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## **I3M: The 12nd International Multidisciplinary Modelling & Simulation Multiconference**

### ***General Chairs***

Agostino G. Bruzzone - DIME - University of Genoa, Italy  
Yuri Merkuryev - Department of M&S, Riga TU, Latvia

### ***Program Co-Chair***

Francesco Longo - MSC-LES, DIMEG, University of Calabria, Italy

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## **EMSS: The 27th European Modelling & Simulation Symposium,**

### ***EMSS General Chairs:***

Francesco Longo, MSC-LES, DIMEG, University of Calabria, Italy  
Emilio Jiménez, University of La Rioja

### ***EMSS Program Chairs:***

Michael Affenzeller, Upper Austrian University of Applied Sciences, Austria  
Lin Zhang, Beihang University, China

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## **HMS: The 17th International Conference on Harbour, Maritime & Multimodal Logistics Modelling and Simulation**

### ***HMS General Chairs:***

Agostino Bruzzone, DIMEG, University of Genoa, Italy  
Yury Merkuryev, Riga Technical University, Latvia

### ***HMS Program Chair:***

David Del Rio, Proyfe Group, Spain

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## **MAS: The 14th International Conference on Modelling & Applied Simulation**

### ***MAS General Chairs:***

Marina Massei, Liophant Simulation, Italy  
Claudia Frydman, LSIS, France

***MAS Program Chairs:***

Fabio De Felice, University of Cassino, Italy  
Adriano Solis, York University, Canada

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**DHSS: The 5th International Defense and Homeland Security Simulation Workshop**

***DHSS General Chair:***

Agostino Bruzzone, MITIM DIME, University of Genoa, Italy

***DHSS Program Chair***

Robert Sottolare, Army Research Laboratory, USA

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**I\_WISH: The 4th International Workshop on Innovative Simulation for Health Care**

***I\_WISH General Chairs:***

Vera Novak, BIDMC, Harvard Medical School, USA  
Jerzy W. Rozenblit, University of Arizona, USA

***I\_WISH Program Chair:***

Marco Frascio, University of Genoa, Italy

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**SESDE: The 3rd International Workshop on Simulation for Energy, Sustainable Development & Environment**

***SESDE General Chair:***

Janos Sebestyén Janosy, MTA EK Centre for Energy Research Hungarian Academy of Sciences

***SESDE Program Chair:***

Gregory Zacharewicz, IMS Université Bordeaux, France

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**FOODOPS: The 1st International Food Operations and Processing Simulation Workshop**

***FOODOPS General Chairs:***

Giuseppe Vignali, University of Parma  
Ruben Mercadè - Prieto, Soochow University

***FOODOPS Program Chair:***

Francesco Longo, University of Calabria

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**WAMS: The 8th International Workshop on Applied Modeling and Simulation**

***WAMS General Chairs:***

Agostino Bruzzone - University of Genoa  
Paolo Fadda - Central Labs

***WAMS Program Chairs:***

Gianfranco Fancello - University of Cagliari  
Miquel Angel Piera - Autonomous University of Barcelona

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***I3M: The International Multidisciplinary Modelling & Simulation Multiconference involves EMSS, MAS, HMS, IMAACA, DHSS, I\_WISH, SESDE, FOODOPS, WAMS and related Workshops and Special Sessions; All Sessions are open to all I3M Attendees***

***EMSS: European Modelling & Simulation Symposium, 27th Edition, Part of I3M2015***

***MAS: The International Conference on Modelling & Applied Simulation, 14th Edition, Part of I3M2015***

***IMAACA: The International Conference on Integrated Modeling and Analysis in Applied Control and Automation, 8th Edition, Part of I3M2015***

***HMS: The International Conference on Harbour, Maritime & Multimodal Logistics Modelling and Simulation, 17th Edition, Part of I3M2014***

***DHSS: The International Defense and Homeland Security Simulation Workshop, 5th Edition, Part of I3M2015***

***I\_WISH: The International Workshop on Innovative Simulation for Healthcare, 4th Edition, Part of I3M 2015***

***SESDE: The International Workshop on Simulation for Energy, Sustainable Development & Environment, 3rd edition, Part of I3M 2015***

***FOODOPS: The International Food Operations and Processing Simulation Workshop, 1st Edition, Part of I3M 2015***

***WAMS: The International Workshop on Applied Modeling & Simulation, 8th Edition***

***Special Session: I3M Special Session freely open to all the attendees (i.e. Plenary Joint Opening, I3M 2015 Special session, etc.)***

***I3M Event: A Special I3M Event (I3M Gala Dinner) is open to I3M / DHSS/ EMSS/ HMS/ IMAACA/ MAS/IWISH/SESDE/FOODOPS/WAMS Attendees***

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**Monday 2015-09-21 9:00-10:30**

***Joint I3M Opening, Room 1 - Colombo***

**Welcome Address I3M, Prof. Agostino G. Bruzzone, DIME, University of Genoa, Italy**

**Conferences, Societies and Networks Welcome**

- EMSS Conference - Prof. Francesco Longo, MSC-LES, University of Calabria, Italy
- HMS Conference - Prof. Yuri Merkuryev, Riga Technical University, Latvia
- MAS Conference - Prof. Adriano Solis, York University, Canada
- IMAACA Conference - Sergio Junco, Universidad Nacional de Rosario, Argentina
- DHSS Workshop - Prof. Agostino Bruzzone, University of Genoa, Italy
- I\_WISH Workshop - Prof. Vera Novak, Harvard Medical School, USA
- SESDE Workshop - Prof. Janos Sebestyen Janosy, Centre for Energy Research, Hungary
- FOODOPS Workshop - Prof. Giuseppe Vignali, University of Parma, Italy
- I\_M\_CS - Prof. Gerson Cunha, LAMCE/COPPE/UFRJ, Brasil
- Liophant - Dr. Marina Massei, University of Genova, Italy
- Simulation Team - Prof. Miquel Angel Piera, UAB, Spain
- MISS and M&Snet - Prof. Lin Zhang, Beihang University, China
- I3M 2016 and Conference Updates, Loucas S. Luca, University of Cyprus

**Monday 2015-09-21 10:30-11:00**

***COFFEE BREAK Co-Sponsored by CAL-TEK, LIO Tech, MAST, SIM4FUTURE***

**Monday 2015-09-21 11:00-12:30**

***Joint I3M Opening, Room 1 - Colombo***

**Plenary Speeches**

**Prof. Miquel Angel Piera, Autonomous University of Barcelona**

Innovative Modeling & Simulation in the Aeronautics sector: integrating new technologies and methodologies

**Lt. Col. Paolo Di Bella, NATO Modeling & Simulation Center of Excellence, Italy**

Present and Future Scenarios and Challenges for M&S in terms of Human Behavior Modeling

**Prof. Gerson Cunha, Federal University of Rio de Janeiro, Brazil**

Visualization and Simulation - Challenges and Solutions for Industry Applications

**Prof. Ruben Mercadé - Prieto, Soochow University, China**

Multi-scale modelling in food engineering

**Monday 2015-09-21 12:30-14:00**

***LUNCH Co-Sponsored by Lio-Tech, CAL-TEK, MAST, SIM4FUTURE***

**Monday 2015-09-21 14:00-15:30**

*Room: Room 1 - Colombo*

**EMSS: Industrial Processes and Engineering Modeling & Simulation - Session I**

***Chair(s): Emilio Jimenez, University of La Rioja***

EMSS\_32: Cybernetics applied to a six-legged Robot,  
Michael Bogner, Thomas Haspl, Franz Wiesinger  
University of Applied Sciences Upper Austria - Austria

EMSS\_11: Dynamic and kinematic simulation of kawasaki manipulator industrial robot using solidworks and matlab simmechanics

Zennir Youcef, Makbouche Adel, Souames Hamza  
Automatic Laboratory of Skikda - Algeria

EMSS\_73: Supervisory FCM simulation in tunnel construction

Limao Zhang, A. J. Antony Chettupuzha, Seungjun Ahn, Stephen Hague, Chrysostomos D. Stylios, Simaan M. AbouRizk  
University of Alberta; Technological Educational Institute of Epirus - Canada/ Greece

EMSS\_71: Simulation-based assessment of the influence of requests for information on industrial module construction piping work

Amin Amini Khafri, Wenying Ji, Seungjun Ahn, Simaan AbouRizk  
University of Alberta - Canada

EMSS\_70: LCA software for environmental impact assesment of injected moulded plastic parts

Ana Elduque, Daniel Elduque, Carmelo Pina, Carlos Javierre, Ángel Fernández  
University of Zaragoza; BSH Electrodomésticos España, S.A. - Spain

**Monday 2015-09-21 14:00-15:30**

*Room: Room 2 - Verazzano*

**EMSS: Simulation and Optimization Approaches in industry, aviation, services and transport - Session I**

**Chair(s): Idalia Flores, University of Mexico**

EMSS\_6: Stochastic programming for train distribution in a metro transportation system

Jorge A. Garcia, Kumaraswamy Ponnambalam  
University of Waterloo - Canada

EMSS\_40: Utilization of computer simulation for the localization of rolling stock with utilization technology oracle spatial and dynamic database views

Jan Fikejz, Jan Merta  
University of Pardubice - Czech Republic

EMSS\_25: Model of a railway infrastructure as a part of a mesoscopic traffic simulator

Radek Novotny, Antonin Kavicka  
University of Pardubice - Czech Republic

EMSS\_13: Design and development of a mesoscopic simulator specialized in investigating capacities of railway nodes

Roman Diviš, Antonín Kavička  
University of Pardubice - Czech Republic

EMSS\_34: Conducting experimental design and optimization on an innovative car rental business

Natalia P. Basán, Mariana E. Cóccola, Carlos A. Méndez  
UNL-CONICET - Argentina

**Monday 2015-09-21 14:00-15:30**

*Room: Room 3 - Caboto*

**MAS: Warehouse & Inventory Management, Suppliers Selection**

**Chair(s): Adriano Solis, York University**

MAS\_37: Improvement of the warehouse operation in the furniture company on the basis of the simulation study

Bronislav Chramcov, Petr Šošolík, Robert Bucki

Tomas Bata University; Institute of Management and Information Technology - Czech Republic/ Poland

MAS\_10: A heuristics with simulative approach for the determination of the optimal offsetting replenishment cycles to reduce the warehouse space

Chiara Franciosi, Salvatore Miranda, Raffaele Iannone, Alfredo Lambiase  
University of Salerno - Italy

MAS\_28: Monte Carlo simulation used for the electricity supplier selection

Martina Kuncova, Jana Seknickova  
University of Economics - Czech Republic

MAS\_46: Better statistical forecast accuracy does not always lead to better inventory control efficiency: the case of lumpy demand

Adriano O. Solis  
York University - Canada

**Monday 2015-09-21 14:00-15:30**

*Room: Room 4 - Smilax*

**IWISH-EMSS: Modeling & Simulation in Medicine and Population care**

***Chair(s): Vera Novak, Harvard Medical School***

IWISH\_3: Popliteal artery aneurysm: a bioengineering study on pathogenesis

Francesca Condemni, Raffaele Serra, Stefano de Franciscis, Gionata Fragomeni  
"Magna Graecia" University - Italy

IWISH\_5: Sitting vs standing: a computational comparison of hemodynamics in carotid bifurcation

Maria Vittoria Caruso, Raffaele Serra, Paolo Perri, Stefano de Franciscis, Gionata Fragomeni  
"Magna Graecia" University - Italy

EMSS\_46: Flow simulations in the human cardiovascular system under variable external conditions

Reece Adragna, Radu C. Cascaval, Maria Pia D'Arienzo, Rosanna Manzo  
University of Colorado; University of Salerno - USA/ Italy

IWISH\_18: The foundation for multi-scale modeling of the digital patient

C. Donald Combs  
Eastern Virginia Medical School - USA

**Monday 2015-09-21 14:00-15:30**

*Room: Room 5 - Malicia*

**FOODOPS: Modelling and Simulation of food properties**

***Chair(s): Ruben Mercade Prieto, Soochow University***

FOODOPS\_5: Finite element analysis investigation of response of pumpkin tissue under uniaxial loading

Maryam Shirmohammadi, Prasad KDV Yarlagadda  
University of South Australia; Queensland University of Technology - Australia

FOODOPS\_6: Breakage matrix comparison of granulated food products for prediction of attrition during lean-phase pneumatic conveying

B.A. Kotzur, M.S.A. Bradley, R.J. Berry, R.J. Farnish  
University of Greenwich - UK

FOODOPS\_8: Effect of foaming agent, foam stabilizer and whipping time on drying process of tomato paste under different drying equipment

Adesoji Mathew Olaniyan, John Adeyemi Adeoti, Musiliu Olusola Sunmonu  
Federal University Oye Ekiti; University of Ilorin - Nigeria

FOODOPS\_23: Poroviscoelastic modeling of protein hydrogels

Ruben Mercadé-Prieto, Joaquim Lopez, Xiao Dong Chen  
Soochow University; Ramon Llull University - China/ Spain

**Monday 2015-09-21 15:30-16:00**

***COFFEE BREAK Co-Sponsored by CAL-TEK, LIO Tech, MAST, SIM4FUTURE***

**Monday 2015-09-21 16:00-17:30**

*Room: Room 1 - Colombo*

**EMSS-MAS-SESDE: Human-centred and Human-focused Modelling and Simulation**

***Chair(s): Peer Olaf Siebers, University of Nottingham***

EMSS\_20: Simulative analysis of performance shaping factors impact on human reliability in manufacturing activities

Valentina Di Pasquale, Salvatore Miranda, Raffaele Iannone, Stefano Riemma  
University of Salerno - Italy

EMSS\_78: DEVS-based framework for message dissemination in multi-layer networks

Youssef Bouanan, Mathilde Forestier, Judicael Ribault, Gregory Zacharewicz, Bruno Vallespir  
University of Bordeaux - France

SESDE\_11: Human behavior simulation for smart decision making in emergency prevention and mitigation within urban and industrial environments

Agostino G. Bruzzone, Marina Massei, Matteo Agresta, Alberto Tremori, Francesco Longo, Giuseppina Murino, Fabio De Felice, Antonella Petrillo

University of Genoa; University of Calabria; Simulation Team; University of Cassino; Parthenope University of Naples - Italy

MAS\_34: Modelling and simulation of rail passengers to evaluate methods to reduce dwell times

Adam Perkins, Brendan Ryan, Peer-Olaf Siebers  
University of Nottingham - UK

MAS\_39: The Simulation Exploration Experience, education opportunity in higher education – Preparing college students to thrive in chaos

Priscilla Elfrey, Richard Severinghaus  
NASA, Kennedy Space Center; CRTN Solutions, LLC - USA

**Monday 2015-09-21 16:00-17:30**

*Room: Room 2 - Verazzano*

**EMSS: Simulation and Optimization Approaches in industry, aviation, services and transport - Session II**

***Chair(s): Idalia Flores, University of Mexico***

EMSS\_27: Urban transport infrastructure: a survey  
Idalia Flores, Miguel Mújica Mota, Salvador Hernández  
UNAM; Aviation Academy; Amsterdam University of Applied Sciences - Mexico/ Netherlands

EMSS\_28: Ambulance location using linear programming: the case of the national autonomous university of Mexico (UNAM)  
Esther Segura Pérez, Idalia Flores, Alexander Vindel  
UNAM - Mexico

EMSS\_41: Various aspects of multi-method modelling and its applications in modelling large infrastructure systems like airports  
Barbara Glock, Niki Popper, Felix Breitenecker  
dwh GmbH; Vienna University of Technology - Austria

EMSS\_35: Modular approach for modelling an airport system  
Paolo Scala, Miguel Mujica Mota, Nico de Bock  
Amsterdam University of Applied Sciences - Netherlands

**Monday 2015-09-21 16:00-17:30**

*Room: Room 3 - Caboto*

**HMS: Urban, Pedestrian and Transportation Modeling & Simulation**

**Chair(s): Elvezia Cepolina, University of Pisa; Miquel Angel Piera, Autonomous University of Barcelona**

HMS\_15: Pedestrian modelling: autonomy and communication needs  
Elvezia Cepolina, Silvia Cervia, Paloma Gonzalez Rojas  
University of Pisa; Massachusetts Institute of Technology - Italy/ USA

HMS\_16: Pedestrian modelling: discomfort assessment  
Elvezia Cepolina, Gabriella Caroti, Andrea Piemonte, Paloma Gonzalez Rojas  
University of Pisa; Massachusetts Institute of Technology - Italy/ USA

HMS\_24: MAS simulation for decision making in urban policy design: bicycle infrastructure  
Roman Buil, Miquel Angel Piera, Marjan Gusev, Egils Ginters, Artis Aizstrauts  
Universitat Autònoma de Barcelona; Univ. Sts Cyril and Methodius; Vidzeme University of Applied Sciences - Spain/ Macedonia/ Latvia

HMS\_22: A demand shifting algorithm to smooth the peaks at airport Security Screening Checkpoint (SSC) facilities  
Jenaro Nosedal-Sánchez, Miquel A. Piera-Eroles, Rubén Martínez, Núria Alsina-Pujol  
Universitat Autònoma de Barcelona; Advanced Logistics Group - Spain

**Monday 2015-09-21 16:00-17:30**

*Room: Room 4 - Smilax*

**DHSS-HMS: Adaptive Training**

**Chair(s): Robert Sottolare, Army Research Laboratory**

DHSS\_4: Domain modeling in support of adaptive instructional decisions in the generalized intelligent framework for tutoring  
Robert A. Sottolare, Scott J. Ososky, Michael W. Boyce  
U.S. Army Research Laboratory; Oak Ridge Affiliated Universities - USA



DHSS\_8: Dimensions of instructional management research in support of a generalized intelligent framework for tutoring (GIFT)

Benjamin Goldberg, Robert Sottolare, Jason Moss, Anne Sinatra

U.S. Army Research Laboratory-Human Research and Engineering Directorate - USA

HMS\_27: Interoperability and performance analysis of a complex marine multidomain simulation based on high level architecture

Agostino G. Bruzzone, Diego Crespo Pereira, Alberto Tremori, Marina Massei, Mirko Scapparone

University of Genoa; University of a Coruna; NATO STO CMRE; Cal-Tek - Italy/ Spain

DHSS\_9: Considerations for learner modeling in a domain-independent intelligent tutoring system framework

Anne M. Sinatra, Keith W. Brawner, Gregory A. Goodwin

U.S. Army Research Laboratory - USA

DHSS\_10: Architectural research in intelligent tutoring technologies

Keith Brawner, Anne Sinatra, Bob Sottolare

Human Research and Engineering Directorate - USA

**Monday 2015-09-21 16:00-17:30**

*Room: Room 5 - Malicia*

**FOODOPS: Modelling and Simulation of food processing - Session I**

**Chair(s): Michel Havet, ONIRIS**

FOODOPS\_11: Development of a small scale machine for roasting shea kernel prior to shea butter extraction

A.M. Olaniyan, A.O. Yusuf, O.F. Osadipe

Federal University Oye Ekiti; University of Ilorin - Nigeria

FOODOPS\_2: CFD analysis of coffee packaging in capsules using gas flushing modified atmosphere packaging

Simone Spanu, Giuseppe Vignali

University of Parma - Italy

FOODOPS\_17: Analysis of the energetic and exergetic efficiency of the electrohydrodynamic drying process

M. Havet, E. Bardy, S. Manaï, M. Hamdi, O. Rouaud

LUNAM Université; Grove City College - France/ USA

FOODOPS\_18: Optimization of hydration process of date palm fruits from experimental and numerical approaches

A. Lakoud, S. Curet, M. Hassouna

Ecole Supérieure des Industries Alimentaires de Tunis; L'UNAM Université - Tunisie/ France

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**Tuesday 2015-09-22 9:00-10:30**

*Room: Room 1 - Colombo*

**EMSS-MAS: Industrial Processes and Engineering Modeling & Simulation - Session II**

**Chair(s): Juan Ignacio Latorre, University of La Rioja**

EMSS\_47: Discrete-event simulation modelling of prefabricated wall production line  
Mohammed Sadiq Altaf, Hexu Liu, Youyi Zhang, Mohamed Al-Hussein, Ahmed Bouferguene  
University of Alberta - Canada

EMSS\_64: Sustainable performance management model of manufacturing companies according to sampled methods from performance management system  
Veronika Burešová, Lilia Dvořáková  
University of West Bohemia - Czech Republic

EMSS\_75: Modeling, simulation and optimization of logistics management of a cans packaging line  
Victoria G. Achkar, Luciana S. Picech, Carlos A. Méndez  
UNL; INTEC - Argentina

EMSS\_72: Environmental assessment tool to analyze the presence of critical and valuable raw materials  
Patricia Gómez, Daniel Elduque, Carmelo Pina, Judith Sarasa, Isabel Clavería, Carlos Javierre  
BSH Electrodomésticos España, S.A.; University of Zaragoza - Spain

MAS\_33: Economies of scale and scope in manufacturing systems - a benchmarking approach  
Sameh Saad, Ali Bagheri  
Sheffield Hallam University - UK

**Tuesday 2015-09-22 9:00-10:30**

*Room: Room 2 - Verazzano*

**EMSS: Discrete, Combined, Distributed and Parallel and other Simulation Approaches**

**Chair(s): Gasper Music, University of Ljubljana; Thomas Wiedemann, HTW Dresden FB Informatik**

EMSS\_80: A specialized library for simulation of coal mining in flat-lying coal seam  
Victor Okolnishnikov, Sergey Rudometov, Sergey Zhuravlev  
Siberian Branch of the Russian Academy of Sciences - Russia

EMSS\_76: A proposal of using DEVS model for process mining  
Yan Wang, Grégory Zacharewicz, David Chen, Mamadou Kaba Traoré  
University of Bordeaux; Université Blaise Pascal - France

EMSS\_66: Use of delphi method in obtaining requirements for the game structural masonry  
Ailton Soares Fereire, Leiliane Santana Souza, Daniela Matschulat Ely, Antônio Edésio Jungles  
Instituto Federal de Educação, Ciência e Tecnologia do Piauí; Instituto Federal de Educação, Ciência e Tecnologia da Bahia; Centro Federal de Educação Tecnológica de Minas Gerais; Universidade Federal de Santa Catarina - Brasil

EMSS\_43: Pipeline as high level parallel composition for the implementation of a sorting algorithm  
Mario Rossainz López, Manuel Capel Tuñón, Patricia Domínguez Mirón, Ivo Pineda Torres  
Universidad Autónoma de Puebla; Universidad de Granada - Mexico/ Spain

EMSS\_42: Performance gain and energy savings using multi-threaded software on an embedded asymmetric chip multiprocessor  
Michael Bogner, Christof Steps, Franz Wiesinger  
University of Applied Sciences Upper Austria - Austria

**Tuesday 2015-09-22 9:00-10:30**

*Room: Room 3 - Caboto*

**MAS-EMSS: Decision Support Systems**

**Chair(s): Ilaria Baffo, Italian CNR**

MAS\_23: Optimal crop selection and scheduling using a generic crop growth model and integer programming model

Kasi Bharath Vegesana, Frederic D. McKenzie  
Old Dominion University - USA

MAS\_35: A decision support system for the prioritization of projects and investments to maximize impact on regional development

Anton Cotel Garcia, Pablo Diaz de la Cuesta, Juan Diaz Pardo, David del Rio Vilas  
Proyfe S.L. - Spain

MAS\_36: An integrated decision support system to solve multi-criteria orienteering problem

Pasquale Carotenuto, Ilaria Baffo, Fabio De Felice, Antonella Petrillo  
IAC - CNR; University of Cassino; University of Naples "Parthenope" - Italy

MAS\_43: A genetic algorithm to design touristic routes in a bike sharing system

Ilaria Baffo, Pasquale Carotenuto, Giovanni Storchi  
IAC-CNR; Università di Roma "Sapienza" - Italy

EMSS\_86: Alternatives aggregation petri nets applied to modular models of discrete event systems

Juan Ignacio Latorre Biel, Emilio Jiménez Macías, Jorge Luis García-Alcaraz,  
Juan Carlos Sáenz Díez Muro, Mercedes Pérez de la Parte  
Public University of Navarre; University of La Rioja; Autonomous University of Ciudad Juarez - Spain/  
Mexico

**Tuesday 2015-09-22 9:00-10:30**

*Room: Room 4 - Smilax*

**EMSS-MAS: Agent Based Modeling and Simulation**

**Chair(s): Michael Kommenda, Upper Austria UAS**

EMSS\_24: Rapid prototyping and verification of simulating systems applying ABASIM architecture

Emil Řezanina, Antonín Kavička  
University of Pardubice - Czech Republic

MAS\_29: Modelling the effect of individual differences in punishment sensitivity on behaviour in a public goods game

Tuong Manh Vu, Peer-Olaf Siebers, Anya Skatova, Theodore Turocy  
University of Nottingham; University of East Anglia - Uk

MAS\_11: Clothes maketh the man and the regional mall

Roderick Duncan, Terry Bossomaier, Steve d'Alessandro, Daniel Murphy  
Charles Sturt University - Australia

MAS\_47: Modeling human behavior in marine environment for anti-piracy operations

Agostino G. Bruzzone, Marina Massei, Irene Piccini, Alberto Tremori  
University of Genoa; University of Torino; NATO STO CMRE - Italy

EMSS\_69: Validation and approval of PN ciphered subnets: security in PN sharing and storage using PNML, XMLSecurity and XMLSignature

Iñigo León Samaniego, Mercedes Perez-Parte, Juan-Ignacio Latorre-Biel, Emilio Jiménez-Macías  
University of La Rioja - Spain

**Tuesday 2015-09-22 9:00-10:30**

*Room: Room 5 - Malicia*

**Special Session: I3M 2016 and MISS-MSNet Board of Directors Meeting**

**Chair(s):** *Francesco Longo, University of Calabria; Loucas S. Louca, University of Cyprus*

**Tuesday 2015-09-22 10:30-11:00**

**COFFEE BREAK Co-Sponsored by CAL-TEK, LIO Tech, MAST, SIM4FUTURE**

**Tuesday 2015-09-22 11:00-12:30**

*Room: Room 1 - Colombo*

**EMSS-IMAACA-MAS: Industrial Processes and Engineering Modeling & Simulation  
- Session III**

**Chair(s):** *Miquel Angel Piera, Autonomous University of Barcelona*

EMSS\_44: Heat treatment process parameter estimation using heuristic optimization algorithms  
Michael Kommenda, Bogdan Burlacu, Reinhard Holecek, Andreas Gebeshuber, Michael Affenzeller  
University of Applied Sciences Upper Austria; Johannes Kepler University; Rübige GmbH & Co KG -  
Austria

EMSS\_17: Modeling and simulation based on finite element method for electron beam welding process  
Zhengkun Feng, Henri Champlaud  
Ecole de technologie supérieure - Canada

IMAACA\_16: Modeling, identification and a first control approach on the quality of flames in oil furnaces  
Agenor T. Fleury, Danilo S. Chui, Flavio C. Trigo, Flavius P. R. Martins  
Centro Universitário da FEI; Escola Politecnica da Universidade de São Paulo - Brasil

MAS\_20: Powers controls of a doubly-fed induction generator used in a chain of wind power conversion  
Jean N. Razafinjaka, Andrianantenaina Tsiory Patrick, Jean Claude Rakotoarisoa, Hervé Mangel, Charles  
Bernard Andrianirina  
Ecole Supérieure Polytechnique d'Antsiranana; Université de Bretagne Occidentale; Ecole Supérieure  
Polytechnique - Madagascar/ France

EMSS\_74: Investigation of thermal effects on elastic constants to simulate correctly the thermal stress in  
nano transistors  
Abderrazzak El Boukili  
Al Akhawayn University - Morocco

**Tuesday 2015-09-22 11:00-12:30**

*Room: Room 2 - Verazzano*

**EMSS: HLA and Web Simulation**

**Chair(s):** *Diego Crespo Pereira, La Coruna University*

EMSS\_57: Connection of microcontroller and microcomputer to distributed simulation  
Martin Jakeš, Josef Brožek  
University of Pardubice - Czech Republic

EMSS\_56: Naval operations' assessment through a multi-purpose HLA simulation framework  
Davide Tozzi, Federica Valdenazzi, Aldo Zini  
CETENA SPA - Italy

EMSS\_88: Synthetic environment for interoperable advanced marine simulation  
Agostino G. Bruzzone, Marina Massei, Alberto Tremori, Riccardo di Matteo, Giovanni Luca Maglione  
University of Genoa; NATO STO CMRE; Simulation Team - Italy

EMSS\_9: Web simulation with support of mobile agents  
Jan Voracek  
University of Pardubice - Czech Republic

EMSS\_59: Hardware libraries for online control of interactive simulations  
Josef Brozek, Martin Jakes  
University of Pardubice - Czech Republic

**Tuesday 2015-09-22 11:00-12:30**

*Room: Room 3 - Caboto*

**WAMS: Workshop on Modeling & Applied Simulation**

**Chair(s): Gerson Cunha, UFRJ**

WAMS\_3: Adaptive simulation-based training for a complex world  
Latika Eifert, Jonathan Stevens, Dean Reed, Oleg Umanskiy, Boris Stilman  
ARL; University of Central Florida; University of Colorado Denver - USA

WAMS\_4: Internet of things (IoT) applications study using big data and virtualization process technology  
Albino Ribeiro Neto, Gerson Gomes Cunha, Luiz Landau, Sergio Poliano Villarreal, Cristina Jasbinscheck  
Haguenauer  
LAMCE/COPPE/UFRJ; SENAI/FIRJAN - Brazil

WAMS\_7: Autonomous system simulation to improve scenario awareness and capabilities to protect  
marine, off-shore and coastal critical infrastructure  
Agostino G. Bruzzone, Marina Massei, Alberto Tremori, Diego Crespo Pereira, Giulio Franzinetti, Manlio  
Oddone, Arnau Carrera, Fabio Camponeschi, Luciano Dato  
University of Genoa; NATO STO CMRE; Simulation Team; Universidad de Girona - Italy/ Spain

WAMS\_5: Low cost laparoscopic training platform: primary validation process  
E.Perino, M. Sguanci, F. Mandolino, M. Minuto, G. Vercelli, M. Gaudina, S. Marcutti, V. Rumolo, G.  
Maccocci, M. Frascio  
DISC; DIBRIS - Italy

WAMS\_6: Modelling and simulating the assembly line supply by tugging trains  
T. Staab, M. Röslinger, M. Dewitz, W. A. Günthner  
Technische Universität München - Germany

**Tuesday 2015-09-22 11:00-12:30**

*Room: Room 4 - Smilax*

**DHSS: Defense and Homeland Security Simulation**

**Chair(s): Robert Sottolare, Army Research Laboratory**

DHSS\_14: A novel approach for modeling complex deep futures

Edwin Upchurch, Leila Meshkat  
California Institute of Technology - USA

DHSS\_6: Defense and first-responders leverage virtual technology: taking it to the edge  
Tami Griffith, Jennie Ablanedo, Milt Nenneman  
ARL-HRED STTC; University of Central Florida; DHS – S&T - USA

DHSS\_7: Towards an immersive virtual reality training system for CBRN disaster preparedness  
Annette Mossel, Andreas Peer, Johannes Goellner, Hannes Kaufmanr  
Vienna University of Technology; Ministry of Defence and Sports - Austria

DHSS\_5: Optimally locating surveillance assets in urban areas  
Javier Salmeron, Kevin Wood  
Naval Postgraduate School, Monterey - USA

DHSS\_12: Optical engineering simulator development for efficient design of miles gear  
Seon Han Choi, Changbeom Choi, Tag Gon Kim  
Korea Advanced Institute of Science and Technology; Handong Global University - Sud Korea

**Tuesday 2015-09-22 11:00-12:30**

*Room: Room 5 - Malicia*

**FOODOPS: Modelling and Simulation of food processing - Session II**

**Chair(s): Francesco Marra, University of Salerno**

FOODOPS\_14: Operating strategies to minimise the methanol content in distillates obtained in alembics  
R. Luna, J.R. Pérez-Correa, F. López, M. Fernández-Fernández

Pontificia Universidad Católica de Chile; Universitat Rovira I Virgili; Universidad de Talca - Chile/ Spain

FOODOPS\_16: Study and optimisation of a CO2 sparger for carbonated beverages and beer by means of CFD modelling

Massimiliano Rinaldi, Matteo Cordioli, Davide Barbanti, Marco Dall'Aglio  
University of Parma; Valfor srl - Italy

FOODOPS\_24: Virtualization strategies for modeling the energy transfer in a food undergoing RF heating  
Tesfaye Faye Bedane, Francesco Marra  
Università degli studi di Salerno - Italy

FOODOPS\_25: Reaction engineering methodology as an effective approach to model drying, baking and water vapor sorption processes

Aditya Putranto, Xiao Dong Chen, Ruben Mercadé-Prieto  
Soochow University - China

**Tuesday 2015-09-22 12:30-14:00**

**LUNCH Co-Sponsored by Lio-Tech, CAL-TEK, MAST, SIM4FUTURE**

**Tuesday 2015-09-22 14:00-15:30**

*Room: Room 1 - Colombo*

**EMSS: Cloud Simulation and Simulation as a Service**

**Chair(s): Lin Zhang, Beihang University**

EMSS\_31: Towards humans issues in cloud manufacturing paradigm  
Yuqiuge Hao, Rayko Toshev, Petri Helo  
University of Vaasa - Finland

EMSS\_30: A cloud service based modeling & simulation framework  
Xiao Song, Feng Li, Lin Zhang, Cheng'en Wang  
Beihang University - China

EMSS\_83: Cerebellum Function For MSAAS  
Erdal Cayirci, Hakan Karapinar, Lutfu Ozcakir  
University of Stavanger; HAVELSAN - Norway/ Turkey

EMSS\_23: Cost-based assessment of partitioning algorithms of agent-based systems on hybrid cloud environments  
Chahrazed Labba, Narjès Bellamine Ben Saoud  
Ecole Nationale des Sciences de l'Informatique; Univ. Tunis El Manar - Tunisia

EMSS\_16: Web simulation as a platform for training software application  
Stepan Kartak  
University of Pardubice - Czech Republic

**Tuesday 2015-09-22 14:00-15:30**

*Room: Room 2 - Verazzano*

**EMSS-MAS: Supply Chain Networks and Retail Modeling & Simulation**

**Chair(s): Adriano Solis, York University**

EMSS\_82: The impact of procurement and inventory management in operative performance in a supply chain  
Jorge Luis García-Alcaraz, Aidé Aracely Maldonado-Macías, Emilio Jiménez Macías, Julio Blanco Fernández  
Autonomous University of Ciudad Juarez; University of La Rioja - Mexico/ Spain

EMSS\_60: A dynamic multicommodity network flow problem for logistics networks  
Sebastian Raggl, Judith Fechter, Andreas Beham  
University of Applied Sciences Upper Austria; Johannes Kepler University - Austria

EMSS\_55: Extending the retsim simulator for estimating the cost of fraud in the retail store domain  
Edgar Alonso Lopez-Rojas  
Blekinge Institute of Technology - Sweden

MAS\_25: Impact analysis of a cross-channel retailing system in the fashion industry by a simulation approach  
Alessandra Lanzilotto, Giada Martino, Maria Grazia Gnoni, Raffaele Iannone  
University of Salento; University of Salerno - Italy

**Tuesday 2015-09-22 14:00-15:30**

*Room: Room 3 - Caboto*

**IMAACA: Bond Graph Modeling and Analysis**

**Chair(s): Sergio Junco, Universidad Nacional de Rosario**

IMAACA\_6: Steady-state power flow analysis of electrical power systems modelled by 2-dimensional multibond graphs  
Israel Núñez-Hernández, Peter C. Breedveld, Paul B. T. Weustink, Gilberto Gonzalez-A

University of Twente; Controllab Products B.V; University of Michoacan - Netherlands/ Mexico

IMAACA\_3: Model complexity of a cantilever beam: an energy-based approach

Loucas Louca

University of Cyprus - Cyprus

IMAACA\_26: Experimentally validated bond graph model of a brazed-plate heat exchanger (BPHE)

Marwa Turki, Mohamed Kebdani, Geneviève Dauphin Tanguy, Antoine Dazin, Patrick Dupont

Ecole Centrale de Lille; Arts et Métiers Paris Tech - France

IMAACA\_5: Fault accommodation by inverse simulation through solving a differential algebraic system obtained from a bond graph

Wolfgang Borutzky

Bonn-Rhein-Sieg University of Applied Sciences - Germany

**Tuesday 2015-09-22 14:00-15:30**

*Room: Room 4 - Smilax*

**HMS: Supply Chains and Transportation**

**Chair(s): Yuri Merkurjev, Riga Technical University**

HMS\_18: Intelligent transport measures as a component of cyber-physical systems: case study for Adazi city

Yuri Merkurjev, Nadezhda Zenina, Andrejs Romanovs

Riga Technical University - Latvia

HMS\_8: Evaluation of supply chains effectiveness and reliability based on modelling logistics operations

Valery Lukinskiy, Vladislav Lukinskiy, Yuri Merkurjev

National Research University Higher School of Economics; Riga Technical University - Russia/ Latvia

HMS\_20: Agent-based simulation for planning and evaluation of intermodal freight transportation networks

Manfred Gronalt, Edith Schindlbacher

University of Natural Resources and Life Sciences - Austria

HMS\_23: Multivariate freight data generation for assessing customs' risk evaluation tools

Farzad Kamrani, Pontus Hörling, Thomas Jansson, Pontus Svenson

Swedish Defence Research Agency - Sweder

**Tuesday 2015-09-22 14:00-15:30**

*Room: Room 5 - Malicia*

**Special Session: SIMCJOH Project Demonstration**

**Chair(s): Agostino Bruzzone, University of Genoa**

**Tuesday 2015-09-22 15:30-16:00**

**COFFEE BREAK Co-Sponsored by CAL-TEK, LIO Tech, MAST, SIM4FUTURE**

**Tuesday 2015-09-22 16:00-17:30**

*Room: Room 1 - Colombo*

**EMSS: Workshop on Model Engineering for System of Systems**

**Chair(s): Prof. Lin Zhang, Beihang University**



EMSS\_5: A generation algorithm of latin hypercube sampling based on original sampling points  
Zhizhao Liu, Wei Li, Ming Yang, Jun Xu, Duzheng Qing  
Harbin Institute of Technology; Beijing Simulation Center - China

EMSS\_7: An integrated platform for simulation, validation, analysis and optimization of electromagnetic railgun system  
Yuchen Zhou, Ping Ma, Ming Yang  
Harbin Institute of Technology - China

EMSS\_14: Ontology and its role in domain-specific modeling  
Ning Zhu, Yonglin Lei, Xiaobo Li, Yifan Zhu  
National University of Defense Technology - China

EMSS\_15: Result validation of a rudder simulation model  
Lina Meng, Xiaochao Qian, Haiying Wang, Wei Li  
Heilongjiang Institute of Technology; Harbin Institute of Technology - China

EMSS\_68: Towards an extension of promela for the modeling, simulation and verification of discrete-event systems  
Aznam Yacoub, Maamar Hamri, Claudia Frydman , Chungman Seo , Bernard P. Zeigler  
Aix-Marseille Université; RTSync Corp - France/ USA

**Tuesday 2015-09-22 16:00-17:30**

*Room: Room 2 - Verazzano*

**SESDE-EMSS: LCA, Human Risks and Environmental Impact Reduction**

**Chair(s): Janos Sebestyen Janosy, Hungarian Accademy of Sciences**

SESDE\_8: Mushroom cultivation process, agaricus bisporus variety: comparison between traditional and climate controlled cultivation and identification of environmental impacts of the production processes  
F.J. Leiva-Lázaro, J. Blanco-Fernández, E. Martínez-Cámara, J.I. Latorre-Biel, E. Jiménez-Macías  
University of La Rioja; Public University of Navarre - Spain

SESDE\_4: Coagulation-adsorption-flocculation process to regenerate cip solutions. effect on the physicochemical and cleaning properties of regenerated solutions  
Mehdi Dif, Olivier Barrault  
Elodys International - France

EMSS\_84: Chemical risk evaluation: application of the Movarish methodology in an industry of the textile sector  
Vincenzo Duraccio, Gianpaolo Di Bona, Domenico Falcone, Alessandro Silvestri, Antonio Forcina  
University Niccolò Cusano; University of Cassino; University Parthenope - Italy

SESDE\_2: Using simulation to support management of offshore renewable energy facilities  
Kevin Kennedy, Ted Scully, Tom Mastaglio  
Cork Institute of Technology; MYMIC Global Ltd - Ireland

**Tuesday 2015-09-22 16:00-17:30**

*Room: Room 3 - Caboto*

**IMAACA: Robot Modeling & Control**

**Chair(s): Sergio Junco, Universidad Nacional de Rosario**

IMAACA\_22: Fractional order PI-Dm controller: applied to control a manipulator robot wrist  
Youcef Zennir, Adel Makhbouche  
Automatic Laboratory of Skikda - Algeria

IMAACA\_24: Obstacle avoiding strategy of a reconfigurable redundant space robot  
Vijay Kumar Dalla, Pushparaj Mani Pathak  
Indian Institute of Technology, Roorkee - India

IMAACA\_29: User front-following behaviour for a mobility assistance robot: a kinematic control approach  
George P. Moustiris, Athanasios Dometios, Costas S. Tzafestas  
National Technical University of Athens - Greece

IMAACA\_28: Gait modelling for a context-aware user-adaptive robotic assistant platform  
Georgia G. Chalvatzaki, Xanthi S. Papageorgiou, Costas S. Tzafestas  
National Technical University of Athens - Greece

IMAACA\_18: Dynamic analysis and 3D visualization of multibody systems  
Vjekoslav Damic, Maida Cohodar  
University of Dubrovnik; University of Sarajevo - Croatia/ Bosnia and Herzegovina

**Tuesday 2015-09-22 16:00-17:30**

*Room: Room 4 - Smilax*

**HMS: Logistics networks and distribution**

**Chair(s): Eleonora Bottani, University of Parma**

HMS\_5: Simulation-optimisation based decision-support for coordinated disaster relief last mile distribution  
Christian Fikar, Manfred Gronalt, Johannes Goellner, Patrick Hirsch  
University of Natural Resources and Life Sciences; National Defence Academy - Austria

HMS\_14: Modelling and assessment of risks in logistics using multidimensional statistical methods  
Vladimirs Jansons, Vitalijs Jurenoks, Konstantins Didenko, Julia Pushkina  
Riga Technical University; JS Insurance Company "BALTA", - Latvia

HMS\_12: Supporting real-time decision-making in logistics and transportation by combining simulation with heuristics  
Angel A. Juan, Javier Faulin, Laura Calvet  
IN3-Open University of Catalonia; Public University of Navarre - Spain

HMS\_21: Hierarchical mesoscopic simulation models of parcel service provider networks  
Björn Erichsen, Tobias Reggelin, Sebastian Lang, Horst Manner-Romberg  
Otto-von-Guericke University Magdeburg; Fraunhofer Institute for Factory Operation and Automation; MRU GmbH - Germany

**Tuesday 2015-09-22 16:00-17:30**

*Room: Room 5 - Malicia*

**Special Session: Simulation Exploration Experience, SEE 2016**

**Chair(s): Agostino Bruzzone, University of Genoa**

**Social Event**

**Tuesday 2015-09-22 18:30-23:00**

**19:00 I3M Gala Dinner @ Claudio Hotel and Congress Center**

***During Gala Dinner the I3M Best Paper Awards will be presented***

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**Wednesday 2015-09-23 9:00-10:30**

*Room: Room 1 - Colombo*

**EMSS: Modelling and Simulation Approaches in and for Education**

***Chair(s): Maja Atanasijevic-Kunc, Univ. Ljubljana; Andreas Körner, Vienna Univ. of Technology***

EMSS\_62: Combination of learning approaches in modelling and simulation

Maja Atanasijevic-Kunc, Marko Papić, Borut Zupančič, Janez Bešter

University of Ljubljana - Slovenia

EMSS\_77: An accredited engineering curriculum for modeling and simulation

Frederic D. McKenzie

Old Dominion University - USA

EMSS\_81: Modelling and simulation examples based on computer algebra systems

Stefanie Winkler, Andreas Körner, Andreas Bauer, Martin Bicher, Felix Breitenecker

Technische Universität Wien; dwh GmbH - Austria

EMSS\_53: NumEquaRes - Online simulation tool for education and academic research

Stepan Orlov, Nikolay Shabrov

St. Petersburg State Polytechnical University - Russia

EMSS\_10: Simulators sustainability assessment

Dace Aizstrauta, Egils Ginters, Artis Aizstraits

University of Applied Sciences - Latvia

**Wednesday 2015-09-23 9:00-10:30**

*Room: Room 2 - Verazzano*

**MAS: Modeling and Applied Simulation**

***Chair(s): Miguel Mújica Mota, Amsterdam University of Applied Sciences***

MAS\_12: A multimodal approach to simulation fidelity

Patrice Thebault, Sangeeth saagar Ponnusamy, Vincent Albert

Airbus Operations SAS; CNRS LAAS - France

MAS\_15: A positional study for network modeling using Zigbee protocol

Leonardo Lanzellotti, Larissa P. M. Cruz, Maria Celia S. Lopes, Gerson Gomes Cunha, Luiz Landau

Universidade Federal do Rio de Janeiro - Brasil

MAS\_24: Internet of Things (IoT) applications study using big data and virtualization process technology

Albino Ribeiro Neto, Gerson Gomes Cunha, Luiz Landau, Sergio Poliano Villarreal, Cristina Jasbinscheck

Haguenauer

Universidade Federal do Rio de Janeiro; National Service for Industrial Training - Brasil

MAS\_27: An improved conversive hidden non-markovian model-based touch gesture recognition system with automatic model creation

Tim Dittmar, Claudia Krull, Graham Horton

Otto-von-Guericke-University Magdeburg - Germany

MAS\_42: Discovering social networks using a mobile phone game

Terry Bossomaier, Roderick Duncan, Steve D'Alessandro, Michelle Evans, Liaquant Hossian

Charles Sturt University; Hong Kong University - Australia/ China

**Wednesday 2015-09-23 9:00-10:30**

*Room: Room 3 - Caboto*

**SESDE-EMSS: Energy and Environment**

**Chair(s): Gregory Zacharewicz, University of Bordeaux**

SESDE\_3: Fuzzy inference about wind resources in urban environment

Marcos Antonio Cruz Moreira, Roberto Rosenhaim, Robson da Cunha Santos, Gerson Gomes Cunha, Thaianie Fagundes de Araújo Holanda

Estácio de Sá University; Federal University of Rio de Janeiro; Fluminense Federal University - Brazil

SESDE\_5: Simulation of home activities to analyze household electricity consumption

C. Azcárate, I. Les, F. Mallor

Public University of Navarre - Spain

SESDE\_10: Analysis of thermal and acoustic performance in residential buildings with one way slab depending on the rib width and compression layer

Javier Ferreiro Cabello, Esteban Fraile García, Eduardo Martínez Cámara, Emilio Jiménez Macías

Qualiberica SL; University of La Rioja - Spain

SESDE\_9: A probabilistic FR 13 simulation of strategies for cooling of air in buildings with unplanned traffic flow during summer

James Y. G. Chu, Kenneth R. Davey

The University of Adelaide - Australia

EMSS\_8: Synergy of matlab and modelica in thermal flows control in buildings

Borut Župančič

University of Ljubljana - Slovenia

**Wednesday 2015-09-23 9:00-10:30**

*Room: Room 4 - Smilax*

**IWISH: Training Solutions in Healthcare and Patient's care- Session I**

**Chair(s): Marco Frascio, University of Genoa**

IWISH\_2: Towards a hybrid virtual/physical nuss procedure surgical simulator

Mohammad F. Obeid, Eun-sil Heo, Krzysztof J. Rechowicz, Robert E. Kelly, Frederic D. McKenzie

Old Dominion University Norfolk; Pediatric Surgery, Children's Hospital of The King's Daughters and Eastern Virginia Medical School - USA

IWISH\_17: The development of a low-cost obstetric simulator to train midwifery students and test objective examinations' skills

S. Ricci, A. Paci, S. Marcutti, P. Marchiolè, G. Torre, M. Casadio, G. Vercelli, M. Cordone

University of Genova; ASL3 Genova; Gynecology and Obstetric Villa Scassi Hospital - Italy

IWISH\_11: Biosignal acquisition system for prosthesis control and rehabilitation monitoring

Volkhard Klinger  
FHDW - Germany

IWISH\_7: Agent-based modelling for rethinking the socioeconomic determinants of child health in sub-saharan africa

Carine Van Malderen, Hedwig Deconinck, Niko Speybroeck, Jean-Christophe Chiem  
Université catholique de Louvain - Belgium

IWISH\_10: Simulation-based framework to compute population risk related to traffic accidents

FJ Otamendi, D Garcia-Heredia  
Universidad Rey Juan Carlos - Spain

**Wednesday 2015-09-23 9:00-10:30**

*Room: Room 5 - Malicia*

**Special Session: NATO MSG-ET-036 SA3C**

*Chair(s): Agostino Bruzzone, University of Genoa*

**Wednesday 2015-09-23 10:30-11:00**

***COFFEE BREAK Co-Sponsored by CAL-TEK, LIO Tech, MAST, SIM4FUTURE***

**Wednesday 2015-09-23 11:00-12:30**

*Room: Room 1 - Colombo*

**EMSS-MAS: Simulation and Optimization**

*Chair(s): Michael Kommenda, Upper Austria UAS*

EMSS\_36: Comparison of optimization methods efficiency in different dimensions of the search space of simulation models

Pavel Raska, Zdenek Ulrych  
University of West Bohemia - Czech Republic

EMSS\_51: AMEBA – Structural evolutionary optimization: method and toolbox development

Marko Corn, Maja Atanasijević-Kunc  
Ameba d.o.o.; University of Ljubljana - Slovenia

EMSS\_58: Simulation-based set-up time optimization using Sim# and Heuristiclab

Johannes Karder, Andreas Scheibenpflug, Andreas Beham, Stefan Wagner, Michael Affenzeller  
University of Applied Sciences Upper Austria; Johannes Kepler University - Austria

EMSS\_61: Modelling a clustered generalized quadratic assignment problem

Judith Fechter, Andreas Beham, Stefan Wagner, Michael Affenzeller  
University of Applied Sciences Upper Austria; Johannes Kepler University - Austria

MAS\_26: Using multi-pole modeling and intelligent simulation in design of a hydraulic drive

Mait Harf, Gunnar Grossschmidt  
Tallinn University of Technology - Estonia

**Wednesday 2015-09-23 11:00-12:30**

*Room: Room 2 - Verazzano*

**MAS: Simulation Based Education and Training**

*Chair(s): Diego Crespo Pereira, La Coruna University*

MAS\_41: Voluntary education standardization in study energy efficiency direction programs in European Union and neighborhood regions

A. Zabasta, N. Kunicina, N. Arsic, O. Krievs, L. Ribickis  
Riga Technical University; University of Pristina - Latvia/ Kosovo

MAS\_40: The assurance of quality and recognition of researcher's skills in Europe towards smart energy regions paradigm

N. Kunicina, A. Zabasta, L. Ribickis, D. Bunte, O. Krievs  
Riga Technical University; University of Applied Sciences - Latvia/ Germany

MAS\_14: Augmented reality to support 3D visualization of geometric elements in classroom with AR teacher tools

Livia Fernandes, Leonardo Lanzellotti, Celia Lopes, Gerson G. Cunha, Luiz Landau  
Universidade Federal do Rio de Janeiro - Brasil

MAS\_32: Virtual panel system with tactile feedback

Allisson D'ant Ramos Bastos, Gerson Gomes Cunha, Luiz Landau, Maria Celia Santos Lopes  
Universidade Federal do Rio de Janeiro - Brasil

**Wednesday 2015-09-23 11:00-12:30**

*Room: Room 3 - Caboto*

**SESE-MAS-IMAACA: Green Vehicles and Green Solutions**

**Chair(s): Janos Sebestyen Janosy, Hungarian Accademy of Sciences**

SESE\_7: Challenges and Opportunities in selecting green solutions for port terminals

Francesco Longo, Antonio Padovano, Alok Baveja, Benjamin Melamed  
University of Calabria; Rutgers University - Italy/ USA

SESE\_6: Modeling energy consumption in automotive manufacturing

Bitu Ghazanfari, Zbigniew J. Pasek  
University of Windsor - Canada

IMAACA\_8: Hybridization effect on fuel consumption and optimal sizing of components for HEV

Mauro G. Carignano, Norberto M. Nigro, Sergio Junco  
Universidad Nacional de Rosario; INTEC-CONICET-UNL - Argentina

IMAACA\_14: Modelling, control and application of dynamic programming to a series-parallel hybrid electric vehicle

Ivan Miguel Trindade, Agenor de Toledo Fleury  
University of Sao Paulo; FEI University - Brasil

MAS\_4: Optimal control strategy of plug-in hybrid electric vehicles

Wonki Kim, Yonghyeok Ji, Shunghwa Lee, Hyeongcheol Lee  
Hanyang University - Korea

**Wednesday 2015-09-23 11:00-12:30**

*Room: Room 4 - Smilax*

**Special Session: Public Transportation Modeling & Simulation**

**Chair(s): Agostino Bruzzone, University of Genoa**

**Wednesday 2015-09-23 11:00-12:30**

*Room: Room 5 - Malicia*

## **FOODOPS: Simulation of Food Supply Chain**

**Chair(s): Giuseppe Vignali, University of Parma**

FOODOPS\_4: Dynamic freight flow modelling for risk evaluation in food supply  
Andreas Balster, Hanno Friedrich  
Technische Universität Darmstadt - Germany

FOODOPS\_7: Optimization of transportation decisions under exclusionary side constraints in food supply chain  
Marcin Anholcer, Arkadiusz Kawa  
Poznań University of Economics - Poland

FOODOPS\_13: Analysis, simulation and optimization of the milking process in a cowshed for the production of Parmigiano Reggiano  
Mattia Armenzoni, Eleonora Bottani, Roberto Montanari, Marta Rinaldi, Sergio Amedeo Gallo  
University of Parma; University of Modena and Reggio Emilia - Italy

FOODOPS\_9: Life cycle assessment of a new feed production obtained by wasted flour food collected from the distribution and retail phases.  
David Mosna, Giuseppe Vignali  
University of Parma - Italy

**Wednesday 2015-09-23 12:30-14:00**

***LUNCH Co-Sponsored by Lio-Tech, CAL-TEK, MAST, SIM4FUTURE***

**Wednesday 2015-09-23 14:00-15:30**

*Room: Room 1 - Colombo*

## **IWISH: Patients pathway and care - Session I**

**Chair(s): Marco Frascio, University of Genoa**

IWISH\_16: A simulation tool to plan daily nurse requirements  
Paolo Barone, Francesco Imbimbo, Rosa Napoletano, Stefano Riemma, Debora Sarno  
University of Salerno - Italy

IWISH\_13: The interprofessional skill lab in the simulation centre: an experience of communication between the medical-nursing team and family members  
Annamaria Bagnasco, Sue-Anne Maruffi, Gianluca Catania, Giancarlo Torre, Loredana Sasso  
University of Genoa - Italy

IWISH\_12: Using the OSCE method in a simulation centre to ensure equity and objectivity in assessing the communication and relational skills in a large of student nurses during a long examination session  
Annamaria Bagnasco, Angela Tolotti, Giancarlo Torre, Loredana Sasso  
University of Genoa - Italy

IWISH\_14: An advanced centre of simulation to support caregivers providing home care to chronically ill patients, patients with rare diseases, and end of life care  
Annamaria Bagnasco, Giancarlo Torre, Roberta Centanaro, Lucia Bacigalupo, Loredana Sasso  
University of Genoa - Italy

IWISH\_9: Rotated principal components for fuzzy segmentation szinitigraphic time series in individual dose planing  
Werner Backfrieder, Gerald Zwettler  
University of Applied Sciences Upper Austria - Austria

**Wednesday 2015-09-23 14:00-15:30***Room: Room 2 - Verazzano***IMAACA: Modeling, Analysis and Control - Session I****Chair(s): Sergio Junco, Universidad Nacional de Rosario**

IMAACA\_2: Predictive maintenance based on four parameters on an industrial test bench  
 Drishtysingh Ramdenee, Samuel Austin, Michel Guimond, Adrian Ilinca  
 Institut technologique de maintenance industrielle; l'Université du Québec - Canada

IMAACA\_11: Battery dynamic model improvement with parameters estimation and experimental validation

Javier M. Cabello, Eric Bru, Xavier Roboam, Fabien Lacrosonniere, Sergio Junco  
 Universidad Nacional de Rosario; Université de Toulouse - Argentina/ France

IMAACA\_10: Design of a hydraulic turbine control system by numerical optimization

Roberto Canonico, Renato A. Aguiar, Fabrizio Leonardi  
 Centro Universitário da FEI - Brasil

IMAACA\_25: Linear stability analysis for severe slugging: sensitivity to void fraction correlations

Gabriel Romualdo Azevedo, Jorge Luis Baliño, Karl Peter Burr  
 Universidade de São Paulo; ; Universidade Federal do ABC - Brasil

IMAACA\_4: Application of an infinite horizon MPC to a nonlinear open-loop unstable reactor system

André Shigueo Yamashita, Bruno Faccini Santoro, Márcio André Fernandes Martins, Darci Odloak  
 Universidade de São Paulo; Universidade Federal da Bahia - Brasil

**Wednesday 2015-09-23 14:00-15:30***Room: Room 3 - Caboto***Special Session: DIEM-SSP and SG-ICT Projects presentation****Chair(s): Francesco Longo, University of Calabria****Wednesday 2015-09-23 14:00-15:30***Room: Room 4 - Smilax***DHSS-MAS: Defense and Homeland Security Simulation****Chair(s): Agostino Bruzzone, University of Genoa**

DHSS\_16: Distributed virtual simulation supporting defense against terrorism

Agostino G. Bruzzone, Marina Massei, Alberto Tremori, Marco Camponeschi, Letizia Nicoletti, Riccardo Di Matteo, Giulio Franzinetti  
 University of Genoa; NATO STO CMRE; Simulation Team - Italy/ UK

DHSS\_15: Intelligent agents & interoperable simulation for strategic decision making on multicoalition joint operations

Agostino G. Bruzzone, Marina Massei, Francesco Longo, Letizia Nicoletti, Riccardo Di Matteo, Gianluca Maglione, Matteo Agresta  
 University of Genoa; University of Calabria; Simulation Team - Italy

MAS\_45: Developing effective virtual reality training for military forces and emergency operators: from technology to human factors

Federica Pallavicini, Nicola Toniuzzi, Luca Argenton, Luciana Aceti, Fabrizia Mantovani  
 University of Milano-Bicocca; Selex ES - Italy



DHSS\_17: Guidelines for developing interoperable simulation focused on maritime operations combining autonomous systems and traditional assets

Agostino G. Bruzzone, Alberto Tremori, Marina Massei, Diego Crespo Pereira, Robert Been, Letizia Nicoletti, Giulio Franzinetti

University of Genoa; NATO STO CMRE; University of A Coruna; Simulation Team - Italy/ Spain

**Wednesday 2015-09-23 15:30-16:00**

**COFFEE BREAK Co-Sponsored by CAL-TEK, LIO Tech, MAST, SIM4FUTURE**

**Wednesday 2015-09-23 16:00-17:30**

*Room: Room 1 - Colombo*

**EMSS-MAS: Linear, non-linear systems and time series**

**Chair(s): Emilio Jimenez, University of La Rioja**

EMSS\_3: Positive and stable periodic time-varying continuous-time linear systems,  
Tadeusz Kaczorek

Bialystok University of Technology - Poland

EMSS\_85: Nonlinear scaling in smart adaptive modelling

Esko Juuso

University of Oulu - Finland

MAS\_8: Synthesis of adequate mathematical description and its applications

Yuri Menshikov

University of Dnepropetrovsk - Ukraine

EMSS\_19: Searching the longest common subsequences in distorted data

Tomáš Kocyan, Jan Martinovič, Kateřina Slaninová, Daniela Szturcová

VŠB - Technical University of Ostrava - Czech Republic

**Wednesday 2015-09-23 16:00-17:30**

*Room: Room 2 - Verazzano*

**Special Session: EUROSIM Board Meeting**

**Chair(s): Esko Juuso, University of Oulu**

**Wednesday 2015-09-23 16:00-17:30**

*Room: Room 3 - Caboto*

**HMS: Logistic Nodes and Supply Chains Modeling & Simulation**

**Chair(s): Yuri Merkuryev, Riga Technical University**

HMS\_25: A tool to support harbor terminals design

Agostino Bruzzone, Francesco Longo, Alessandro Chiurco, Felice Crupi, Marco Lanuzza, Alessio Luigi Emanuele, Curinga Maria Chiara, Molinaro Jessica

University of Calabria - Italy

HMS\_26: Discrete event simulation for virtual experimentation on marine decision support system

Agostino G. Bruzzone, Alberto Tremori, Raffaele Grasso, Raul Vicen, Alex Bourque, Giovanni Luca Maglione, Letizia Nicoletti

University of Genoa; NATO STO CMRE; Cal-Tek - Italy

HMS\_3: Design of a logistic platform through de optimization of agricultural distribution networks in Panama

Humberto R. Alvarez A., Andrés Orozco, Nuvia Martez

Universidad Tecnológica de Panamá; Universidad Marítima Internacional de Panamá - Panama

HMS\_4: Dynamic planning of cargo transportation for uncertain environments

Yukihisa Fujita

Hitachi Ltd. - Japan

HMS\_7: A simulation model for determining throughput capacity of container terminals

Zijian Guo, Xuhui Yu, Guolei Tang, Wenyuan Wang

Dalian University of Technology - China

**Wednesday 2015-09-23 17:30-18:30**

*Room: Room 1 - Colombo*

**Chair(s): Agostino Bruzzone, University of Genoa**

***I3M Closing Ceremony***

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### ***I3M Next Year***

**Be Ready for I3M in Cyprus**

***I3M2016 in Cyprus***

**If you are interested in being active in I3M2016 in Cyprus, please visit:**

**[www.msc-les.org/conf/i3m2016](http://www.msc-les.org/conf/i3m2016)**

**and/or contact the Program Chair Dr.Francesco Longo ([f.longo@unical.it](mailto:f.longo@unical.it))**

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### **International Journal Special Issues for I3M**

The I3M Organization has finalized an agreement to publish most interesting I3M papers in International Journals and to provide the opportunity to I3M authors to submit papers on International journals featuring Special Issues on simulation topics. The following Special Issues will include a collection of best papers submitted and presented at I3M or will feature topics in the area of Modeling & Simulation

-International Journal of Food Engineering

***Special Issue on: "Modeling & Simulation of food processing and operations"***

-Simulation: Transaction of SCS

***Special Issue on: "Agent Directed Simulation"***

-International Journal of Simulation and Process Modelling

***Special Issue on: "New trends of simulation and process modeling in multiple domains: from business and production to healthcare, defense and environmental sustainability"***

-International Journal of Simulation and Process Modelling

***Special Issue on: "Integrating Modeling & Simulation tools and methodologies in real-world complex systems for solving multidisciplinary problems"***

-International Journal of Service and Computing-Oriented Manufacturing

***Special Issue on: "Innovative Service-oriented and computing/simulation-based for future manufacturing system and manufacturing at large"***

-International Journal of Privacy and Health Information Management

***Special Issue on: "New simulation based solutions for education, training and decision making in the healthcare sector"***

### **I3M Best Paper Awards**

In the I3M Best Paper Awards will be delivered during I3M at the Gala Dinner; these are assigned by the I3M Best Paper Award International Committee and selected among the top quality papers of each Conference based on their originality, scientific quality and impact on each specific domain.

### **Gianni Cantice Award for Gifted Simulation Students**

The "Gianni Cantice Research Award for Gifted Simulation Students" will be announced during the I3M Opening Ceremony and attributed to the best simulation student applicants; the Award is entitled to Col.Cantice as recognition for his long activity in Simulation; the Gianni Cantice Award Winner will receive the Award Certificate, a financial contribution and the opportunity to spend a period in a M&S Excellence Center world wide, as visiting researcher of the Simulation Team. The Master and PhD students interested, in applying for this competition, need to submit their application, as described on the web site ([www.liophant.org/i3m/cantice](http://www.liophant.org/i3m/cantice)), to Dr.Marina Massei ([massei@itim.unige.it](mailto:massei@itim.unige.it)) before the deadline (September 1, 2015). For information about next edition of Gianni Cantice Award, please visit the web site [www.liophant.org/i3m/cantice](http://www.liophant.org/i3m/cantice).

### **I3M Hotel and Venue**

The I3M 2015 multiconference will be held at Claudio Hotel and Congress Center, Bergeggi, Italy.  
*Further Information are available on the web site [www.msc-les.org/conf/i3m2015](http://www.msc-les.org/conf/i3m2015)*

Claudio Hotel & Congress Center  
Via XXV Aprile,37 - Begeggi (SV) - Italy  
Tel +39 019 85 97 50  
Fax +39 019 85 97 50  
Email: [info@hotelclaudio.it](mailto:info@hotelclaudio.it)  
URL: [www.hotelclaudio.it](http://www.hotelclaudio.it)

Directions to Claudio Hotel & Congress Center :

By Plane: It is possible to use Volabus Shuttle from Genoa International Airport "Cristoforo Colombo" in order to reach P.Principe Genova Railway Station.

Then proceed by train to Savona or use taxi .

By Train: Stop in Savona Station and then use bus to Bergeggi or use taxi (~20 Euro), the distance is about 10 km.

By Car: Starting from Savona train station on local road West direction 2.1 km. Turn Right (South) on S1 and proceed for 7.5 km to Varigotti. Turn Right (North) on local road and proceed for 0.9 km In Bergeggi follow "Claudio Ristorante & Hotel". Arrival to the Site (parking available)

The Hotel reservation form is available in the conference website at: [http://www.msc-les.org/conf/i3m2015/index\\_file/ConferenceHotel.htm](http://www.msc-les.org/conf/i3m2015/index_file/ConferenceHotel.htm)

A Shuttle Service on demand is also available: please check the conference website for additional information at: [http://www.msc-les.org/conf/i3m2015/index\\_file/shuttleservice.htm](http://www.msc-les.org/conf/i3m2015/index_file/shuttleservice.htm)

Lunches, coffee breaks and a gala dinner will be provided to all conference attendees with regular full registration.

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## **Author and Chair Guidelines for I3M2015**

On the I3M web site guidelines for Track / Session Chairs and for Authors / Presenters are available please check them in order to proper deliver your presentation in best way avoiding any inconvenience.

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## **I3M as Evolving Framework**

Dear attendee, the whole I3M Organization is very glad for having you here and for your support to this important event; we really hope you enjoyed the conference, therefore we are looking forward to further develop and improve it; by participating in I3M it is evident that a major stronghold of this Multiconference is its capability to mix very experience people with young blood. So we will be glad if you could consider to be more involved in future events by submitting session or track proposals, by proposing new topics or by providing your availability for being candidate for paper review; in addition you can find on the web site I3M Quality Assessment Forms for providing your feedback, thanks in advance for your support.

## **I3M2016, Cyprus**

I3M2016 will be held next year in Cyprus, September 2016. Please consider to be active and to participate in this important event by submitting a paper or even by proposing a track and/or a session to the I3M Organization and Conference Chairs; for further information please check the web site: [www.msc-les.org/conf/i3m2016](http://www.msc-les.org/conf/i3m2016) or write to I3M2016 Program Chair Francesco Longo ([f.longo@unical.it](mailto:f.longo@unical.it))

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## **I3M2015 Industrial Sponsors**

CAL-TEK Srl  
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MAST Srl  
SIM4FUTURE

## **I3M2015 Media Partners**

InderScience Publisher - International Journal of Simulation and Process Modelling  
InderScience Publisher - International Journal of Service and Computing Oriented Manufacturing  
SAGE - Simulation Transaction of SCS  
IGI Global Disseminator of Knowledge - International Journal of Privacy and Health Information Management (IJPHIM)  
Halldale - The Journal of Healthcare, Education, Simulation and Training  
Halldale - The Military Simulation and Training Magazine  
Euromerci  
De Gruyter - International Journal of Food Engineering

## **Synergies & Other Opportunities**

## **WAMS 2016**

WAMS 2016, the International Workshop in Applied Modeling & Simulation. Please consider to be active and to participate in this thematic workshop; for further information please check the web site: <http://www.msc-les.org/conf/wams2016> or write to Dr. Marina Massei ([marina.massei@liophant.org](mailto:marina.massei@liophant.org))

## **SIREN M&S Courses**

The Modeling & Simulation Professional Courses are organized with scientific sponsorship of MITIM-DIME University of Genoa, Simulation Team, MSC-LES and Liophant. Attendees have the opportunity to select among different M&S courses levels (i.e. Fundamentals, Regular, Advanced Educational Package) and categories (i.e. M&S, VV&A, PM and Interoperability). Each M&S course includes lecturing and exercises provided by world-wide experts, with several years of experience, from major center of excellence, i.e. MITIM-DIPTeM University of Genoa, Virginian Modeling & Simulation Center (VMASC), GrVa Universidad Federal de Rio de Janeiro, LSIS Marseille, MAST, MSC-LES, National Center for Simulation (NSC), NASA, Riga TU, UAB, University of Arizona, etc. If you are interested in next SIREN Courses please visit [www.mastsrl.eu/mscourses](http://www.mastsrl.eu/mscourses) or contact [info@mastsrl.eu](mailto:info@mastsrl.eu)

## **SILENI**

SILENI (Simulation LEarning iNitiative) is an initiative devoted to promote M&S applied to real problems with special attention to Defense and Industry; SILENI promotes Seminars, Courses and Lectures on application of M&S. The name SILENI (Simulation LEarning iNitiative) is inspired by Greek mythology where Sileni (companions of Dionysus) were said to possess special knowledge and power of prophecy such as Modeling & Simulation. If you are interested in next SILENI Initiatives and Seminars please visit [www.liophant.org/sileni](http://www.liophant.org/sileni) or contact [info@liophant.org](mailto:info@liophant.org)

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***Further details on I3M Conferences are available in [www.liophant.org/i3m](http://www.liophant.org/i3m),  
[www.msc-les.org/conf/i3m2015](http://www.msc-les.org/conf/i3m2015)***