MSC – LES
Modeling & Simulation Center
Laboratory of Enterprise Solutions

REPORT 2008-2009

M&SNNet Center at Mechanical Department of University of Calabria
Via P. Bucci, Cubo 44C, third floor
87036 Rende (CS), Italy
Outline

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Introduction

*MSC - LES* is the research unit of the Industrial Engineering Section at Mechanical Department of University of Calabria.

The main goal of *MSC- LES* is the development of innovative ways to use Modeling & Simulation to achieve new scientific advances in production systems and supply chain management domains.

*MSC - LES* is member of *MS&Net* (*Modeling & Simulation Network*) a consortium of co-operating independent organizations active in professionalism, research, education, and knowledge dissemination in the modeling and simulation (M&S) domain.
People

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Sabrina Rondinelli
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Research

The research interests include Modeling & Simulation for production systems design and supply chain management. In these areas specific subjects regard:

- Supply chain security. The attention is focalized on developing integrated decision support system for the supply chain security. Several studies has been carried out in the field of marine terminal security and containers inspection procedures.
- The inventory management problem along the supply chain: definition and constrained comparison of different inventory control policies by using a multi-measure based approach;
- 3D Simulation tools for recreating complex environments (i.e. retail stores).
- Workplace and Workstation Effective Ergonomic design within manufacturing and production systems.
Research: Domains of Applicability

Domains of applicability

Industry

- Manufacturing Systems
- Decision making tools
- Production Planning and Shop Orders Scheduling
- Inventory systems management
- Plant lay-out design, analysis and optimization
- Work methods and time measurement analysis
- Workstations and workplaces effective design
- Material handling systems
- Processes and activities mapping
- Business plan

Transportation and Logistics

- Supply chain management
- Supply chain security
- Decision making tool
- Business Process Re-engineering in Logistics
- Transportation planning optimization
- Customer satisfaction and service level analysis along the supply chain
- Inventory control policies
Academic Cooperation and Collaborations (2008 - 2009)

✓ Simulation Team and Liophant Simulation, University of Genoa (Italy), Prof. Agostino Bruzzone
✓ Department of Industrial & Systems Engineering, Rutgers University (the State University of New Jersey, USA), Prof. Tayfur Altiok
✓ System Engineering Department, Autonomous University of Barcelona (Spain), Prof. Miquel Angel Piera
✓ MSNet at University of Ottawa (Canada), Prof. T. Oren
✓ Department of Modeling & Simulation, Riga Technical University (Latvia), Prof. Yury Merkuriev
✓ Department Systems Engineering and Automation, and Computer Architecture, University of La Laguna, Spain, Prof. Rosi Aguilar
✓ Department of Matematical Modelling & Simulation, Vienna University of Technology (Austria), Prof. Felix Breitenecker
<table>
<thead>
<tr>
<th>Marine Ports Security</th>
<th>Supply Chain Security and Management</th>
<th>Industrial Engineering</th>
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<tr>
<td>Research centre or company name</td>
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<tr>
<td>Laboratory for Port Security (LPS) at Rutgers University</td>
<td>USA</td>
<td>McLeod Modeling and Simulation Network</td>
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<td>Port Authority of Barcelona</td>
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<td>Port Authority of Istanbul</td>
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<td>Latvian Simulation Society</td>
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<td>ATOS Origin SAE, Transport &amp; Logistic UNIT</td>
<td>Spain</td>
<td>University of Genoa</td>
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<td>Hamburg Port Consulting</td>
<td>Germany</td>
<td>University of Rome La Sapienza</td>
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Publications (2008-2009)

INTERNATIONAL JOURNALS


Publications (2008-2009)

BOOK CHAPTERS AND CONFERENCES PROCEEDINGS EDITIONS


INTERNATIONAL CONFERENCES


Projects & Proposal

- **SEAPORTS** – SEcurity Advances in marine PORTS and effects on the global supply chain
- **ALBATROS** – All Levels Balanced Architecture to ThReats in Operation at Sea
- **SOCRATES** – Shopping On line CReated by Advanced Three-dimensional Environments and Simulation
- **TESEO** – Development of innovative models for the Technical, Economic, Social and Environmental sustainability of industrial and logistic processes
- **WEED** – Workstation Ergonomic Effective Design
- **WILMA** – Warehouse and Internal Logistics MAnagement
- **SOMMA** – Supply chain Orders Management Modeling & Analysis
- **WORKS** – Workstations Simulators
- **VDS** – Virtual Dynamic Store for retail
- **PLOTTER** – Plant Lay-out Analysis and Optimization Through Times and Ergonomic Re-Organization
SEAPORTS - SEcurity Advances in marine PORTS and effects on the global supply chain

The main objective of SEAPORTS is to enhance protection capability and security against threats in marine ports. The primary focus of SEAPORTS is to support:

- review, test and certification of ports security procedures;
- security gaps identification;
- design and re-engineering of security procedures/infrastructures;
- evaluation of effects of security advances in marine ports on the global supply chain.
Projects & Proposal: TESEO

TESEO - development of innovative models for the Technical, Economic, Social and Environmental sustainability of industrial and logistic processes

The research program titled The development of Innovative Models for the Technical, Economic, Social and Environmental Sustainability of the Industrial and Logistic Processes aims at the development of models that, appropriately tested and validated by using a Modeling & Simulation based approach, should support an innovative and a more efficient industrial and logistics processes management. The need to carry out research activities to develop new models of management of industrial and logistics processes comes out from the fact that the major players from industry and supply chain are now operating in a new reference scenario. The new reference scenario was generated as effect of the financial crisis (started in 2008 and still on going) on the global markets. The new reference scenario underlines the inability of industry and supply chain to provide financial support for logistics and industrial processes and, more generally, are leading to a rethinking of current models of economic development.
Projects & Proposal: WEED

Weed
(Workstation Ergonomic Effective Design)

The research work proposes a simulator for achieving the ergonomic effective design of workstations within industrial plants by considering both the interaction of the operators with their working environment and the work methods.
MSC-LES supports the Organizing Committee of the following international conferences:

**Business and Industry Symposium part of the 2009 Spring Simulation Multiconference 2009**
22-27 March 2009, San Diego, California, USA
- [Details](#)

**23rd European Conference on Modelling & Simulation**
9-12 June 2009, Madrid - Spain
- [Details](#)

**The 6th International Mediterranean and Latin American Modelling Multiconference**
September 2009, Tenerife, Canary Islands - Spain
- [Details](#)

**The International Workshop on Modelling & Applied Simulation**
September 2009, Tenerife, Canary Islands - Spain
- [Details](#)

**21th European Modeling and Simulation Symposium**
September 2009, Tenerife, Canary Islands - Spain
- [Details](#)

**The International Conference on Harbour, Maritime & Multimodal Logistics Modelling and Simulation**
September 2009, Tenerife, Canary Islands - Spain
- [Details](#)

**Summer Computer Simulation Conference**
June 2009, Istanbul - Turkey
- [Details](#)

**The 3rd International Workshop on Applied Modelling & Simulation**
April 2010, Rio de Janeiro & Buzios, Brazil
- [Details](#)
# Conferences Organization (2007 - 2008)

## Conferences 2008

**The 5th International Mediterranean Modelling Multiconference**  
17-19 September 2008, Campora S. Giovanni, Amantea (Cs), Calabria, Italy  
- [Details](#)

**The International Workshop on Modelling & Applied Simulation**  
17-19 September 2008, Campora S. Giovanni, Amantea (Cs), Calabria, Italy  
- [Details](#)

**20th European Modeling and Simulation Symposium**  
17-19 September 2008, Campora S. Giovanni, Amantea (Cs), Calabria, Italy  
- [Details](#)

**The International Workshop on Harbour, Maritime & Multimodal Logistics Modelling and Simulation**  
17-19 September 2008, Campora S. Giovanni, Amantea (Cs), Calabria, Italy  
- [Details](#)

**Summer Simulation Multiconference 2008**  
16-19 June 2008, Edinburgh, Scotland  
- [Details](#)

## Conferences 2007

**19th European Modeling and Simulation Symposium**  
4-6 October 2007, Bergoggi (Sv), Italy  
- [Details](#)

**Summer Computer Simulation Conference**  
15-18 July 2007, San Diego, California, USA  
- [Details](#)
MSC-LES is supporting the following international journals special issues:

**International Journal of Simulation and Process Modelling**

**Special Issue:**

"Modelling & Simulation, Methodologies, Techniques and Applications"

**Guest Editors:**

Iván Castilla Rodríguez, Department of Systems Engineering and Automation, and Computer Architecture, University of La Laguna, ivan@isaatc.ull.es

Francesco Longo, Modeling & Simulation Center – Laboratory of Enterprise Solutions, Mechanical Department of University of Calabria, f.longo@unical.it

**International Journal of Simulation and Process Modelling**

**Special Issue:**

"Advances of Modeling & Simulation in Supply Chain and Industry"

**Guest Editor:**

Francesco Longo, Modeling & Simulation Center – Laboratory of Enterprise Solutions, Mechanical Department of University of Calabria, f.longo@unical.it
Students Exchange: 2009-2010

From MSC-LES to other centers:
- **Antonio Cimino**, PhD Student: VMASC, Virginia (USA), October 2009 – December 2009
- **Alessandro Chiurco**, Master Degree Student: Rutgers University, New Jersey, (USA), September 2009 – November 2009
- **Salvatore Bruni**, Master Degree Student: UAB, Spain, agreement and period to be defined
- **Angela Aiello**, Master Degree Student: UAB, Spain, agreement and period to be defined

From other centers to MSC-LES:
- **Federico Tralongo**, PhD Student: University of Genoa (Italy), March 2009 – April 2009.
- **Elton Lucas Nhaca**, Master degree Student: Portuguese Catholic University (Portugal), agreement and period to be defined
Contacts

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