

# Annual Report of the McLeod Institute of Simulation Sciences

## Genoa Center, Italy

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| List of Research Activities & Projects<br>- Subject<br>- Type [Topic/Project]<br>- Description<br>- Year | <p><b>Production &amp; Assembling</b><br/>           APIS: Power Plant Service (Ansaldo) 2006-2007</p> <p><b>Logistics Networks &amp; Supply Chain Management</b><br/>           CYBERSAR Simulator for Portainer, (CFLI, University of Cagliari) 2007<br/>           MASC New Generation: New DSS including Simulation &amp; Forecasts (COOP Liguria) 2005-2007<br/>           RESET: Training Simulator for River Boat (CFLI, Regione Piemonte) 2005-2007<br/>           INNOVARE: Training Simulator for Truck and Contstacker (CFLI, Regione Piemonte) 2005-2007</p> <p><b>Business &amp; Services</b><br/>           MARLIN: (CCNO) Models for Advanced Reorganization in Logistics of Ichthyic Nourishment 2006-2007<br/>           POSSO: (COOP) Progetto Operativo Supporto Sistemi POA/PRA 2006-2007<br/>           MOLOCH: (COOP) Sviluppo Modello Software per Testare le Coperture POA/PRA 2007<br/>           UAO: (CCNO) Ufficio Assistenza Ordinaria POA/PRA 2006-2007<br/>           UAS: (CCNO) Ufficio Assistenza Straordinaria POA/PRA 2006-2007</p> <p><b>Service for the Society</b><br/>           6EFFE: Parental Support for Work Scheduling (COOP Liguria) 2005-2007</p> <p><b>Military Applications</b><br/>           PIOVRA: Intelligent Agent for CGF (Italian MoD, LSIS, DGA France) 2005-2007</p> |
| List of Educational<br>- Title<br>- Type [University Course/Professional Course]<br>- Year               | <p>“Modeling &amp; Simulation”and “Project Management &amp; Concurrent Engineering in R&amp;D Projects”, <b>PhD Courses, University of Genoa, Italy, 2007</b><br/>           "SIREN: PM in M&amp;S, M&amp;S, VV&amp;A, DIS, VV&amp;A", <b>Professional Course, Bergeggi</b></p>  |

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|                     | <p>“Cost Models in Transportation management”, <b>Professional Course</b>, Reggio, Turin, Genoa, Udine, Ancona, Pavia, Italy (Ministry of Transportation) 2007</p> <p>“ Giornata d'Incontro: Simulazione, Modellizzazione e Interoperativita` in Italia Opportunita` per il 2007-PIOVRA Exploitation”, <b>Workshop</b>, Roma, Italy, 2006</p>   |
| Center publications | <ul style="list-style-type: none"> <li>• Reverberi A., Bruzzone A.G., Briano E. (2006) "Potential of Simulation in Nanosurfaces Formation", Proceedings of SpringSim2006, Huntsville AL, April</li> <li>• Bruzzone A.G., Massei M. (2006) "Virtual Reality as Support For Terminal Operation", Proceedings of Applied Modelling &amp; Simulation, Buzios, Brazil, April 5-7</li> <li>• Bruzzone A.G., Briano E. (2006) "Simulation of Truck Operations Connecting a Logistics Networks", Proceedings of Applied Modelling &amp; Simulation, Buzios, Brazil, April 5-7</li> <li>• Bruzzone A.G., Bocca E. (2006) "Simulation as Decision Support for Evaluating Life Cycle Costs on New Vessels", Proceedings of Applied Modelling &amp; Simulation, Buzios, Brazil, April 5-7</li> <li>• Bruzzone A.G., Massei M., Longo F., Saetta S. (2006) "The Vulnerability of Supply Chains as Key Factor in Supply Chain Management", Proceedings of SCSC2006, Calgary, Canada, July 30-August 3</li> <li>• Bruzzone A.G., Briano E., Massei M. (2006) "Simulating Transportation over a Wide Area During a Regional Crisis", Proceedings of SCSC2006, Calgary, Canada, July 30-August 3</li> <li>• Bruzzone A.G., Massei M., Brandolini M. (2006) "Simulation Based Analysis on Different Logistics Solutions for Fresh Food Supply Chain", Proceedings of SCSC2006, Calgary, Canada, July 30-August 3</li> <li>• Bruzzone A.G., Briano C., Massei M., Poggi S.L. (2006) "Simulation and Optimization as Decision Support System in Relation to Life Cycle Cost of New Aircraft Carriers", Proceedings of MSO2006, Gaborone, Botswana, September</li> <li>• Bruzzone A.G., Massei M., Brandolini M. (2006) "Cost &amp; Risk Analysis on Railways Events Related to Homeland Security by Using Simulation", Proceedings of Virtuality2006, Turin, October 18-20</li> <li>• Bruzzone A.G., Massei M., Poggi S. (2006) "Simulation of The Supply Chain Risks", Proceedings of HMS2006, Barcelona, October</li> <li>• Bruzzone A.G., Bocca E. (2006) "Logistics and Process Solutions for Supply Chain of Fresh Food In Retail", Proceedings of HMS2006, Barcelona, October</li> <li>• Bruzzone A.G., Briano E. (2006) "Pool Logistics for Power Plant Service", Proceedings of HMS2006, Barcelona, October</li> <li>• Bruzzone A.G., Brandolini M., Rocca A. (2006) "Movements and Attrition within Areas affected by Civil Disorders", Proceedings of EMSS2006, Barcelona, October</li> <li>• Chiara B., Bruzzone A.G., Massei M., (2006) "Optimizing Retail Logistics from Store Point of View", Proceedings of HMS2006, Barcelona, October</li> <li>• Bruzzone A.G., Massei M., (2006) "Modelling for Estimating Impact on Road Transportation of Regional Emergencies &amp; Disasters", Proceedings of I3M2006, Barcelona, October</li> <li>• Bruzzone A.G., Bocca E. (2006) "Vessel Management Simulation", Proceedings of HMS2006, Barcelona, October</li> <li>• Bruzzone A.G. (2006) "National Crisis Impact on Road Transportation", Proceedings of MAS2006, Bergeggi October</li> <li>• Bruzzone A.G., Cunha G.G., Landau L., Saetta S. (2006) "Applied Modelling &amp; Simulation", LAMCE Press Rio de Janeiro, ISBN 85-285-0089-6 (240 pp)</li> <li>• Bruzzone A.G., Williams E. (2006) "Summer Computer Simulation Conference", SCS International, ISBN 1-56555-307-1 (504 pp)</li> <li>• Bruzzone A.G., Guasch A., Piera M.A., Rozenblit J. (2006) "International Mediterranean Modelling Multiconference", Logsim, ISBN 84-690-0726-2 (768 pp)</li> <li>• Bruzzone A.G., Massei M. (2006) "Modelling &amp; Applied Simulation 2002", DIP University of Genoa, Genoa, October, ISBN 88-900732-7-6</li> <li>• Bruzzone A.G., Bocca E., Brandolini M., Poggi S.L. (2006) "APIS", Ansaldo Energia Technical Report, Genoa, Italy</li> <li>• Bruzzone A.G., Brandolini M., Poggi S.L. (2006) "APIS", Ansaldo Energia Technical Report, Genoa, Italy</li> <li>• Bruzzone A.G., (2006) "TRAMAS4.0A", Ministero Autotrasporto Technical Report, Genoa, Italy</li> <li>• Bruzzone A.G., Briano C. (2006) "POA NG2006", CCNO Technical Report, Genoa, Italy</li> </ul> |

- Bruzzone A.G., Bocca E., Briano E. (2006) "NOL2006", CCNO Technical Report, Genoa, Italy
- Mosca R., Bruzzone A.G. (2006)"List of Background IPR", PIOVRA EDA Technical Report, Genoa, Italy
- Rocca A., Bruzzone A.G. (2006) "Quality Plan", PIOVRA EDA Technical Report, Genoa, Italy
- Mosca R., Massei M., Bruzzone A.G. (2006) "State of Art: CGF Features and Gap", PIOVRA EDA Technical Report, Genoa, Italy
- Mosca R., Massei M., Bruzzone A.G. (2006) "Survey on Hybrid M&S, HLA, AI", PIOVRA EDA Technical Report, Genoa, Italy
- Cassaunel J., Massei M., Bruzzone A.G. (2006) "Survey Current CGF Reporting Current Situation", PIOVRA EDA Technical Report, Genoa, Italy
- Rocca A., Massei M., Bruzzone A.G. (2006) "Performance Metrics Report", PIOVRA EDA Technical Report, Genoa, Italy
- Mosca R.,Massei M., Bruzzone A.G. (2006) "PIOVRA Object Report", PIOVRA EDA Technical Report, Genoa, Italy
- Briano C., Massei M., Bruzzone A.G. (2006) "VV&A Report FEDEP Step 1", PIOVRA EDA Technical Report, Genoa, Italy
- Frydman C.,Massei M., Bruzzone A.G. (2006) "VV&A Report FEDEP Step 2", PIOVRA EDA Technical Report, Genoa, Italy
- Rocca A., Massei M., Bruzzone A.G. (2006) "PIOVRA Federation Architecture", PIOVRA EDA Technical Report, Genoa, Italy
- Brandolini M., Massei M., Bruzzone A.G. (2006) "Definition PIOVRA Objects", PIOVRA EDA Technical Report, Genoa, Italy
- Brandolini M., Massei M., Bruzzone A.G. (2006) "Definition PIOVRA Algorithms", PIOVRA EDA Technical Report, Genoa, Italy
- Zacharewicz G.,Massei M., Bruzzone A.G. (2006) "Definition of G-DEVS/HLA framework, tailored for PIOVRA", PIOVRA EDA Technical Report, Genoa, Italy
- Mamadou S., Massei M., Bruzzone A.G. (2006) "G-DEVS/HLA Representation of PIOVRA Objects", PIOVRA EDA Technical Report, Genoa, Italy
- Rocca A., Massei M., Bruzzone A.G. (2006) "PIOVRA Federation Requirements", PIOVRA EDA Technical Report, Genoa, Italy
- Bruzzone A.G., Massei M. (2006) "PIOVRA Scenario Definition", PIOVRA EDA Technical Report, Genoa, Italy
- Frydman C.,Massei M., Bruzzone A.G. (2006) "PIOVRA Company Scenario Definition", PIOVRA EDA Technical Report, Genoa, Italy
- Rocca A., Massei M., Bruzzone A.G. (2006) "PIOVRA Integration Requirements", PIOVRA EDA Technical Report, Genoa, Italy
- Bruzzone A.G. "Final Report WP3 PIOVRA", (2006) "PIOVRA EDA Technical Report", Genoa, Italy
- Bocca E.,Massei M., Bruzzone A.G. (2006) "Final Report WP2 PIOVRA", PIOVRA EDA Technical Report, Genoa, Italy
- Bruzzone A.G., Frydman C. (2006) "PIOVRA PM & Progress Reports", PIOVRA EDA Technical Report, Genoa, Italy
- Cassaunel J., Massei M., Bruzzone A.G. (2006) "Report Future Trend on CGF", PIOVRA EDA Technical Report, Genoa, Italy
- Rocca A.,Massei M., Bruzzone A.G. (2006) "Final Report WP4 PIOVRA", PIOVRA EDA Technical Report, Genoa, Italy
- Mosca R.,Massei M., Bruzzone A.G. (2006) "Experimental Campaign: Phase I", PIOVRA EDA Technical Report, Genoa, Italy
- Mosca R.,Massei M., Bruzzone A.G. (2006) "Experimental Campaign: Phase II", PIOVRA EDA Technical Report, Genoa, Italy
- Brandolini M., Massei M., Bruzzone A.G. (2006) "Report: Case Studies, Preliminary Test, Examples", PIOVRA EDA Technical Report, Genoa, Italy
- Rocca A.,Massei M., Bruzzone A.G. (2006) "VV&A Report FEDEP Step 3", PIOVRA EDA Technical Report, Genoa, Italy
- Frydman C.,Massei M., Bruzzone A.G. (2006) "VV&A Report FEDEP Step 4", PIOVRA EDA Technical Report, Genoa, Italy
- Longo F. (2006) "Hybrid Simulation & AI: Fuzzy Logic Applied to Scenario Awareness", Invited Presentation on Piovra Workshop, Savona, February 7
- Reverberi A. (2006) "Human Behavior Representation & Genetic Algorithms Characteristics Fitting", Invited Presentation on Piovra Workshop, Savona, February 7
- Capasso S. (2006) "Distributed Simulation Training: Advances & Open Issues", Invited Presentation on Piovra Workshop, Savona, February 7
- Briano C. (2006) "Verification and Validation of HLA Federation", Invited Presentation on Piovra Workshop, Savona, February 7
- Briano E., Brandolini M., Longo F., Mirabelli G. (2006) "Container Terminal Scenarios Analyzing and Awareness Trough Modeling & Simulation", Proceedings of ESMS2006, Bonn, May 28th-31<sup>st</sup>
- Bocca E., Bruzzone A.G., Rocca A. (2006) "Algorithms devoted to

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|                         | <p>Reproduce Human Modifiers in Polyfunctional Agents", Proceedings of SCSC2006, Calgary, Canada, July 30-August 3</p> <ul style="list-style-type: none"> <li>• Briano E., Bocca E., Poggi S.L. (2006) "Aircraft Carrier Simulation for Analysis Of Availability, Reliability, Costs and Efficiency", Proceedings of SCSC2006, Calgary, Canada, July 30-August 3</li> <li>• Massei M., Briano E., Bocca E. (2006) "Training Simulation as Competitive Advantage for Policy Definition in Logistics Networks", Proceedings of MSO2006, Gaborone, Botswana, September</li> <li>• Poggi S.(2006) "Logistics for Supporting Vessel Management", Proceedings of MAS2006, Bergeggi October</li> <li>• Briano E. (2006) "Power Plant Service based on pool logistics", Proceedings of MAS2006, Bergeggi October</li> <li>• Massei M. (2006) "Logistics and process solution for supply chain of fresh food in retail", Proceedings of MAS2006, Bergeggi October</li> <li>• Rocca A. (2006) "Movements And attrition for Crowd Control", Proceedings of MAS2006, Bergeggi October</li> <li>• Briano C. (2006) "Logistics Solutions for Quick Response to Store Demand in Retail Business", Proceedings of MAS2006, Bergeggi October</li> <li>• Brandolini M. (2006) "Simulation of the supply chain risks", Proceedings of MAS2006, Bergeggi October</li> <li>• Longo F. (2006) "Spreadsheet Based Tools for Supporting Inventory Management in Distribution Center", Proceedings of MAS2006, Bergeggi October</li> <li>• Massei M., Poggi S., Modula D., Pierfederici L. (2006) "Crane Training Simulation", Presentation during Festival della Scienza, October 30</li> <li>• Longo F., Tralongo F., De Sensi G. (2006) "Phrosim", Tech.Report of ICAMES2006, Istanbul May 6-13</li> <li>• Revetria R. (2006) "Agents in HLA Simulation for Supporting Dynamic Negotiation &amp; Control", Invited Presentation on Piovra Workshop, Savona, February 7</li> <li>• Cassaunel J. (2006) "Lessons Learned on Current CGFs", Invited Presentation on Piovra Workshop, Savona, Februar</li> <li>• * Reverberi A., Del Borghi A., Briano C., Bruzzone A.A.G. (2006) "Mass Transfer Effects in Copper Surface Chemical Etching through Masks", Proceedings of SCSC2006, Calgary, Canada, July 30-August 3</li> </ul> |
| Center simulation tools | <p><b>Simulation software</b><br/> C/C++, Java, Visual Basic Arena, Horus, WinOp, Modsim III, Taylor II, Proservice, Simulink, Pasion,GPSS/H NeuralWare Pro, JTLSetc.</p> <p><b>Simulation Hardware</b><br/> Logistics Laboratory (16 PC), Cocodrillo Labs (4 PC), COCODRIS Mobile Lab (4 PC), HLA Laboratory (6 PC), DIP Labs (3 PC), WILD Mobile Lab (5 Laptops), VR Lab (1 SGI, 1 WS, 6 VRPC)</p>  |
| Center highlights       | <p><b>Scientific Activities</b><br/> The MISS organized the following events:<br/> WORKSHOP PIOVRA Exploitation, Rome, Italy, in Co-operation with Liophant, 2007<br/> WORKSHOP HMS2006, Barcelona, SP, in Co-operation with UAB, UPC<br/> WORKSHOP MAS2006, Bergeggi, Italy in Co-operation with Liophant</p> <p><b>Active Participation At Conferences</b><br/> ECMS, Praha, G, 2007<br/> ICAMES, Istanbul, T, 2007<br/> ITEC 2007, London, 2007<br/> Spring SIW, Norfolk, USA, 2007<br/> EMSS, Barcelona, SP, 2006<br/> HMS, Barcelona, SP, 2006<br/> I3M, Barcelona, SP, 2006<br/> MAS, Bergeggi, Italy, 2006</p>   |

**Exchange Programs in MISS Genoa Centre****MISS Genoa Guests:**

Prof. Jerzy Rosenblit, from University of Arizona, (June 2007)

Prof. Jean Caussanel, Greg Zacharewicz, Mamadou Seck, from LSIS, (June 2007)

Victor Bucio Hverta, Radoune Ouladsine from LSIS (May-August 2007)

**MISS Genoa Visitors**

Luca Pierfederici, Davide Modula Visiting Rutgers University, NJ, (January-February 2007)

Agostino Bruzzone, Botswana University, Gaborone, September 2007

Simonluca Poggi, Davide Modula, Luca Pierfederici, Federico Tralongo, Guests in ENSO Istanbul (May 2007)