

# FINAL PROGRAM



**25-27 October 2017**



**Lisbon, Portugal**

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## General Information

### 1. Conference Location

The **ESM'2017 Conference** is being held at



#### [Centro de Congressos do IST](#)

Rooms 02.2, 01.1, 02.3  
Instituto Superior  
Técnico  
Campus Alameda  
Av. Rovisco Pais, 1,  
1049-001 Lisboa  
☎ Tel: +351 218 418  
069

The registration desk will be placed in the hallway downstairs from Wednesday morning October the 25<sup>th</sup> onwards, where registration will start at 08.00 a.m. and will end at 5.00 p.m. On Thursday October 26<sup>th</sup> registration will be from 8.30 a.m. - 5.00 p.m. with Friday 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 Lisbon:

##### By Plane

When arriving by plane you would arrive at Lisbon's [Portela Airport](#) - (other [website](#)) which is located within the city limits. There is a bus network from the airport that offers services to passengers who are travelling to various destinations from the airport. For passengers heading for [Cais do Sodre Railway Station](#) the No. 91 bus service offered by Carris is the bus for you. There are also other bus routes operating from the airport heading to various locations within the city

. A ticket to the city center should cost €1.35. One also has an option of purchasing an all day ticket at €3.35.

- [AEROBUS](#): Linking the Airport to downtown Lisbon and Cais do Sodre (every 20 minutes from 7 a.m. to 9 p.m.)
- [CARRIS BUSES](#): No. 5, 8, 22, 44, 45, 83;

## General Information

### Taxi from Airport

Outside the terminal buildings one is able to obtain taxi services. These generally charge an average of €15 to the city center. Some of the taxis have meters in them. They charge a minimum of €2.35 during the day and €2.50 at night. Though some of the taxi drivers may take longer routes to keep the meter running, the trip should take an average of 15 minutes to the city center.

### By Train

There are four commuter train lines arriving in Lisbon: the Cascais, Sintra and Azambuja lines (operated by CP – Comboios de Portugal), as well as a fourth line to Setúbal (operated by Fertagus) crossing the Tagus river, over the 25 de Abril Bridge. The major railway stations are [Santa Apolónia](#), Rossio, Gare do Oriente, Entrecampos, and [Cais do Sodre Railway Station](#). You can download the train link map [here](#).

### By Metro

Another great way of getting around Lisbon is by [Metro](#). (see the [zoomable metro map](#)) The closest stop to Universidade Nova de Lisboa is [xxxx](#). or you can download the map [here](#). The closest stop to IST is [Alameda metro station](#).

### By Tram

The current lines are:

- 12 - Praça da Figueira - Miradouro de Santa Luzia circular route
- 15 - Praça da Figueira – Algés
- 18 - Cais do Sodré railway station - Cemitério Ajuda
- 25 - R. Alfândega - Campo de Ourique
- 28 - Praça Martim Moniz - Chiado - Campo de Ourique

The five remaining lines only operate in the southern centre and west of the city. Despite the relevant tourist attraction, those lines are still very important because of sections of the city's topography that can only be crossed by small trams. Tram 15 also connects the entire western river front of the city to the centre and allows a better flow of passengers with the bus system towards an area that still is not served by the metro.

### By Bus

The closest bus stops to IST are Av. de Antonio Jose de Almeida (bus 713, 716, 720, 742, 767) and Arco Cego (713, 716, 726 and 742)

## General Information

### 2. 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.**

### 3. Tickets

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

Extra conference dinner	€ 60
Extra lunch ticket	€ 25

### 4. Registration

The ESM'2017 Registration Desk will be open for information and registration:

Wednesday, October 25..... 8.00 a.m. to 5.00 p. m.  
 Thursday, October 26..... 8.30 a.m. to 5.00 p. m.  
 Friday, October 27 ..... 9.00 a.m. to 9.30 a.m.

**The location of the registration desk will be signposted**

### 5. 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'2017**)

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

ESM'2017 Proceedings CASH AND CARRY	€ 50
-------------------------------------	------

### 6. Meeting Rooms

The ESM'2017 conference will be held in **rooms designated A (room 02.2) , B (room 01.1) and C (room 02.3)** 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

# General Information

## 8. Social Events and Lunches

All registrants are invited to

All **Coffee Breaks** are served in the hallway in front of the meeting rooms



**Lunches** are served at

[Café Imperio](#)

Av. Almirante Reis, 205 A,  
1000-048 Lisbon, Portugal

We will walk together to the lunches as it is outside IST.

## The Conference Dinner

All participants are invited to the conference dinner on **THURSDAY** the 26<sup>th</sup> of October. As we need to give an exact number of participants we would appreciate **your confirmation at the desk before Wednesday lunchtime**.

The dinner will be held at:



[Museu da Cerveja](#)

Terreiro do Paço – Ala  
Nascente

Nº 62 a 65, 1100-148 Lisboa,  
Portugal

Tel: +351 210 987 656

## 9. Room Legend

The parallel meeting rooms will be designated **ROOM A (02.2) B (01.1) and C. (02.3)** Signposts will indicate the room number above each door.

## General Information

### 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'2017 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>



<b>WEDNESDAY, 25<sup>th</sup> OCTOBER 2017</b>			
08.00-17.00	<b>REGISTRATION IN THE HALLWAY</b>		
09.00-09.15	<b>WELCOME BY PAULO JORGE SEQUIERA GONÇALVES – ESM’2017 CONFERENCE CHAIR - ROOM A 02.2</b>		
09.15-10.00	<b>KEYNOTE ADDRESS BY NICOLAE AND DANIELA VASILIU- ROOM A -02.2</b>		
10.00-10.30	<b>COFFEE BREAK</b>		
10.30-12.30	<b>PARALLEL SESSIONS</b>		
	<b>ROOM A 02.2</b>	<b>ROOM B 01.1</b>	<b>ROOM C 02.3</b>
	<b>GRAPHICAL DATA SIMULATION I</b>	<b>PRODUCTION SCHEDULING</b>	<b>SENSOR NETWORK SIMULATION</b>
12.30-14.00	<b>LUNCH BREAK</b>		
14.00-15.00	<b>PARALLEL SESSIONS</b>		
	<b>ROOM A 02.2</b>	<b>ROOM B 01.1</b>	<b>ROOM C 02.3</b>
	<b>GRAPHICAL DATA SIMULATION II</b>	<b>INVITED SPEAKER PAULO JORGE SEQUIERA GONÇALVES</b>	<b>ELECTRONICS SIMULATION</b>
15.00-15.30	<b>COFFEE BREAK</b>		
15.30-18.00	<b>PARALLEL SESSIONS</b>		
	<b>ROOM A 02.2</b>	<b>ROOM B 01.1</b>	<b>ROOM C 02.3</b>
	<b>SIMULATION METHODOLOGY AND TOOLS</b>	<b>SUPPLY CHAIN SIMULATION AND INVENTORY MANAGEMENT</b>	<b>AEROSPACE SIMULATION</b>
18.00-.....	<b>FREE EVENING</b>		

<b>THURSDAY, 26<sup>th</sup> OCTOBER 2017</b>			
<b>08.30-17.00</b>	<b>REGISTRATION</b>		
<b>09.00-10.00</b>	<b>KEYNOTE ADDRESS BY JOËL COLLOC ROOM A -02.2</b>		
<b>10.00-10.30</b>	<b>COFFEE BREAK</b>		
<b>10.30-12.30</b>	<b>PARALLEL SESSIONS</b>		
	<b>ROOM A 02.2</b>	<b>ROOM B 01.1</b>	<b>ROOM C 02.3</b>
	<b>GRAPHICAL HUMAN SIMULATION BIO-ANALYSIS</b>	<b>LOGISTICS SIMULATION</b>	<b>DECISION MANAGEMENT SIMULATION</b>
<b>12.30-14.00</b>	<b>LUNCH BREAK</b>		
<b>14.00-15.00</b>	<b>KEYNOTE ADDRESS BY HELENA BARBAS ROOM A – 02.2</b>		
<b>15.00-15.30</b>	<b>COFFEE BREAK</b>		
<b>15.30-18.00</b>	<b>PARALLEL SESSIONS</b>		
	<b>ROOM A 02.2</b>	<b>ROOM B 01.1</b>	<b>ROOM C 02.3</b>
	<b>TUTORIAL</b>	<b>TRAFFIC SIMULATION</b>	<b>FINANCIAL SIMULATION</b>
<b>20.00 – 22.30</b>	<b>CONFERENCE DINNER</b>		

<b>FRIDAY, 27<sup>th</sup> OCTOBER 2017</b>			
<b>09.00-09.30</b>	<b>REGISTRATION</b>		
<b>09.00-10.00</b>	<b>PARALLEL SESSIONS</b>		
	<b>ROOM A 02.2</b>	<b>ROOM B 01.1</b>	<b>ROOM C 02.3</b>
	<b>INVITED SPEAKER JANOSY JANOS-SEBESTYEN</b>	<b>FLUID FLOW SIMULATION</b>	<b>ENGINEERING SIMULATION</b>
<b>10.00-10.30</b>	<b>COFFEE BREAK</b>		
<b>10.30 12.00</b>	<b>PARALLEL SESSIONS</b>		
	<b>ROOM A 02.2</b>	<b>ROOM B 01.1</b>	<b>ROOM C 02.3</b>
	<b>ENERGY FORECASTING AND OPTIMIZATION</b>	<b>BIOLOGICAL DATA SIMULATION</b>	<b>HUMAN COMPUTER INTERFACES</b>
<b>12.00-12.15</b>	<b>CLOSING SESSION AND BEST PAPER AWARD ROOM A - 02.2</b>		

# Notes

## NOTES

**Wednesday, 25<sup>th</sup> October 2017**

**HALLWAY**

**Registration**

**08.00 - 17.00**

**ROOM A – 02.2**

**09.00 – 09.15**

**Opening ESM'2017 and Welcome**

**Welcome Address**

Paulo J.S. Gonçalves, Instituto Politécnico de Castelo Branco, Portugal,  
and, IDMEC/LAETA, Instituto Superior Técnico, Universidade de Lisboa,  
Portugal

**ESM'2017 General Conference**

**ROOM A – 02.2. - 09.15-10.00**

**KEY**

**KEYNOTE**

**Chair:** Paulo J.S. Gonçalves, IST-IDMEC, Lisbon, Portugal



**KEY\_01**

**[Modeling and simulation of the multidisciplinary processes with AMESim](#)**

Nicolae Vasiliu and Daniela Vasiliu, POLITEHNICA  
University of Bucharest, Bucharest, Romania

Welcome

## Wednesday, 25<sup>th</sup> October 2017

**10.00 - 10.30**

**COFFEE BREAK**

**10.30 – 12.30**

**ROOM A – 02.2 - 10.30-12.30**

**DATA**

**GRAPHICAL DATA SIMULATION I**

**Chair:** Yves Dumond, Universite Savoie Mont Blanc, Le Bourget-du-Lac Cedex, France

**PAR\_02**

**Multi-Master Replication in Eventually Consistent Simulation Grids**

Stefan Elsen ..... 63

**TOOLS\_03**

**Visualising of Co-occurrence Data**

Igor Litvine and Oksana Ryabchenko ..... 68

**METH\_02**

**Performance Comparison of Adapted Delaunay Triangulation Method over Nurbs for Surface Optimization Problems**

Suyesh Bhattarai, Parag Vichare and Keshav Dahal ..... 76

**METH\_14**

**Automatic Generation of a Diagnostic and Control Unit for controlling Embedded Systems Application. Case Study: HEVC Decoder**

Habib Smei, Abderrazak Jemai and Kamel Smiri ..... 81

**ROOM B – 01.1 - 10.30-12.30**

**LOGIS**

**PRODUCTION SCHEDULING**

**Chair:** Paulo J.S. Gonçalves, IST-IDMEC, Lisbon, Portugal

**PAR\_05**

**Modular Hybrid Modeling Based on DEVS for Interdisciplinary Simulation of Production Systems**

Bernhard Heinzl, Philipp Raich, Franz Preyser, Wolfgang Kastner, Peter Smolek and Ines Leobner ..... 157

# Wednesday, 25<sup>th</sup> October 2017

## PETRI\_02

### **Simulation of a Flexible and Adaptable One-Piece-Flow Assembly Line Based on a Process Flow of Colored and Timed Petri Nets**

Benedikt A. Latos, Peyman Kalantar, Philipp M. Przybysz, Susanne Mütze-Niewöhner, Christoph Holtkötter and Jan Brinkjans..... 162

## DISC\_01

### **Production Process Evaluation and Improvement by using the Method of Discrete Event Simulation**

Tola Kudret Karaca and Volkan Cakir..... 167

## DISC\_03

### **A Simulation Based Evaluation of Dynamic Task Prioritization in Maintenance Management**

Dietmar Neubacher, Nikolaus Furian, Clemens Gutschi, Tobias Elmer and Siegfried Vössner ..... 174

## **ROOM C – 02.3 - 10.30-12.30**

## **ELEC**

### **SENSOR NETWORK SIMULATION**

**Chair:** Jan Studzinski, Systems Research Institute, Polish Academy of Sciences, Warsaw, Poland

## METH\_16

### **Simulation of Optimized Nonlinear Frequency Modulation in Pulse Compression Radar**

Jiří Roleček, Pavel Bezoušek and Karel Juryca ..... 273

## METH\_19

### **An Open Architecture Framework for the Electronic Warfare Modeling & Simulation**

Sang Yeong Choi, Hyeon Seo Kang, Hyeong Jun Kwon and Sug Joon Yoon ..... 278

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### **On the Effects of the Variations in Network Characteristics in Cyber Physical Systems**

Géza Szabó, Sándor Rácz, József Pető and Rafael Roque Aschoff..... 283

## OPT\_08

### **Identifying the Optimal Transmission Range in Depth-Based Routing for UWSN**

Mohsin Jafri, Simonetta Balsamo and Andrea Marin ..... 288

**Wednesday, 25<sup>th</sup> October 2017**

**12.30 - 14.00**  
**LUNCH BREAK**

**14.00 – 15.00**

**ROOM A – 02.2 - 14.00-15.00** **DATA**

**GRAPHICAL DATA SIMULATION II**

**Chair:** Igor Litvine, Nelson Mandela University, Port Elizabeth, South Africa

**GRAPH\_01**

**3D Filtering Color Image contaminated by mixed Noise using Sparse Representation**

Alfredo Palacios-Enriquez, Volodymyr Ponomaryov and Araceli Hernandez-Fragoso ..... 88

**ENV\_01\_METH**

**Enhancing the Accuracy of Raster Based Algorithms for Forest Fire Spread Modelling**

Yves Dumond ..... 93

**ROOM B - 01.1 - 14.00-15.00**

**INVITED**

**INVITED SPEAKER**

**Chair:** tbc

**INV\_01**

**Ontologies for Robotics and Automation: need and applications**

Paulo J.S. Gonçalves, Instituto Politécnico de Castelo Branco, Portugal, and, IDMEC/LAETA, Instituto Superior Técnico, Universidade de Lisboa, Portugal

**ROOM C- 02.3 - 14.00-15.00**

**ELEC**

**ELECTRONICS SIMULATION**

**Chair:** Jan Studzinski, Systems Research Institute, Polish Academy of Sciences, Warsaw, Poland

**TOOLS\_08**

**Dynamic Switching of Processor Simulation Model Accuracy**

Johannes Kohl, Dietmar Fey and Jürgen Bäsing..... 295



# Wednesday, 25<sup>th</sup> October 2017

## PETRI\_01

**A New Method to transform Petri Nets to Digital Circuits using Input Driven Reachability Graphs**

Christoph Brandau and Dietmar Tutsch..... 301

**15.00 - 15.30**

**COFFEE BREAK**

**15.30 - 18.00**

**ROOM A- 02.2 - 15.30-18.00**

**METH**

**SIMULATION METHODOLOGY AND TOOLS**

**Chair:** Joël Colloc, Université of Le Havre, Normandie University, Le Havre, France

## METH\_17

**A Timed Extended Reachability Graph for bounded Simulation and Analysis of Timed Petri Nets**

Dimitri Lefebvre ..... 33

## TOOLS\_09

**Visual Estimation of Persistence in Time Series**

Sihle Poswayo and Igor Litvine..... 38

## RAND\_03\_MC

**Efficient Quantile Estimation via a Combination of Importance Sampling and Latin Hypercube Sampling**

Marvin K. Nakayama ..... 49

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**Looking for and finding Lost Data**

William Conley..... 46

## OPT\_10

**Statistical Optimization Applied to a Variety of Non-Linear Systems of Equations**

William Conley..... 54

## Wednesday, 25<sup>th</sup> October 2017

**ROOM B- 01.1 - 15.30-18.00** **LOGIS**  
**SUPPLY CHAIN SIMULATION AND INVENTORY MANAGEMENT OPTIMIZATION**  
**Chair:** Paulo J.S. Gonçalves, IST-IDMEC, Lisbon, Portugal

### TRANS\_04

**Modelling and Simulation for Decentralized Supply Chain Formation**

Florina Livia Covaci ..... 185

### TRANS\_06\_LOGIS

**Towards Quantitative Risk Evaluation for Supply Chains in Preparation of a Simulation Study**

Birgit Mösl, Dietmar Neubacher, Nikolaus Furian and Siegfried Vössner ..... 192

### METH\_09\_LOGIS

**The Concept of Semi-Variance as a Tool for Safety Inventory Decisions in Case of Uncertain Demand**

Katrien Ramaekers, Galina Merkuryeva and Gerrit K. Janssens..... 201

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**Mass Customization Dynamics Simulation for Fashion and Apparel Market**

Jocelyn Bellemare ..... 206

### OPT\_03

**Simulation Optimization: A Simple Approach combining Metaheuristics and Metamodels**

Luiz Ricardo Pinto, Júlia Cobucci Morais, Gabriela Martins Nunes and João Flavio de Freitas Almeida ..... 212

**ROOM C- 02.3 - 15.30-17.00** **AERO**  
**AEROSPACE SIMULATION**

**Chair:** Nicolae Vasiliu, POLITEHNICA University of Bucharest, Bucharest, Romania

### PAR\_01

**Time Management of Heterogeneous Distributed Simulation**

Clément Michel, Janette Cardoso and Pierre Siron ..... 343

### METH\_01

**Real-Time Simulation of Large Aircraft Fuel Systems**

Stephen Wright and Alvery Grazebrook ..... 350

**Wednesday, 25<sup>th</sup> October 2017**

**AGENT\_08\_AMNT\_01**

**An Evaluation Framework for UAV Surveillance Applications**

Michael Ettlinger, Bilge Sarp, Christopher-Eyk Hrabia and Sahin Albayrak..... **356**

**18.00 - .....**

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**FREE EVENING**

Parallel Sessions - Wednesday

**Thursday, 26<sup>th</sup> October 2017**

**HALLWAY**

**Registration**

**08.30 - 17.00**

**09.00 – 10.00**

**ROOM A- 02.2 - 09.00-10.00**

**KEY**

**KEYNOTE**

**Chair:** Paulo J.S. Gonçalves, IST-IDMEC, Lisbon, Portugal



**KEY\_02**

**[A Fuzzy Vectorial Space That avoids to Defuzzify the Membership Functions](#)**

Joël Colloc.....13

**10.00 - 10.30**

**COFFEE BREAK**

**10.30 - 12.30**

**ROOM A- 02.2 - 10.30-12.30**

**BIO**

**GRAPHICAL HUMAN BIO-ANALYSIS SIMULATION**

**Chair:** Christina Klüver, University of Duisburg-Essen, Essen, Germany

**BIO\_03**

**Semi-automatic Brain Lesions Detection and Segmentation Method  
in MR Images**

Carlos Segura Granados, [Volodymyr Ponomaryov](#)

and Martha Hernandez-Cuellar ..... 415

# Thursday, 26<sup>th</sup> October 2017

## BIO\_02

### Transcription Initiation Controls Skewness of the Distribution of Intervals between RNA Productions

Vinodh K. Kandavalli, Sofia Startceva and Andre S. Ribeiro ..... 418

## BIO\_06

### A Modeling Approach to Heart Failure Treatment

Alexander Lassnig, Christian Baumgartner and Jörg Schröttner ..... 425

## BIO\_08

### Modeling Survival Times using Frailty Models

Liberato Camilleri, Roxanne Caruana and Alex Manche ..... 428

## ROOM B- 01.1 10.30-12.30

## LOGIS

### LOGISTICS SIMULATION

**Chair:** Gerrit Janssens, Hasselt University, Diepenbeek, Belgium

## DISC\_05\_LOGIS

### Simulation of Logistics for Construction Management

Nikolaus Furian, Dietmar Neubacher, Siegfried Vössner, Philip Santner, Michael O'Sullivan and Cameron Walker..... 221

## AGENT\_08

### Cooperative Decision Making Modeling in Transportation Logistics Dispatching System

Anton Ivaschenko, Ilya Syusin and Pavel Sitnikov ..... 227

## OPT\_01

### Comparison of Cost Performance of Fixed and Flexible Collection Strategy in Return Logistics Network

Di Zhang and Uwe Clausen..... 233

## TRANS\_01

### Evaluation in Transport Planning: A Comparison between Data Envelopment Analysis and Multi Criteria Decision Making Methods

Giuseppe Musolino, Corrado Rindone and Antonino Vitetta..... 238

# Thursday, 26<sup>th</sup> October 2017

**ROOM C - 02.3 - 10.30-12.30**
**MGMT**
**DECISION MANAGEMENT SIMULATION**
**Chair:** Helena Barbas, Universidade Nova de Lisboa, Lisbon, Portugal

**TOOLS\_03**
**Generating Synthetic Individual Human Population and Activity Models**

Emily Schmidt and Dhananjai M. Rao ..... 127

**METH\_05**
**A Domain Specific Language for Complex Dynamic Decision Making**
Souvik Barat, Vinay Kulkarni, Tony Clark and Balbir Barn..... 135

**TOOLS\_02**
**Support for Management Processes of the Exercises of the Crisis Staffs of critical Infrastructure Entities**
Jiří Barta and Josef Navrátil..... 143

**DISC\_07\_COMP**
**A co-simulation Framework Interoperability for Neo-campus Project**
Yassine Motie, Alexandre Nketsa and Philippe Truillet ..... 148

**12.30 – 14.00**
**LUNCH BREAK**
**14.00 - 15.00**
**ROOM A - 02.2 - 14.00-15.00**
**KEY**
**KEYNOTE SPEAKER**
**Chair:** Paulo J.S. Gonçalves, IST-IDMEC, Lisbon, Portugal

**KEY\_03**
[VR, AR, MR simulations and inspirations from Iron Man 3](#)
Helena Barbas.....25

Thursday, 26<sup>th</sup> October 2017

15.00 - 15.30

COFFEE BREAK

15.30 - 18.00

ROOM A – 02.2 - 15.30-18.00

TUT

TUTORIAL

Chair: Souvik Barat, Tata Consultancy Services Research, Pune, India

TUT\_01

[Actor-Based Methods, Concepts and Tools for Simulation](#)

Tony Clark, Sheffield Hallam University, UK, Vinay Kulkarni, Souvik Barat, Tata Consultancy Services Research, India and Balbir Barn, Middlesex University, United Kingdom

ROOM B – 01.1 - 15.30-17.30

TRAF

TRAFFIC SIMULATION

Chair: Gerrit Janssens, Hasselt University, Diepenbeek, Belgium

TOOLS\_12

Evaluation of Car-following-Models at controlled Intersections

Laura Bieker-Walz, Michael Behrisch, Marek Junghans and Kay Gimm ..... 247

TRAF\_01

A Stochastic Driver Distraction Model for Microscopic Traffic Simulations

Manuel Lindorfer, Christian Backfrieder, Gerald Ostermayer and Christoph F. Mecklenbräuer ..... 252

PRED\_01

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Jan Fikejz and Josef Brožek ..... 258

OPT\_02

Hybrid Optimizing Models for Planning Charging Infrastructures

Hubert Büchter and Sebastian Naumann ..... 264

**Thursday, 26<sup>th</sup> October 2017**

**ROOM C – 02.3 - 15.30-17.00**

**FINANC**

**FINANCIAL SIMULATION**

**Chair:** Jocelyn Bellemare, School of Business and Management, ESG, University of Quebec in Montreal (UQAM), Montréal (Québec), Canada

**METH\_08\_MC\_FIN**

**Analysis of Relationship between Risk and (expected) Return of the Investment (Portfolio) – Simulation Experiment on the Prague Stock Exchange**

Adam Borovička ..... 103

**RAND\_03\_FIN**

**Optimal Dating of Cycles in Financial Time Series**

Konrad Kapp and Igor Litvine ..... 111

**RIKS\_01**

**Mining Patterns in Financial Time Series using Dynamic Time Warping Algorithm**

Kristina Šutienė, Audrius Kabašinskas, Eimutis Valakevičius and Roland Reichardt ..... 119

**CONFERENCE DINNER – 20.00 -22.30**


All registered participants are invited to the conference dinner which will be held from 20.00 to 23.00 at the



**Museo da Cerveja**

Terreiro do Paço – Ala Nascente

Nº 62 a 65, 1100-148 Lisboa, Portugal

 Tel: +351 210 987 656



**Friday, 27<sup>th</sup> October 2017**

**HALLWAY**

**Registration**

**09.00 - 09.30**

**09.00 – 10.00**

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**ROOM A – 02.2 - 09.00-10.00**

**INV**

**INVITED SPEAKER**

**Chair:** Paulo J.S. Gonçalves, IST-IDMEC, Lisbon, Portugal



**INV\_02**

**Problems and methods of integration of unpredictable and renewable energy**

Janos Sebestyen-Janosy, Hungarian Academy of Sciences, Centre for Energy Research, Budapest, Hungary

**ROOM B – 01.1 - 09.00-10.00**

**FLUID**

**FLUID FLOW SIMULATION**

**Chair:** Igor Litvine, Nelson Mandela University, Port Elizabeth, South Africa

**METH\_03\_MC**

**Monte Carlo Simulation of Daily Precipitation and River Flow Conditional Spatio-Temporal Fields**

Nina A. Kargapolova..... 311

**BIO\_10**

**Forecast of selected Quality Indicators of Wastewater flowing to the Treatment Plant using selected Black-Box Methods**

Bartosz Szeląg, Krzysztof Barbusiński, Agnieszka Operacz and Jan Studziński ..... 316

## Friday, 27<sup>th</sup> October 2017

**ROOM C – 02.3 - 09.00-10.00**

**ENGIN**

**ENGINEERING SIMULATION**

**Chair:** Nicolae Vasiliu, POLITEHNICA University of Bucharest, Bucharest, Romania

**PAR\_03**

**Applying the Model Driven Architecture Approach to Dynamic Structure Applications**

Min Zhu, Clément Foucher, Vincent Albert and Alexandre Nketsa ..... 365

**PAR\_07**

**Modelling and Optimal Control with Energy Regeneration of a 6DOF Motion Platform with permanent Magnet Linear Actuators**

E. Thöndel ..... 373

**10.00 - 10.30**

**COFFEE BREAK**

**10.30 – 12.00**

**ROOM A – 02.2 -10.30-12.00**

**ENERG**

**ENERGY FORECASTING AND OPTIMIZATION**

**Chair:** Janos Sebestyen-Janosy, Hungarian Academy of Sciences, Budapest, Hungary

**AI\_05**

**Neural Network Models and Electricity Demand Forecasting**

Francis Bismans and Igor N. Litvine ..... 325

**OPT\_05**

**Optimisation of Compressed Air System's Energy Usage through Discrete Event Simulation Compressor Performance**

Robbie Mulvany, Alan Arokiam, Abdelhafid Belaidi, John Ladbroke and Michael Higgins..... 328

**ENERG\_01**

**Investigation of the Modelling Effects on the Steam Generator's Behaviour during the early Stages of a Station Blackout in a CANDU 6 Reactor**

Roxana-Mihaela Nistor-Vlad, Daniel Dupleac, Ilie Prisecaru and Chris Allison ..... 336

# Friday, 27<sup>th</sup> October 2017

## ROOM B – 01.1 - 10.30-12.00

## BIO DATA

### BIOLOGICAL DATA SIMULATION

**Chair:** Joel Colloc, Univ of Le Havre, Normandie Univ., Le Havre, France

#### AI\_13

#### The controlled Development of (Medical) Self-Diagnosis Systems with Self-Enforcing Networks

Christina Klüver and Jürgen Klüver ..... 397

#### BIO\_09\_WEB

#### Model of Modular IoT-based Bee-Keeping System

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#### AGENT\_01\_BIO

#### The Effect of Sexual Networks on Fertility Levels

Edinah Mudimu ..... 407

## ROOM C – 02.3 - 10.30-12.00

## INTERFACE

### HUMAN COMPUTER INTERFACES

**Chair:** Helena Barbas, Universidade Nova de Lisboa, Portugal

#### AI\_08

#### Human-Computer Interface for Communication and Automated Estimation of Basic Emotional States

Svetla Radeva, Strahil Sokolov and Dimitar Radev ..... 381

#### GRAPH\_03

#### Simulation-Based User Interfaces for Digital Twins Pre-, In-, or Post Operational Analysis and Exploration of Virtual Testbeds

Torben Cichon and Juergen Rossmann ..... 384

#### BIO\_05

#### Surgery Assistant Based on Augmented Reality

Anton Ivaschenko, Alexandr Kolsanov and Aikush Nazaryan ..... 390

## ROOM A – 02.2 - 12.00 - 12.15

## BEST PAPER

### CLOSING SESSION AND BEST PAPER AWARD

**Chair:** Paulo J.S. Gonçalves, IST-IDMEC, Lisbon, Portugal

Paulo J.S. Gonçalves, IST\_IDMEC, Portugal

Philippe Geril, EUROSIS, Ostend, Belgium

## ESM'2018



**SEE YOU ALL  
ESM'2018, October 25-27, 2018, Ghent University,  
Ghent, Belgium for ESM'2018**

**Track proposals and tutorial proposals can be sent in by  
January 30<sup>th</sup>, 2018**

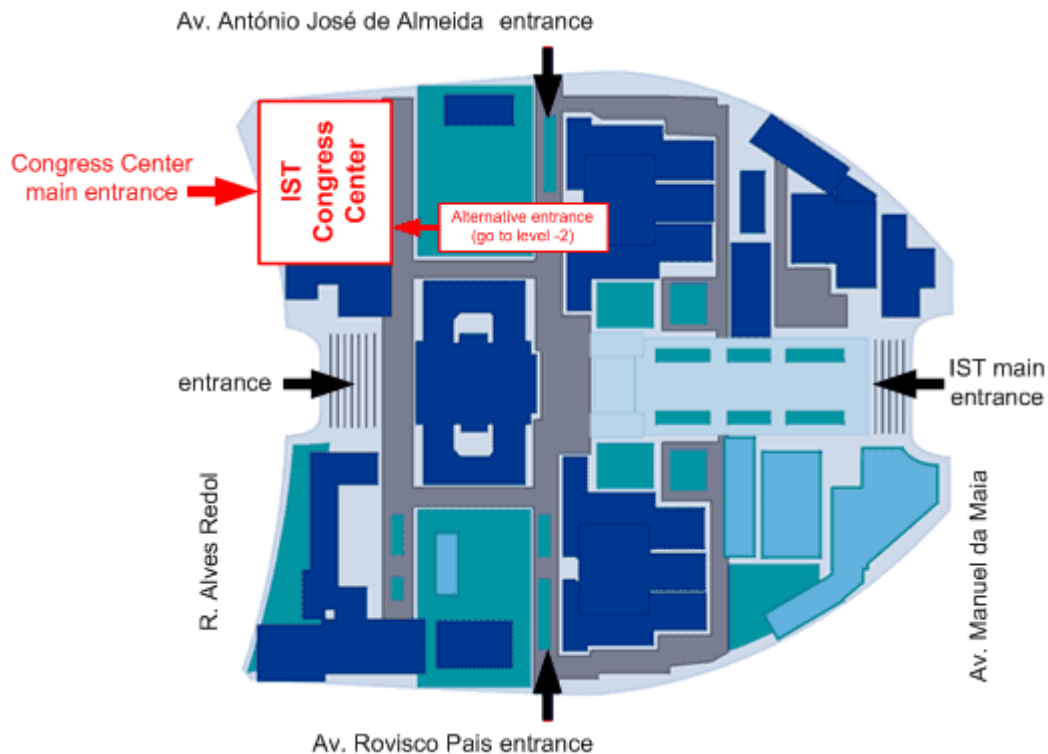
**Proposals for future ESM locations can be emailed to  
[philippe.geril@eurosis.org](mailto:philippe.geril@eurosis.org)**

**Proposals at present  
ESM'2019, October 2019, TU Vienna, Vienna, Austria (TBC)  
ESM'2019, October 2019, Palma de Mallorca, Spain (TBC)**

**Other upcoming EUROSIS conferences**  
**FOODSIM'2018**, April 8-12, 2018, [Catholic University Louvain](#), Ghent, Belgium  
**Scifi-It'2018**, April 18-20, 2018, Bruges, Belgium  
**ISC'2018**, June 6-8, 2018, [University of Azores](#), Ponta Delgada, Portugal  
**NASTEC'2018, GAMEON-NA'2018**, August 4-5, 2018, [UQAM](#), Montreal, Canada  
**GAMEON'2018**, September 18-20, [Abertay University](#), Dundee, Scotland, United Kingdom

## Conference Site Map

### IST Building Map



**IST is located in Lisbon city centre, 1.5Km south from Lisbon Airport and 5 minutes from the downtown Lisbon, by subway. It is served by several bus and subway lines which provide an easy access to every point in the city. IST occupies the Civil Engineering building (Alameda Campus), floor 01 and 02 (south tower).**

# ESM'2017 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"/> EUROISIS member € 560 Member Number: _____		€ _____
2. <input type="checkbox"/> Members of Sponsor or Affiliate Society € 560		€ _____
3. <input type="checkbox"/> Non-Member Participant € 605		€ _____
4. <input type="checkbox"/> Students, <u>who are not authors</u> but who wish to attend the conference, or <b>ONE DAY PARTICIPANTS</b> pay: € 435		€ _____
(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.		
5. <input type="checkbox"/> Conference Dinner Ticket for Companion € 60 <input type="checkbox"/> Lunch Ticket for Companion € 25/day		€ _____
6. <input type="checkbox"/> Extra Conference Proceedings € 50 Cash and Carry		€ _____
VAT Number if applicable: _____		
<b>TOTAL AMOUNT DUE</b>		€ _____
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# eurosis

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

**Philippe Geril**


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