is **personal and non-transferrable** and can only be your name. Company or generic university logins are **NOT** allowed. Non-regular logins will be removed from the online meetings.

3.Tickets

Prices of extra tickets for non-registered companions

Extra conference dinner	€ 65
Extra lunch ticket	€ 25

4. Registration

The ESM®'2023 Registration will be open onsite next to the Entrance Gate at 10 avenue Édouard-Belin and online for information and registration info for those already registered. **AT CONFERENCE REGISTRATION CAN ONLY BE DONE ONLINE FOR THOSE STILL WISHING TO REGISTER AS A VIRTUAL PARTICIPANT AT THIS TIME**

<https://www.eurosis.org/conf/esm/2023/email-registration.html>

Tuesday, October 24.....8.00 a.m. to 5.00 p.m.
Wednesday, October 258.30 a.m. to 5.00 p.m.
Thursday, October 269.00 a.m. to 9.30 a.m.

5. Conference Proceedings

Each electronic **fully** paid registrant will be provided with an electronic copy of the Conference Proceedings. **Fully paid onsite participants** will be provided with a printed copy of the conference proceedings as well as an electronic copy. **This is NOT applicable to students who are not authors and who have not fully registered.**

(Extra electronic or printed copies are available after ESM®'2023)

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

Printed ESM®'2023 Proceedings	€ 65 plus 30% shipping costs
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6. Meeting Rooms and Room Legend

The ESM®'2023 conference will be held in **parallel meeting rooms designated Amphitheatre 4, ROOM A (Salle 61-101) ROOM B (Salle 61-102) and ROOM C (Salle 61-103)** in this programme.

General Information

7. Need Help?

Please see the registration desk or contact EUROSIS (philippe.geril@eurosis.org) for your questions

8. Social Event and Lunches

All registrants are invited to

All **Coffee Breaks** for all 3 days which are served in the



Hallway First Floor
Pôle D'enseignement I
ISAE-SUPAERO
10 Avenue Édouard Belin

All lunches on the 24th, 25th and 26th(* **FOR AIRBUS VISITORS ONLY**) are served at



ISAE-SUPAERO
Restaurant – Salle de
Direction
10 Avenue Édouard Belin

The Conference Dinner

All participants are invited to the conference dinner which will be held on **WEDNESDAY the 25th of October at the Brasserie Beaux-Arts**. As we need to give an exact number of participants we would appreciate **your confirmation at the desk before Tuesday lunchtime**.



Brasserie Beaux-Arts
1 Quai de la Daurade
F-31000 Toulouse, France
<https://brasserielesbeauxarts.fr/>
Tel: +33.(0)5 61 21 12 12
Email: contact@brasserielesbeauxarts.fr

Thursday, 26th October 2023

ROOM A – 12.30 - 12.45

BEST PAPER

CLOSING SESSION AND BEST PAPER AWARD

Chair: Rob Vingerhoeds, ISAE-SUPAERO, Toulouse, France

Prof. Rob Vingerhoeds, ISAE-SUPAERO, Toulouse, France

Philippe Geril, EUROSIS, Ostend, Belgium

12.45

END OF CONFERENCE

The shuttle bus will take all non- AIRBUS participants back to the city centre



AIRBUS

**12.30 – 13.30
LUNCH BREAK**

FOR AIRBUS PARTICIPANTS ONLY

13.30- 16.30 VISIT TO AIRBUS

The shuttle bus will take all AIRBUS participants back to the city centre and/or Toulouse Airport

Thursday, 26th October 2023

10.30 – 12.30

ROOM A – Salle 61 101 - 10.30-12.30 **AI**
CHATBOTS, SOCIAL BOTS AND TEXT PROCESSING
Chair: Joël Colloc, Université of Le Havre, Le Havre, France

SIM_IOT_SMART_03
A Proposal for Federated Chatbots for Distributed Information Access
Fernando Tricas García..... 151

SIM_AI_05
Active Speaker Detection in a Social Human-Robot Interaction Maintenance System for Social Robots
Kamil Skowroński and Adam Galuszka 155

SIM_AI_06
Application of Data-Collecting Chatbot for Polish Text Emotion Analysis
Kamil Skowroński 161

SIM_ANMT_07_ONL
From Text Processing to Data Structuration in the Geographic Context
Nesrine Hassini, Khaoula Mahmoudi and Sami Faiz..... 166

ROOM B – Salle 61 102 - 10.30-12.00 **BIO**
SIMULATION IN BIOLOGY
Chair: Philippe Geril, ETI, Ostend, Belgium

SIM_METH_03_BIO
An Integrative Coinfection Modeling & Simulation Framework
Cheick A. T. Camara and Mamadou K. Traoré..... 415

SIM_BIO_02
Computational Method for Diagnosing Cardiovascular Diseases with Preliminary Filtering of Measurement Errors of Cardiogram Parameters
Igor Atamanyuk, Yuriy Kondratenko, Olena Shebanina, Marcin Dudziński, Eugene Borchik and Oleksiy Sadovoy..... 420

SIM_BIO_03_ONL
A Simple SIS Model with a Transmission Function built on the Natural Logarithm
Marcin Choiński 425

Session Chairs information



9. Conference Visit to

All pre-registered participants are invited to come and visit the AIRBUS site from 13.30 to 16.30 on Thursday the 26th of October. **IMPORTANT:** You will need to bring a **valid passport or national identity card ONLY** with you to be able to participate in this tour. Careful: **at least 3 months of remaining validity for the document is required.** Without such an identification document, you will not be able to join the tour.

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®2023 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.

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

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

TUESDAY, 24th OCTOBER 2023			
08.00-17.00	REGISTRATION		
08.45-09.00	WELCOME BY ROB VINGERHOEDS– ESM'2023 GENERAL CONFERENCE CHAIR – AMPHITHEATRE 4		
09.00-10.00	KEYNOTE SPEECH BY GAUTIER HATTENBERGER – AMPHITHEATRE 4		
10.00-10.30	COFFEE BREAK		
10.30-11.30	KEYNOTE SPEECH BY LUDOVIC APVRILLE – AMPHITHEATRE 4		
11.30-12.30	PARALLEL SESSIONS		
	ROOM A	ROOM B	ROOM C
	SIMULATION IN AEROSPACE	MACHINE LEARNING I	
12.30-13.30	LUNCH BREAK		
13.30-15.00	PARALLEL SESSIONS		
	ROOM A	ROOM B	ROOM C
	AUTONOMOUS SYSTEMS SIMULATION	MACHINE LEARNING II	
15.00-15.30	COFFEE BREAK		
15.30-17.30	PARALLEL SESSIONS		
	ROOM A	ROOM B	ROOM C
	SIMULATION IN BUSINESS APPLICATIONS	AGENT BASED SIMULATION	
17.30	END OF DAY I		

Thursday, 26th October 2023

Registration

09.00 - 09.30

09.00 – 10.30

ROOM A – Salle 61 101 - 09.00-10.30 DIGI
DIGITAL TWINS
Chair: Yves Dumond, Université Savoie Mont Blanc, France

SIM_BIO_05_ONL
Prediction of Fuel Consumption in Forest Machines with the Application of Experimentable Digital Twins
Abhay Bharadwaj, Michael Schluse, Arthur Wahl and Jürgen Roßmann **331**

SIM_AERO_05
A Novel Software Approach for Modular Satellite Systems Based on Digital Twins
Kristina Enes, André Kupetz, Mathias Tesch and Jürgen Roßmann **336**

SIM_IOT_SMART_06
Exploring Blockchain Based Digital Twins with Remote Attestation
Kaisa Jatkola and Ian Oliver **324**

ROOM B – Salle 61 102 - 09.00-10.00 BACK-UP
BACK-UP SESSION
Chair: TBA

This is a session for authors who through unforeseen circumstances were unable to present their paper at the allocated timeslot. Contact the registration desk for further info.

10.00 - 10.45
COFFEE BREAK

Wednesday, 25th October 2023

SIM_IOT_SMART_05_ONL

A Secure and Adaptive IoT Architecture for Industry 4.0 Leveraging Flexible Manufacturing Simulators

Aymen Wali, Hichem Mrabet and Abderrazek Jemai 314

SIM_IOT_SMART_12_ONL

Network Resource Management for Cyber-Physical Production Systems Based on Quality of Experience

Attila Vidács, Zalan Trombitás and Géza Szabó 317

SIM_IOT_SMART_10_ONL

Systematic Look at MCDM Methods for Designing Smart Home System

Victor Danev, Tatiana Atanasova and Dimitar Parvanov 324

17.30

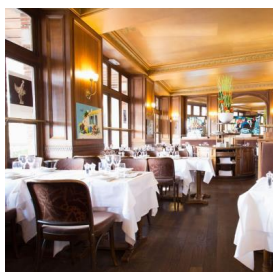
END OF DAY II

The shuttle bus will take all participants back to the city centre

20.00

CONFERENCE DINNER

All **ESM®'2023** participants are invited to the Conference Dinner which will be held from 20.00 p.m. at the:



Brasserie Beaux-Arts
1 Quai de la Daurade
F-31000 Toulouse, France
<https://brasserielesbeauxarts.fr/>
Tel: +33.(0)5 61 21 12 12
Email: contact@brasserielesbeauxarts.fr

WEDNESDAY, 25 th OCTOBER 2023			
08.30-17.00	REGISTRATION		
09.00-10.00	PARALLEL SESSIONS		
	ROOM A	ROOM B	ROOM C
	INVITED SPEECH JOËL COLLOC	LEARNING AGENTS I	SIMULATION IN LOGISTICS I
10.00-10.30	COFFEE BREAK		
10.30-12.30	SESSION		
	ROOM A	ROOM B	ROOM C
	ENGINEERING SIMULATION	ANALYTICAL AND NUMERICAL ANALYSIS	SIMULATION IN LOGISTICS II
12.30-13.30	LUNCH BREAK		
13.30-15.00	PARALLEL SESSIONS		
	ROOM A	ROOM B	ROOM C
	STRATEGIC DECISION MAKING	LEARNING AGENTS II	TRAFFIC SIMULATION
15.00-15.30	COFFEE BREAK		
15.30-17.30	PARALLEL SESSIONS		
	ROOM A	ROOM B	ROOM C
	ENVIRONMENTAL SIMULATION MANAGEMENT	STATISTICAL SIMULATION AND OPTIMIZATION	SIMULATION IN IOT AND SMART INDUSTRY
17.30	END OF DAY II		
20.00-22.30	CONFERENCE DINNER		

Wednesday, 25th October 2023

THURSDAY, 26 th OCTOBER 2023			
09.00-09.30	REGISTRATION		
09.00-10.30	PARALLEL SESSIONS		
	ROOM A	ROOM B	ROOM C
	DIGITAL TWINS	BACK-UP SESSION	
10.00-10.45	COFFEE BREAK		
10.30 12.30	PARALLEL SESSIONS		
	ROOM A	ROOM B	ROOM C
	CHATBOTS SOCIAL BOTS AND TEXT PROCESSING	SIMULATION IN BIOLOGY	
12.30-12.45	CLOSING SESSION AND BEST PAPER AWARD ROOM A		
12.45-13.30	LUNCH BREAK FOR AIRBUS REGISTERED PARTICIPANTS		
13.30-16.30	VISIT TO AIRBUS FOR PRE-REGISTERED PARTICIPANTS		

SIM_AI_NEUR_01_BIO

Performance Analysis of Residual Neural Networks in Soil Bacteria

Microscopic Image Classification

Aleksandra Konopka, Karol Struniawski and Ryszard Kozera..... 144

SIM_AERO_03_ONL

The Warning from the Far Side of the Moon

William Conley..... 123

ROOM B – Salle 61 102 - 15.30-17.30

ENV

STATISTICAL SIMULATION AND OPTIMIZATION

Chair: Mamadou K. Traoré, University of Bordeaux, Talence, France

SIM_METH_09_ONL

Study on Random Number Scaling

Gergana Mateeva, Dimitar Parvanov and Todor Balabanov 21

SIM_METH_10_ONL

The Problem of Thread Synchronization Frequency in the Computer Simulation of a Dynamic System

Paweł Hoser, Bartłomiej Kubica and Luiza Ochnio..... 26

SIM_OPT_02_ONL

Statistical Optimization solving Nonlinear Systems with 35 Different Sample Sizes for each of the 35 Stages

William Conley..... 31

SIM_DISC_01

Comparing Different Pruning Strategies for the Decoding Task using Virtual Stochastic Sensors

Dávid Bodnár and Claudia Krull..... 37

ROOM C – Salle 61 103 - 15.30-17.30

IOT

SIMULATION IN IOT AND SMART INDUSTRY

Chair: TBA

SIM_IOT_SMART_01_ONL

Anomaly Detection and Prevention for Smart Industry IoT using the IoT-23 Dataset

Bilel Arfaoui, Hichem Mrabet and Abderrazak Jemai 309

Wednesday, 25th October 2023

NOTES

SIM_GRAPH_01_ONL

E-Learning Platform with Project-Based Learning and Artificial Intelligence

Sonia Amamou, Nezar Torche and Lilia Chniti 217

ROOM C – Salle 61 103 -13.30-15.00

AI

TRAFFIC SIMULATION

Chair: Pierre de Saqui-Sannes, ISAE-SUPAERO, Toulouse, France

SIM_DISC_03_LOGIS

Identifying Under-Served Areas by Simulating Taxi Rides

Dhananjai M. Rao..... 397

SIM_AERO_01_LOGIS_WEB

Development of Flight Guidance Control Laws for a Web Based Air Traffic Control Simulator

Thierry Miquel, Antoine Pierre and Mikael Frenot..... 402

SIM_TRAF_01_ONL

Extraction and Processing of Geographic Data for the Automatic Generation of 3D Traffic Environments

Ben De Schampheleire, Benoît Pairet and Rob Haelterman 407

15.00 - 15.30

COFFEE BREAK

15.30 – 17.30

ROOM A – Salle 61 101 - 15.30-17.30

ENV

ENVIRONMENTAL SIMULATION MANAGEMENT

Chair: Rob Vingerhoeds, ISAE-SUPAERO, Toulouse, France

SIM_RISK_01

Combining Shape-Based and Raster-Based Approaches for Forest Fires Simulation

Yves Dumond..... 131

SIM_AI_FUZ_01

An Expert System that solves the Sugarcane Harvest Programming Problem: A Case Study in a Mexican Sugar Mill

Jose Manuel Flores-Perez, Catherine Azzaro-Pantel, Alberto A. Aguilar Lasserre and Gregorio Fernandez Lambert 139

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Wednesday, 25th October 2023**SIM_IOT_SMART_14_ONL****Last Mile Delivery – Optimization Problems in the Context of Industry 4.0**Eryka Probiez, Wojciech Sikora and Adam Galuszka 389**12.30 – 13.30****LUNCH BREAK****13.30 - 15.00****ROOM A – Salle 61 101 -13.30-15.00****BUS****STRATEGIC DECISION MAKING****Chair:** Igor Litvine, Nelson Mandela University, South Africa**SIM_PRED_01_ONL****Integrating Game Theory into Technology Roadmapping: A Pathway to Strategic Decision Making**Ariane Beaudoin-Bussi res and Rob Vingerhoeds..... 99**SIM_EVAL_INTERACT_01_ONL****Simulation and Computational Intelligence Methods for Combat Groupings Operational Capabilities Analysis in Cross-Domain Operations**Andrzej Najgebauer and Dawid Ma lanik..... 105**SIM_RISK_INTEL_02****New Trends in the Use of Simulations for Crisis Management**Bronislava Hal skov  and Jozef Ristvej..... 115**ROOM B – Salle 61 102 -13.30-15.00****AI****LEARNING AGENTS II****Chair:** Jo l Colloc, Universit  de Le Havre, Le Havre, France**SIM_AI_EX_01_ONL****A Novel Rule-Based Oversampling Approach for Imbalanced Data Classification**Xiao Zhang, Iv n Paz and  ngela Nebot..... 208**SIM_LOGIS_ON_ONL****Prediction of FTL Transport Cost based on Historical Data and Multiple Linear Regression Model**Adam Galuszka, Jaroslaw Smieja, Tomasz Grzejszczak, Marcin Wolak, Marek Harasny, Karol Jedrasiak, Maciej Zalwert and Eryka Probiez 213

Wednesday, 25th October 2023

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ANALYTICAL AND NUMERICAL ANALYSIS

Chair: Joël Colloc, Université of Le Havre, Le Havre, France

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Tuesday, 24th October 2023

Registration

08.00 - 17.00

AMPHITHEATRE 4 - 08.45 – 09.00

Opening ESM'2023 and Welcome

Welcome Address

Prof. Rob Vingerhoeds, ISAE-SUPAERO, Toulouse, France

ESM®'2023 General Conference Chair

09.00 – 10.00

AMPHITHEATRE 4 - 09.00-10.00

KEY

KEYNOTE SPEAKER

Chair: Rob Vingerhoeds, ISAE-SUPAERO, Toulouse, France



KEY_01

[Simulation for UAV systems: from Flight Preparation to Air Traffic Control](#)

Dr. Gautier Hattenberger, ENAC, Toulouse, France

10.00 - 10.30
COFFEE BREAK

Tuesday, 24th October 2023

10.30 – 11.30

AMPHITHEATRE 4 - 10.30-11.30

KEY

KEYNOTE SPEAKER

Chair: Rob Vingerhoeds, ISAE-SUPAERO, Toulouse, France



KEY_02

[Automated System Engineering with Artificial Intelligence](#)

Prof. Ludovic Aprville, Telecom Paris, Sophia Antipolis, France

11.30 – 12.30

ROOM A - Salle 61-101 - 11.30-12.30

AERO

SIMULATION IN AEROSPACE

Chair: Rob Vingerhoeds, ISAE-SUPAERO, Toulouse, France

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MACHINE LEARNING I

Chair: Eric MSP Veith, Carl von Ossietzky Univ. Oldenburg, Germany

Wednesday, 25th October 2023

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COFFEE BREAK

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Chair: Eric MSP Veith, Carl von Ossietzky Univ. Oldenburg, Germany

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Chair: Pierre de Saqui-Sannes, ISAE-SUPAERO, Toulouse, France



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15.00 - 15.30

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15.30 – 17.30

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END OF DAY I

The shuttle bus will take all participants back to the city centre