



Simulation  
Team

# Elysium



Experience with Lyceums by Simulation and Ultimate Modeling

®

*Simulation Team, Genoa University &  
High Schools, 2016*





# Simulation Team

Universities, Research Centers and Companies operating worldwide in synergy for developing Innovative Solutions with a particular focus in Modelling and Simulation



DIME  
Università  
di Genova



Liophant  
Simulation



CentraLabs  
Cagliari



CSU  
Australia



CIREM  
Università di Cagliari



MSC-LES



etea SICUREZZA



Mik  
Riga TU



Universidad  
de la Rioja



DIPMEC  
Università Calabria



SimCenter Universitat  
Autònoma de Barcelona



Blizzard Srl



Università di Perugia



LISIS  
Marseille



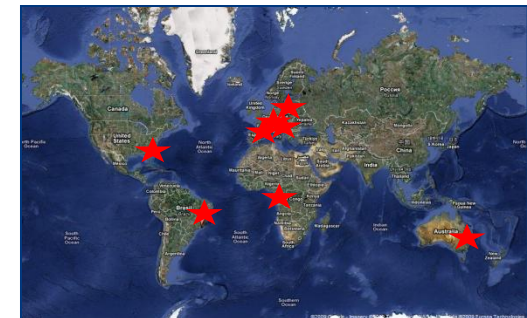
Rio de Janeiro  
Brazil



McLeod Institute of  
Technology & Interoperable  
Modeling Simulation Genoa



ims IMS-LAPS  
Univ. Bordeaux  
SPIRAS Russian  
Academy of Science



DIME  
Università di Genova



## McLeod Institute of Technology and M&S M&S Net Genoa Center

Simulation Team  
Genoa Center

Email: [agostino@itim.unige.it](mailto:agostino@itim.unige.it)

URL: [www.mcleodinstitute.org](http://www.mcleodinstitute.org)  
[www.m-s-net.org](http://www.m-s-net.org)

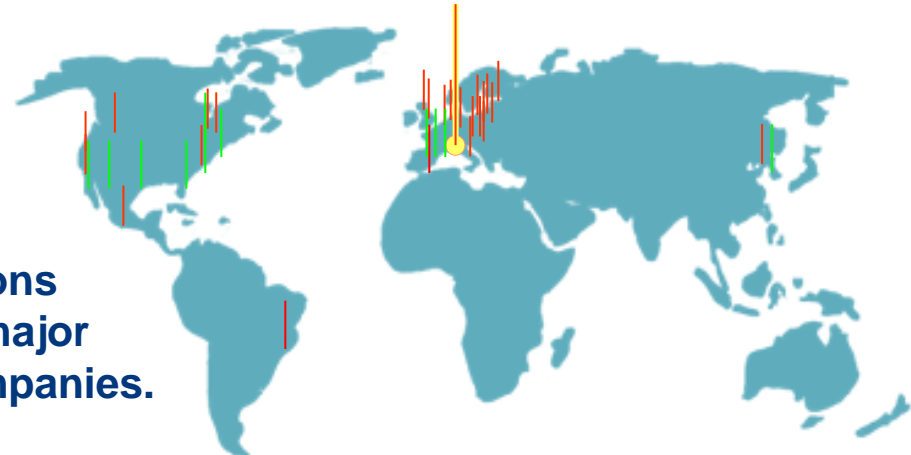
**M&SNet**

The research group of DIME of *Genoa University* is active from '60 in Simulation applied to Industrial Engineering and is cooperating with M&S Net and MITIM. The activities involve modeling, simulation, VV&A and analysis of Industrial Applications and Services (design, re-engineering, management, training etc.)

as:

Chemical Facilities	Power Plants	PM
Harbor Terminals	Sustainability	Defense
Manufacturing	Assembling	Logistics
Public Transportation		

The Department staff is in touch world-wide with the simulation community and is present actively to conferences, exhibitions and working meetings with the major Associations, Agencies and Companies.



**34 M&S Net Centers World-Wide**



# Simulation Team MITIM DIME

The Simulation Team - MITIM DIME of *Genoa University* carries out many industrial projects in cooperation with the large corporations and Small and Medium sized Enterprises; some example of recent industrial simulation project are following:

	<b>ENI</b>	<b>Fleet Management Planning &amp; Scheduling</b>		
	<b>Group Chemical Plant Logistics Optimization</b>			<b>PETROBRAS</b>
	<b>Ansaldo</b>	<b>Plant Service Management and Optimization</b>		
				
	<b>LAMCE</b>	<b>Oil Platform Simulation and Augmented Reality</b>		
	<b>Petrobras</b>			
	<b>EDA</b>	<b>Decision Support for Country Reconstruction Activity Planning</b>		
	<b>Ford Motor</b>	<b>New Production Line Design Based on Simulation</b>		
				
				
				

Members of MISS are appointed in several positions in simulation community such as:

- General Director M&S Net (34 M&S Centers Worldwide)
- President Simulation Team (20 Centers Worldwide)
- Associate Vice President of SCS and Chairman of Technical Chapter
- Member of NATO SAS, MSG, and NIAG



# DIME - University of Genoa

DIPTTEM was founded in 1997 as evolution of the Institute of Technology and Industrial Management (ITIM) that was operative from '60.

In 2011 DIPTTEM evolved in DIME and it is currently composed by about 80 faculty members, 15 technicians and administrative, plus several PhD Students, external Researchers and Consultants. DIME teachers are involved in Undergraduate, Postgraduate and Professional activities in Engineering, Management.

DIME active in R&D Projects for major Institutions, Companies and Governmental Organisations. DIME co-operates actively with major Excellence Centers World-Wide.





# University of Genoa: an Overview

The University of Genoa is one of the oldest in Italy and in the World (founded in 1471 AD), it is located in middle of Italian Riviera.

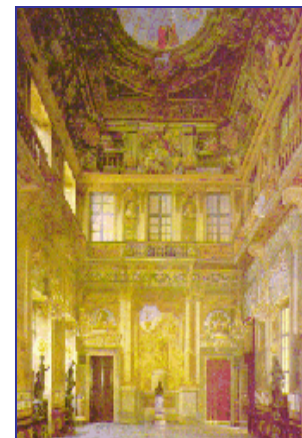
The students are about 40,000 (about 8,000 new entries), and the engineering departments has about 7,500 students (12% in Savona Branch Departments); in effect the Savona Campus Savona holds about 1,000 Engineering Students.

That campus is located about 2 km from Savona Downtown, in an old complex of barracks recently converted into new University Buildings (over an area of 200,000 m<sup>2</sup>).

For further Information about  
the University of Genoa:

<http://st.itim.unige.it>

<http://www.unige.it>





## Partners & Spin-Off



Former Students and Researchers from MISS DIPTM Simulation Team created over the years start up companies that currently cooperate in M&S (i.e. MAST srl, Cal-Tek srl, Virtuality, DLM, AntOptima, Etea, etc); these companies are devoted to drive Innovation to Success in a wide spectrum of Application for different Business Sectors, Companies, Corporations, Agencies, Societies and Governmental Services and to put *Modeling and Simulation* to work by creating Outstanding Solutions Essential to a Better, Safer, Healthier and Wealthier Life operating worldwide.



These Partners offer a wide range of innovative products and services for M&S markets including:

- Aerospace
- Defense
- Electronics
- Engineering
- Safety and Security
- Retail
- Environment
- Logistics
- Service to the Society (nutrition, health care)
- Petrochemical
- Energy and Power
- Shipping & Transportation





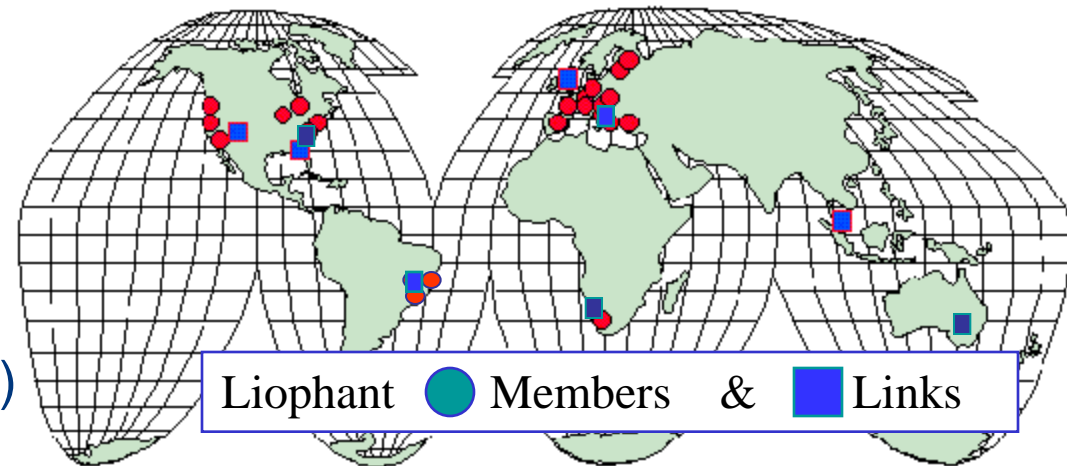
# Liophant Simulation

Email [info@liophant.org](mailto:info@liophant.org)



The *Liophant Simulation* involves World-Wide over 120 Scientists and Technicians working in Companies and Academia. The *Liophant* develops Advanced R&D Projects for Real Applications:

The *Liophant Simulation* promotes international Cooperations and exchanges with Excellence Centers World-Wide (i.e. NCS, KSC, VMASC, KPI)



[www.liophant.org](http://www.liophant.org)





# The International Activity of Liophant Simulation 2014



**Crisis Response Disaster COE**, Sofia, M.Biagini 

**Risk Analysis and Simulation** Abu Dhabi, February P.Bortolotto 

**Exchange Activity** PhD, Master, BS 

**Simulation Team Lab** P.Motroni, A.Vueling 

**Counter Terror Expo London** July G.Franzinetti 

**MCWS&MSTPA NATO STO CMRE** September I.Piccini, E.Picco, D.Pereira 

**Sim&Sea** June, M.Corso, L.Dato, M.Agresta, C.Bartolucci, 

**IMS Bordeaux University** December Pereira Corso Agresta Bartolucci Nicoletti Picco 

**NMSG VV&A, Rome** October; M.Corso, G.Murino 

**NATO Simulation Course** November, E.Picco 

**Summersim, Monterey** July; C.Bartolucci 

**ITEC Cologne, May** M.Biagini 

**ITSEC Orlando, November** L.Nicoletti, F.Spadafora 

**Sprinsim & NASA SEE** Tampa, April A.Ferrando, L.Dato, F.Spadafora 

**ICAMES Istanbul, May** M.Agresta, A.Bartolucci, A.Ferrando, S.Vena 

**Simtech, Brisbane** June, M.Biagini 

**WAMS & CAX Forum** Istanbul, Sept Bartolucci 

**Liophant Simulation** 



# The International Activity of Liophant Simulation 2015



**Counter Terror Expo**  
London, May  
Franzinetti

**Défense, Paris**  
December  
Murino

*Exchange Activity*  
*PhD, Master, BS*  
**I3M, Bergeggi, Sept.**  
Di Matteo, Maglione,  
Franzinetti, Mmurino

**STO CMRE, SP**  
July-December  
Di Matteo, Carrera, Piccinini

**SIMCJOH**  
*Rome, June*  
Di Matteo, Maglione,  
Poggio, Bertolucci

**NATO CAX Forum, Vicenza,**  
October, Maglione, Murino

**NATO VV&A, Rome**  
November, Maglione

**CWIX JFTC**  
Bydgoszcz, May  
Oddone

**NATO STO, Paris**  
July, Maglione

**SCSC, Chicago**  
July, Di Matteo

**Beihang University, Beijing**  
Padovano

**NMSG, Munich,**  
October  
Oddone

**Loxistica**  
Singapore  
January-December  
L. Bucchianica

**IITSEC**  
Orlando, December  
Di Matteo, Maglione, Been

**Rutgers Univ.**  
Padovano

**ICAMES, Istanbul, May**  
Di Matteo, Maglione, Molinari, Vetrano



# Savona Campus & Facilities

The University of Genoa includes a new campus in Savona about 2 km outside Downtown; bus services and large parking areas guarantee easy access

That structure has been obtained transforming Army barracks; today the campus includes a big park with facilities such as tennis courts and sport grounds

The campus holds Courses on Engineering, Communication Science, Medicine, Gyms, Economy and Education; new laboratories have been realised by different groups (Simulation Team Mobile Labs & HLA Lab, Combustion Lab, SIRE, CIMA Labs)



 **Campus Universitario di Savona**  
www.campus-savona.it SPES S.c.p.A.  Università degli Studi di Genova



Simulation Team

# MIPET Master Program



*Master in Industrial Plant Engineering & Technologies*  
[www.itim.unige.it/mipet](http://www.itim.unige.it/mipet)

The Master in Industrial Plants is a Master degree program organized in Genoa University focusing on preparing new generations of top quality technical experts for process engineering and power equipment supplier as well as construction contractor. Its main aim it is to satisfy the expectation from Leading Industries in term of high technical skills and excellence capabilities in Industrial Plants and Engineering. The Master Program is directed by Faculty of Engineering in strong cooperation with leader industries and major companies operating in these industrial sectors, this aspect guarantees the relevance and effectiveness of the initiative. In fact this project it is part of a large initiative devoted to develop excellence in Industrial Plant Engineering through the synergy between the expertise of Genoa University Engineering Faculty and Top Level Companies with long traditions that are leading this Area Nationally and Internationally in term of turnovers, size, processes and products complexity as well as know how and technical skills.





# No Problems just Elegant Solutions



5000 Years ago stones of 4 tons were moved for 380 km and large blocks, up to 50 tons, from 30 km, located & stacked in order to construct the Site!



# No Problems just Elegant Solutions



Biggest Pyramid was completed 2560 B.C. in ~20 years: 146m high, 230m base with 1.52 cm tolerance, based on 4tons stones & monoliths up to 80 tons  
14'000 workers with peaks of 40'000 people



# No Problems just Elegant Solutions

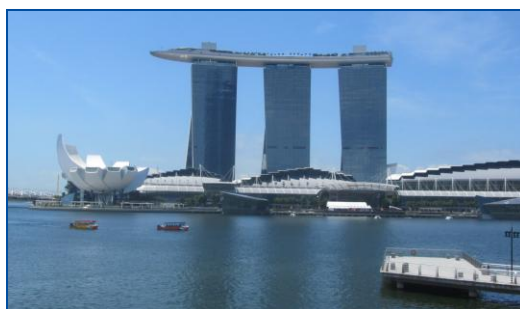
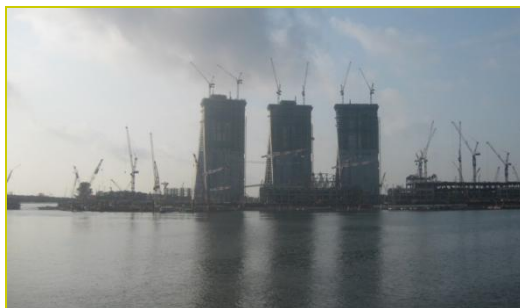


2010 a.C. Marina Bay Sands, Singapore, 150m height, 15'000 workers, 2 year construction time, 6.4 bUSD investment (including 1bUSD for the land), current profit 2.16 bUSD per year



# Intellectual Capital for Future of Engineering

*Jack Welch (GE CEO 1981-2001 from \$14 billions market value to over \$410 billions):* Globalization has changed us into a company that searches the world, not just to sell or to source, but to find Intellectual Capital: the World's Best Talents and Greatest Ideas



**Scientists investigate that which already is; Engineers create that which has never been**  
*Albert Einstein, Physics Nobel Price 1921*





# A Two-Speed World



The crisis pointed out by Media is very relative in terms of Geographic/Temporal Coordinates for Instance:

- **Automotive Vehicles: +5% in Europe (~12.1 M Vehicles), +6% in USA (~16.4 M Vehicles), +12% in China (~18.3 M Vehicles) in 2014**
- **Shipbuilding: Europe from 8% of World Market to 3% (-60%) in 10 years 2011: 200 Ship in Construction just in Shanghai Area**

## GDP 2013:

<b>China</b>	<b>7.4%</b>	<b>Italy</b>	<b>0.1%</b>	<b>Germany</b>	<b>0.5%</b>
<b>USA</b>	<b>1.6%</b>	<b>Qatar</b>	<b>5.5%</b>	<b>Indonesia</b>	<b>5.3%</b>
<b>Russia</b>	<b>1.3%</b>	<b>Angola</b>	<b>5.6%</b>	<b>Nigeria</b>	<b>6.5%</b>
<b>India</b>	<b>5.7%</b>	<b>Iraq</b>	<b>4.2%</b>		
<b>Brazil</b>	<b>2.5%</b>	<b>Chile</b>	<b>4.9%</b>		
<b>Vietnam</b>	<b>5.3%</b>	<b>Malaysia</b>	<b>4.4%</b>		
<b>World</b>	<b>4.0%</b>				



Commercial Vehicle Production 2008-2012			
Rk	Country	Δ Vehicles	(%)
1	USA	1,306,131	27%
2	China	1,186,715	46%
3	Canada	536,629	61%
4	Thailand	532,987	54%
5	India	373,421	77%
6	Mexico	241,481	25%
7	Indonesia	152,851	90%
8	Argentina	69,269	35%
9	Brazil	48,666	7%
10	Iran	30,550	28%
11	South Africa	22,710	9%

Car Production 2008-2012				
Rk	Country	Δ Cars	(%)	
13	1	China	8,785,913	130%
15	2	India	1,439,445	78%
16	3	South Korea	716,611	21%
17	4	Mexico	592,549	49%
18	5	Thailand	556,314	139%
19	6	Russia	499,360	34%
20	7	USA	329,212	9%
21	8	Slovakia	324,224	56%
22	9	Indonesia	312,078	72%
23	10	Czech Rep.	237,728	25%
24	11	Taiwan	139,329	100%
25	12	Argentina	98,140	25%
26	13	Romania	95,500	41%
27	14	Brazil	77,975	3%
28	15	Others	62,016	17%
29	16	Malaysia	25,888	5%
30	17	UK	18,287	1%
31	18	Serbia	409	4%
32	19	Austria	-1,836	-1%
33	20	Finland	-14,619	-83%
34	21	Portugal	-16,507	-12%
35	22	Netherlands	-31,223	-53%
36	23	Egypt	-35,605	-49%
37	24	Turkey	-44,907	-7%
38	25	South Africa	-46,251	-14%
39	26	Uzbekistan	-50,058	-26%
40	27	Slovenia	-53,397	-30%
28	28	Sweden	-89,473	-35%
29	29	Iran	-92,870	-10%
30	30	Australia	-107,110	-38%
31	31	Hungary	-126,919	-37%
32	32	Germany	-143,574	-3%
33	33	Canada	-155,138	-13%
34	34	Belgium	-172,927	-25%
35	35	Italy	-262,404	-40%
36	36	Poland	-302,000	-36%
37	37	Ukraine	-331,112	-83%
38	38	Spain	-403,369	-21%
39	39	France	-463,121	-22%
40	40	Japan	-1,373,924	-14%
	<b>Total</b>	<b>10,343,424</b>	<b>20%</b>	



# A Two-Speed World



The crisis pointed out by Media is very relative in terms of Geographic/Temporal Coordinates for Instance:

- **Automotive Vehicles: +7% in Europe (~12.9 M Vehicles), +6% in USA (~17.4 M Vehicles), +6% in China (~19.4 M Vehicles) in 2015**
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**2011: 200 Ship in Construction just in Shanghai Area**

## GDP 2014:

<b>China</b>	<b>7.4%</b>	<b>Italy</b>	<b>- 0.2%</b>	<b>Germany</b>	<b>1.4%</b>
<b>USA</b>	<b>2.4%</b>	<b>Qatar</b>	<b>6.5%</b>	<b>Indonesia</b>	<b>5.2%</b>
<b>Russia</b>	<b>0.5%</b>	<b>Angola</b>	<b>3.9%</b>	<b>Nigeria</b>	<b>7.0%</b>
<b>India</b>	<b>5.6%</b>	<b>Iraq</b>	<b>- 0.5%</b>	<b>S.Leone</b>	<b>8.0%</b>
<b>Brazil</b>	<b>0.3%</b>	<b>Chile</b>	<b>2.0%</b>	<b>S.Sudan</b>	<b>-12.1%</b>
<b>Vietnam</b>	<b>5.5%</b>	<b>Malaysia</b>	<b>5.9%</b>	<b>Ethiopia</b>	<b>8.2%</b>
<b>World</b>	<b>3.4%</b>			<b>Turkmenistan</b>	<b>10.1%</b>
				<b>Congo</b>	<b>8.6%</b>



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	<b>Total</b>	<b>10,343,424</b>	<b>20%</b>



# Global 500 Companies in World during 2014

Ranking	Revenues		Profits		Previous Ranking
1 Wall Mart	472 GUSD	+2%	16.0 GUSD	-6%	2
2 R.D.Shell	460 GUSD	-5%	16.3 GUSD	-38%	1
3 Sinopec	457 GUSD	+7%	8.9 GUSD	+9%	4
4 China N.Petr.	432 GUSD	+6%	18.5 GUSD	+2%	5
5 Exxon	407 GUSD	-10%	32.5 GUSD	-27%	3
6 BP	396 GUSD	+2%	23.4 GUSD	+102%	6
7 State Grid	333 GUSD	+12%	7.9 GUSD	-35%	7
8 Volkswagen	261 GUSD	+6%	12.0 GUSD	-57%	9
9 Toyota Motor	256 GUSD	-4%	18.1 GUSD	+57%	8
10 Glencore	232 GUSD	+9%	-7.5 GUSD	-837%	12
22 ENI	154 GUSD	-8%	6.8 GUSD	-32%	17





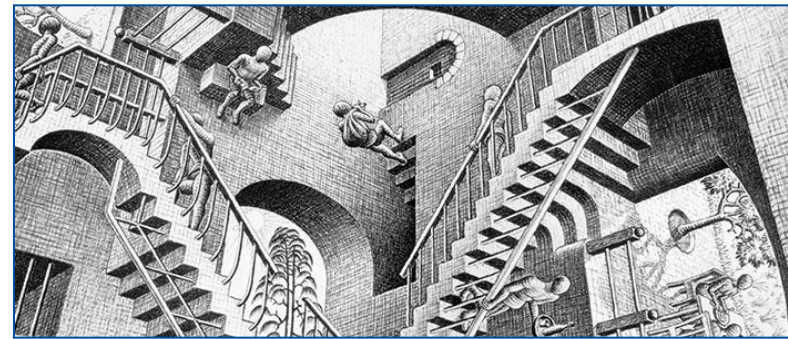
# Global 500 Companies in World during 2015

Ranking	Revenues		Profits		Previous Ranking
1 Wall Mart	485 GUSD	+3%	16.4 GUSD	+2%	1
2 Sinopec	446 GUSD	-3%	5.1 GUSD	-42%	3
3 R.D.Shell	431 GUSD	-6%	14.8 GUSD	-9%	2
4 China N.Petr.	428 GUSD	0%	16.3 GUSD	-11%	4
5 Exxon	382 GUSD	-6%	32.5 GUSD	0%	5
6 BP	358 GUSD	-9%	3.7 GUSD	-83%	6
7 State Grid	339 GUSD	+1%	9.7 GUSD	+22%	7
8 Volkswagen	268 GUSD	+2%	14.5 GUSD	+20%	8
9 Toyota Motor	247 GUSD	-3%	19.7 GUSD	+8%	9
10 Glencore	221 GUSD	-5%	2.3 GUSD	NA	10
25 ENI	147 GUSD	-4%	1.7 GUSD	-75%	22





# Today: Living in a Paradox



*In 2015:*

Uber, the world's Largest Taxi Company,...



owns no Vehicles



U B E R

creates no content

Facebook, the most popular media owner,...



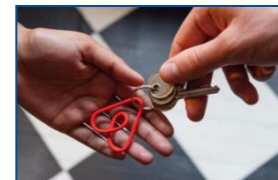
has no inventory

Alibaba, the most valuable retailer,...



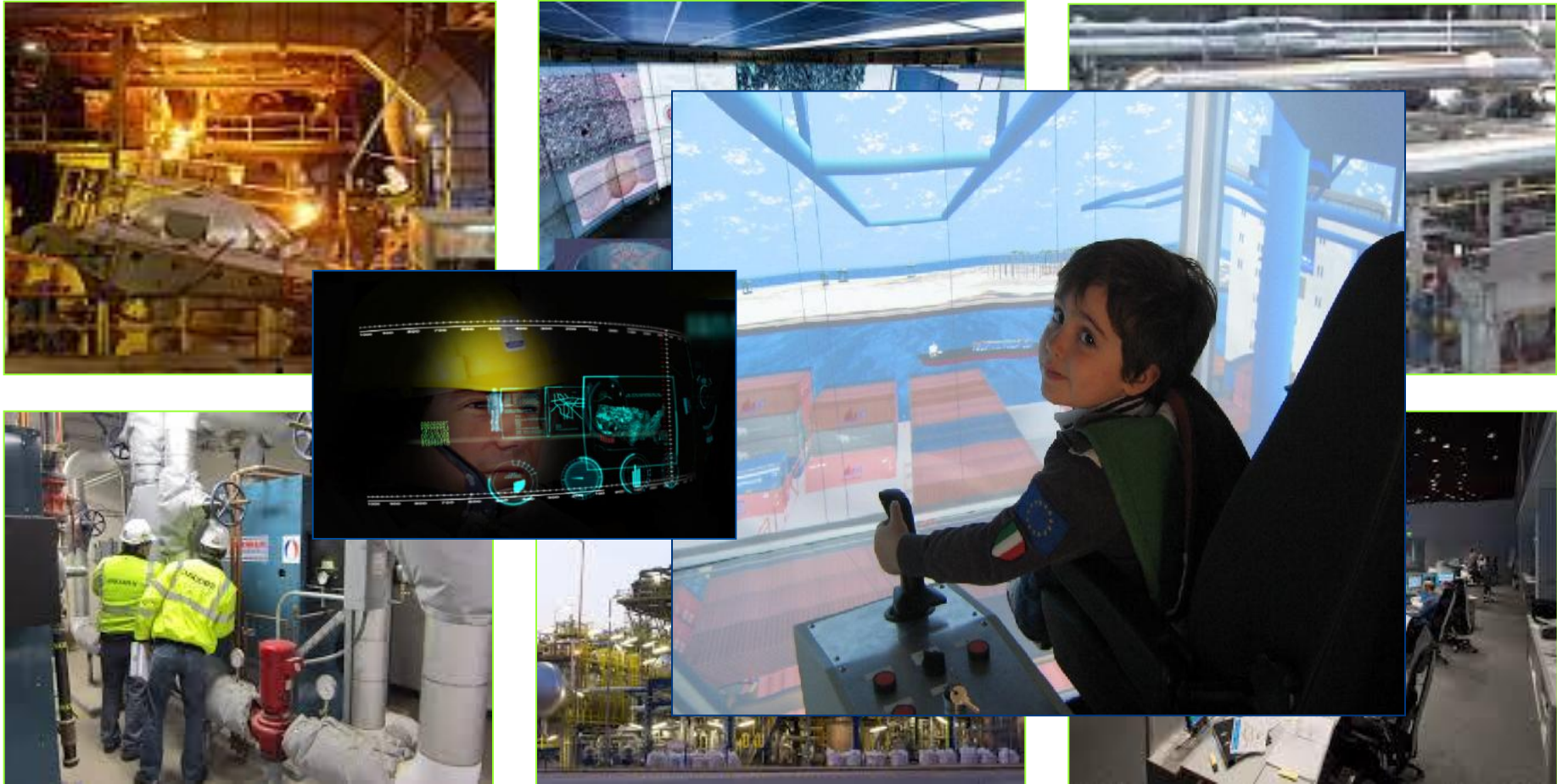
owns no real estate

Airbnb, the largest accomodation provider,...





# Looking Really for You? Yes!



... but you should be... smart... flexible... well prepared... motivated... hard worker... professional... reliable... etc.

# They Came from the Outer World



Top Companies are used to accept CEO from Foreign Countries based on their capabilities, with an evident Globalization (2013)



PepsiCo, USA  
 Revenues 65.5 bUSD  
 Profits 6.2 bUSD  
 Indra Nooyi, India



Coca-Cola, USA  
 Revenues 48.1 bUSD  
 Profits 9.0 bUSD  
 Muhtar Kent, Turkey



Nissan, Japan  
 Revenues 22.7 bUSD  
 Profits 1.1 bUSD  
 Carlos Ghosn, Brazil



Dior, France  
 Revenues 40.9 bUSD  
 Profits 1.9 bUSD  
 Sidney Toledano, Marocco



Deutsche Bank, Germany  
 Revenues 68.5 bUSD  
 Profits 0.3 bUSD  
 Anshu Jain, India



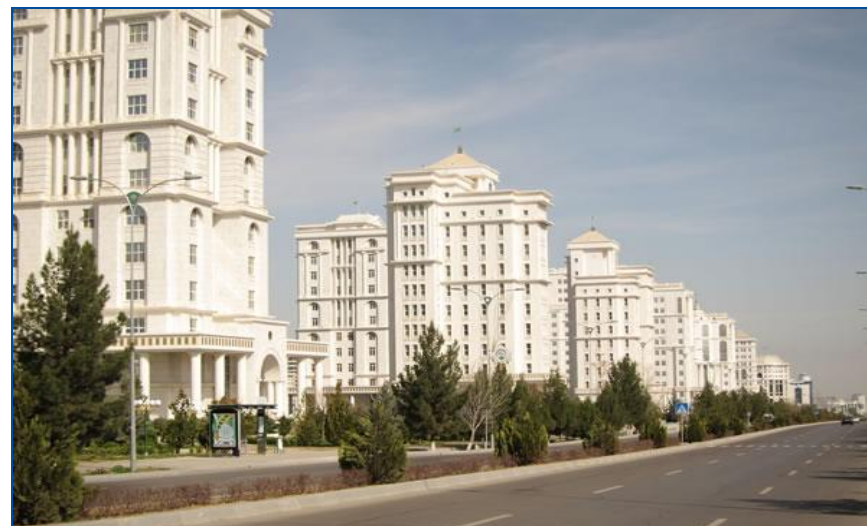
Tata Motors, India  
 Revenues 34.5 bUSD  
 Profits 1.8 bUSD  
 Karl Slim, UK



# New Locations... New Opportunities...



**Freetown, Sierra Leone**



**Ashgabat, Turkmenistan**



**Asuncion, Paraguay**



**Macau, China**



# ...within a Challenging World



Kiev



Kobane





# Human Capital is becoming Even more Important

Engineering is providing an unique opportunity to improve the Capabilities and Understanding of high qualified people: Scientists, Researchers, Technicians and Engineers





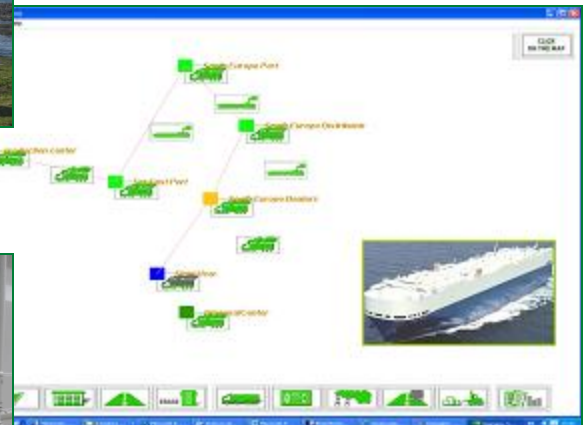
# GreenLog Simulators



Simulation Team developed GreenLog Simulators for Analyzing Production, Logistics and Supply Chain.

GreenLog is a Web Based Simulation Engine devoted to evaluate Costs and Environmental Impacts of Productive, Logistics and Transportation Elements of the Supply Chain and Specific Modules have been developed for focusing on specific aspects:

- GreenLog Port
- GreenLog Ship
- GreenLog Crane
- GreenLog Warehouse
- GreenLog Train
- GreenLog Air
- GreenLog Heavy Haul





# GREENLOG Project

*Green Logistics Project*

GreenLog is a web framework combining simulation and analysis techniques for self evaluating the Supply Chain efficiency in term of Costs, Quality and Environmental Impact.

The GreenLog was developed by Simulation Team for supporting a Joint Venture on Green Logistics coordinated by Assologica in cooperation with several major production, logistics and distribution companies operating in Italy

20



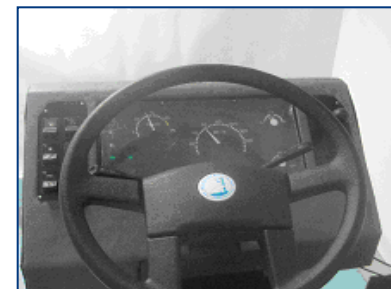
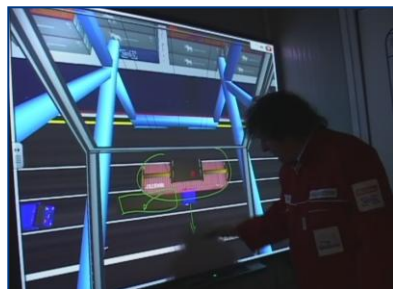
# Interoperable Virtual Simulators



The Simulators developed by Simulation Team are an important support in Training both Operative Resources and Decision Makers. The Interoperability of our simulators is based on state of art standards (i.e. HLA High Level Architecture) and emphasize in addition to traditional stand-alone training in Operating, even Concurrent Cooperative Training in Operations and Policies; Simulation Team collect long experience in Professional and Executive Training.



# ST\_PT & ST\_RS Simulators



Shelter & Facilities

ST\_PT Crane Sim

ST\_PT Truck Sim

This new generation of simulator is mobile, real-time, scalable and interoperable and compliant with state of art technology and standards





# Atout of our Virtual Simulation



Training & R&D



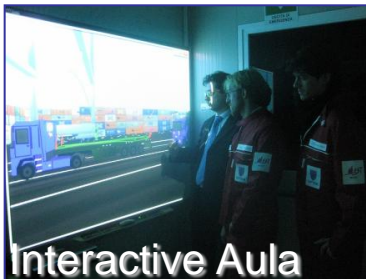
Cave H270° V130°



Containerized



Fully Integrated



Interactive Aula



On-Line  
Action Review



HLA Federation



Full Motion,  
Sound  
& Vibrations



Real-Time  
Distributed  
Simulation



Bio-measures  
Integrated in  
Simulation



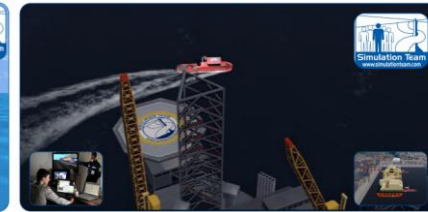
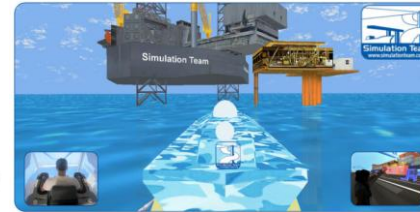
Strong  
VV&A



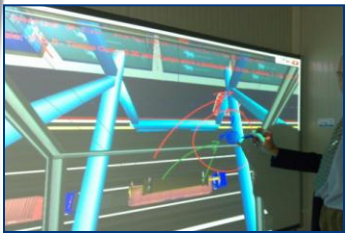
Scalable  
Solutions



# ST\_VM: Virtual Marine



The ST-VM is the ultimate Marine Simulator developed by Simulation Team and includes many different Marine components, equipment and platforms as well as New Solutions for Terminal Design, Operator Training, Safety and Security, Procedure Definition, Equipment Design and Virtual Prototyping



ST-VM is fully containerized real-time distributed HLA Simulator reproducing Port Operations. ST-VM is integrated in a 40' High Cube Container ready to be used on site immediately after arrival.

ST-VM Simulator allows to operate all the different Marine Devices in a Virtual World by an immersive Cave (270° Horizontal and 150° Vertical), reproducing Sounds, Vibrations, Motion in all weather conditions



ST-VM includes a Full-Scope Simulation for Training Operations & Procedures, an Integrated Class Room, the Instructor Debriefing Room, and secondary Interoperable Simulators of different Marine equipment with other modules (i.e. Biomedical Module for Safety, Ergonomic and Posture Enhancement).

ST-VM World is customizable for each Platform, Port, Crane, Procedure and Equipment.





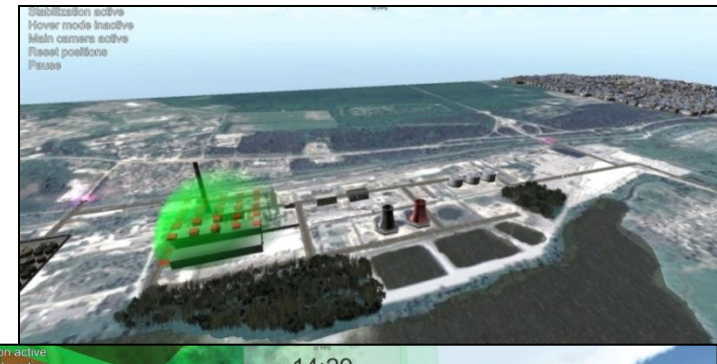


# IDRASS

*Immersive Disaster Relief and Autonomous System Simulation*



IDRASS (*Immersive Disaster Relief and Autonomous System Simulation*) is a MS2G (Modeling, interoperable Simulation & Serious Game) operating in multiple modes: standalone, federated in HLA, integrated through IoT (Internet of Things) to support Education and Training. IDRASS has been applied to different cases including Accidents in Industrial Facilities, Nuclear Plants, CBRN attacks, anti-Terrorism, CWA and RDD. IDRASS is an interoperable real and fast time simulator.



RDD Radiological Dispersal Device

CWA Chemical Weapon Agent

DIME HLA High Level Architecture

Università di Genova



# SIMCJOH VIS & VIC

*Simulation of Multi Coalition Joint Operations involving Human Modeling*   
*Virtual Interoperable Simulation & Virtual Interoperable Commander*

## Simulation Team



The SIMCJOH (Simulation of Multi Coalition Joint Operations Involving Human Modeling) is a MS2G (Modeling & Interoperable Simulation and Serious Game) project for Strategic Decision Making; SIMCJOH is lead by Genoa University and provides an HLA interoperable immersive framework for the Commander and his staff within critical decision making over Joint and MultiCoalitions scenarios, considering a strong impact of human factors

Simulation Team VIS & VIC Models on Population and Human Behavior represent the core of SIMCJOH Project.

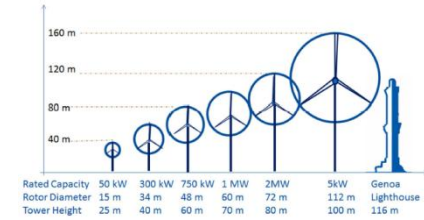


The experimentation allows to face issues related to strategic decision making in complex scenarios






# MEGACITY

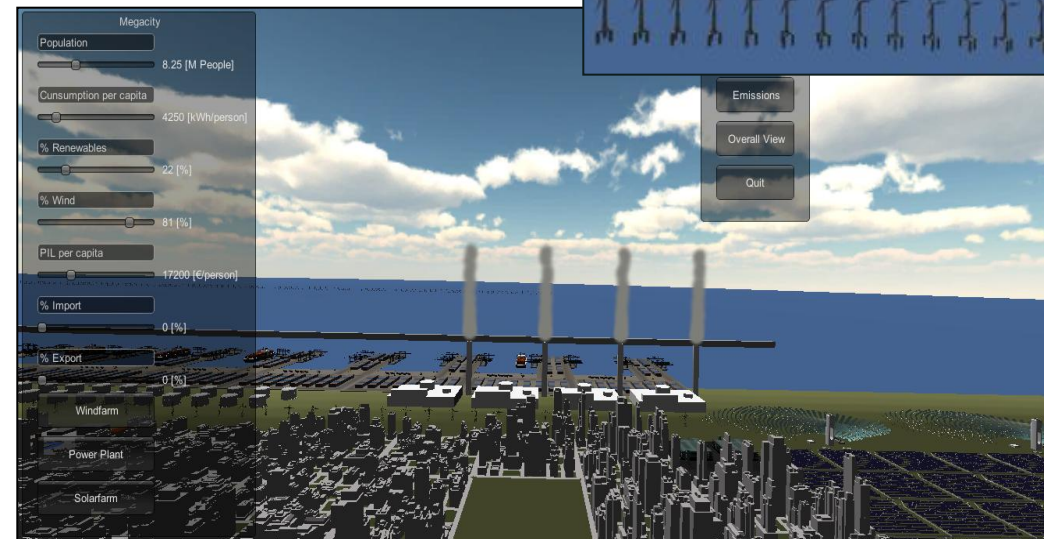


**MEGACITY** project is a **MS2G** (Model, Simulation & Serious Game) devoted to investigate scenarios of Megacities projected over 2030, with particular attention to energy, logistics and population demand & services.

The simulator addresses environmental, technical and economic issues, in order to support decision and study the scenario. A Smart Optimizer

inside the simulator provides the user with effective proposals. **MEGACITY** provides a web immersive virtual framework for crowdsourcing devoted to inform and educate people.

The immersive simulator is self Explaining the situation.

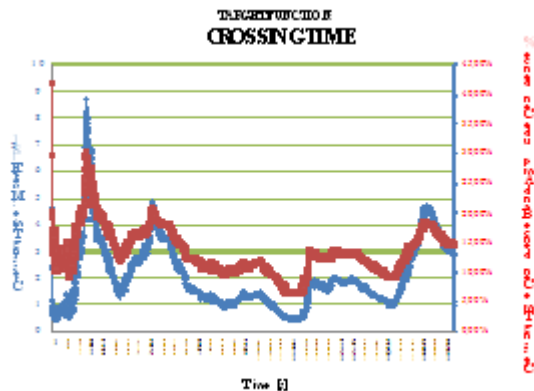
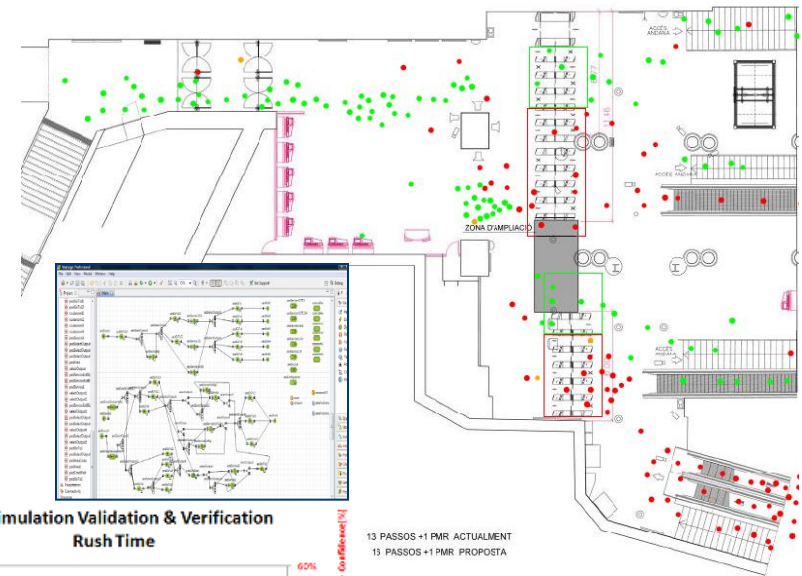




# PEDES

PEDEstrian Simulation

PEDES is a Simulation of pedestrian flows in mass transportation (i.e. underground) devoted to support functional analysis, safety and security solution design and analysis; PEDES is integrated with Human Behavior Models





# IPHITOS

*Interoperable Simulation of a Protection solution  
based on ligHt Interceptor Tackler operating in Outer Space*

*Location: MOON*

- Latitude: 26 08' 9.94"N
- Longitude: 3 34'40.34"E
- Elevation: -1828.8 m

## Simulation Team



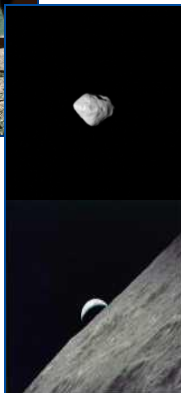
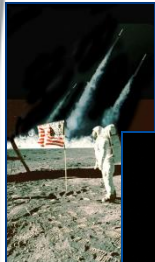
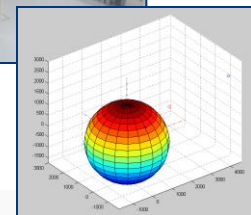
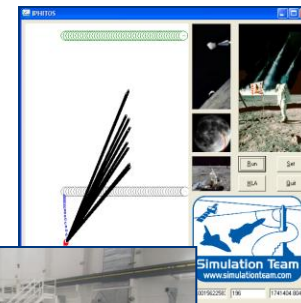
**MBDA**  
MISSILE SYSTEMS

**TELESPAZIO**  
A Finmeccanica / Alenia Company



IPHITOS Project is developed by a team of students from different Universities (Genoa, La Sapienza Rome, Pisa), members of Liophant and students in internship in MBDA and support from Telespazio. This project is devoted to create a federate for Smackdown the initiative, led by NASA & sponsored by several companies, devoted to diffuse and advance the HLA culture by creating a distributed HLA Federation of a Moon Base.

IPHITOS federate is in charge of simulating small asteroids as threats for the Moon Base as well as a Safeguard Solution based on Interceptors, Sensors and Launchers



**AEGIS**  
TECHNOLOGIES

**SIS**

**FORWARDSIM**  
simulations & technologies

**NASA**

**VT MÄK**  
A company of VT Systems

**PITCH**



# PROMACO

*PROject Management Applied to Concert Organization*

PROMACO is an educational Role Play Game (RPG) introducing the concepts of Project Management to people without experience. The case is related to the organization of a Concert within a Town and the teams are required to prepare proposals including Work Breakdown Structure, Roadmap, Project Plan, Project Schedule, Project Budget, Risk Analysis and Contingency Planning

The participants should prepare a whole presentation in different languages summarizing the activity carried out for addressing this problem.





# CRIPEM

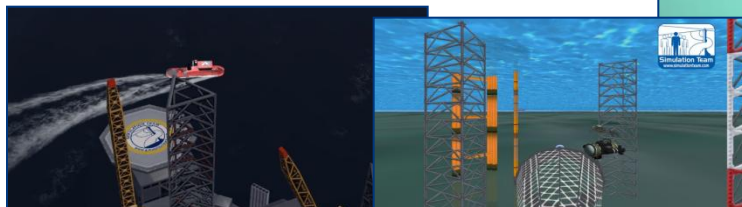
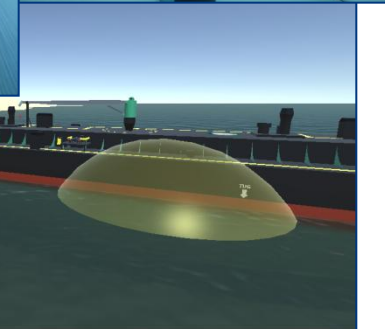
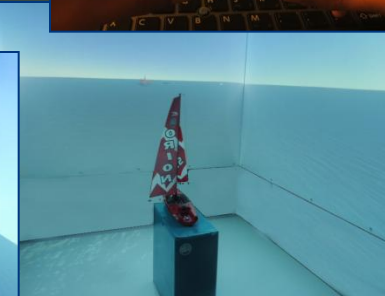
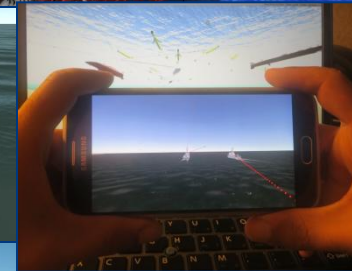
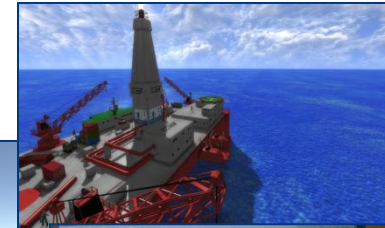
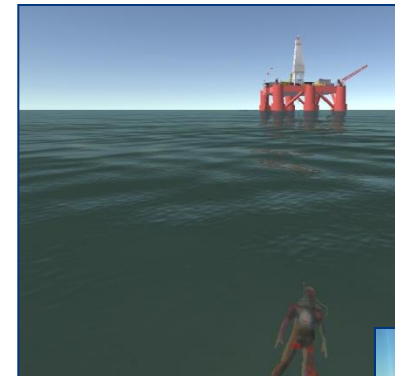
*CRITICAL Infrastructure Protection in Extended Maritime framework*



Oil Rig Protection (ORP) is a virtual MS2G (Model, interoperable simulator & Serious Game) reproducing operations devoted to protect critical infrastructure at sea from multi domain threats.

The simulator reproduces use of traditional assets as well as innovative autonomous systems in reference to different potential targets including ports, terminals and Oil Rigs.

The Simulator could be used for training, education as well as for capability assessment, vulnerability reduction and procedure definition respect a wide spectrum of threats





# Conclusions

The Simulation Team is acting at international level as a reference point between users and providers in simulation area.

The integration of experts, technicians is providing very good results on real case studies and complex projects.

An active area of development is related to distributed simulation and web-based modeling for extending the impact and exploitation of these proposed systems.

Every year Simulation Team - MITIM DIME and Liophant organize major Conferences and International Workshops focusing on application of Modelling & Simulation.

For instance the I3M2015 was in Genoa, SummerSim2015 in Chicago; in 2014 I3M it was in Bordeaux, WAMS in Istanbul and Summersim in Toronto.

There is a constant interest in fostering joint cooperation and exchanges with international Excellence Centers working on simulation.

In 2016 Prof. Bruzzone will serve as General Chair of WAMS in Cagliari as well as of I3M in Cyprus: this last conference

represent one of the major scientific event worldwide in simulation: i.e. the I3M2011 organized in Rome,

joint to CAX Forum, probably was the largest scientific event

in M&S worldwide, involving over 500 speakers from 56 countries and over 30 live demonstrations (including Distributed simulation connecting NASA, MIT and Genoa University)

## Simulation Team



Chicago



Genoa



Bordeaux



Tampa







# Potential Cooperations

Simulation Team  
[www.liophant.org/conferences](http://www.liophant.org/conferences)  
[www.liophant.org/i3m](http://www.liophant.org/i3m)  
 WISH  
 IMAACA



2016  
Cyprus

Simulation Team provides R&D/Scientific Opportunities such as:

- Conferences and Track Organization in event where the Simulation is Strongly Involved (i.e. SummerSim, I3M, WAMS, AMS, ect)
- Exchanges for Senior and Young Scientists
- Opportunity for Scientific Cooperations devoted to promote new developments in M&S
- Developing new Standards and Procedures in M&S
- Promoting M&S in Service of the Society
- Development of Networks of Excellence in M&S



Pasadena



Cagliari

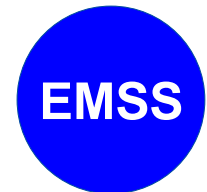


Montreal



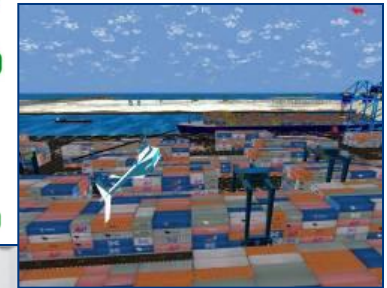
Simulation Team is looking for Opportunities including:

- Activation of Innovative Simulation Projects
- Combining Simulation Team Solutions with Partner's Models as Options to be proposed to Sponsors during the Proposal Phase
- Include in Simulation Team Solutions Add-In from Partners as Option for Sponsors during the Proposal Phase
- Supporting Partners in future Proposal acting directly or as subcontractor and viceversa
- Receiving Support by Partner in future Proposal acting directly or as subcontractor





## References



DIME



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