The International **Workshop on Applied Modelling & Simulation**
Final Program
www.liophant.org/conferences/2024/wams

Science Club, Keqiao, International Research Park, Keqiao District, Shaoxing City, Zhejiang Province, China

November 20-25, 2024

Day 1, November 21, 2024

09:00-10:30, CST, November 21, 2024, Opening in Science Club Amphitheater

Welcome *Agostino. G. Bruzzone, General Chair & Simulation Team President*
Chinese Authorities
Lin Zhang, General Chair & President of Asia Simulation Federation
Jean Guy Fontaine, JG-Partner
Marco Gotelli, Organization Committee
Claudia Frydman, University of Aix-Marseille

Keynote Speeches on November 21:
Chair: Prof. Marco Gotelli, STRATEGOS *and WAMS Program Chair*

X Language - A new generation of Modeling and Simulation language for MBSE
Lin Zhang, General Chair & President of Asia Simulation Federation

Strategic Engineering to improve Planning & Direction of a Chemical Tankers Fleet
Agostino G. Bruzzone, President Simulation Team & STRATEGOS

10:30-11:00, CST, November 21, 2024, Science Club Bar, Coffee Break

11:00-12:30, CST, , November 21, 2024, Session I, Modeling & Simulation for Quality of Life and Sustainability, in Science Club Amphitheater
Chair: Prof. Jean-Guy Fontaine, JG Labs, China

WAMS_231 **Digital Transformation, Modeling and AI for Preventive Healthcare to Address Future Demographic Challenges**
Marco Frascio, DISC Italy, Agostino G. Bruzzone, Marina Massei, Simulation Team, Angelo Musaio, Katia Cortese DIMES

WAMS_222 **Automated Bone Age Measurement with Machine Learning: A Review and Development of DentixAI Using Dental OPG Images**
FGhazalnaz Sharifonnasabi, N.K.Nallarasan, I.Makhdoom, JCU Singapore

WAMS_207 **Innovative Model-Based Optimization for Online Food Delivery & Supply Chain Management Using Simulation and Reinforcement Learning**
Giovanni Maria Ferraris, Filippo Ghisi, Marina Cardelli, SIM4Future

WAMS_112 **Hybrid Simulation Approach for Feasibility Studies in Economic and Social Sustainability of New Industrial Plants to Support Decision-Making**
Giovanni Maria Ferraris, Filippo Ghisi, Marina Cardelli, SIM4Future

WAMS_332 **Mechanical-Assisted Synthesis of Nanostructured Materials in Sustainable Nanotechnology**
A.P. Reverberi, DCII UNIGE, M. Gotelli, A. Giovannetti, Simulation Team, F. Curro' B. Fabiano, DICCA

12:30-13:30, CST, November 21, 2024, Science Club, Showroom, Working Lunch

13:30-15:00, CST, November 21, 2024, Session II, M&S, XR & Computational Intelligence for Operations in Science Club Amphitheater
Chair: Prof. Marco Gotelli, STRATEGOS and WAMS Program Chair

***WAMS_221* Who's Typing? An experiment on Keyboard Dynamics for BEC Detection**
 Roberto Dillon, James Cook University, Singapore Campus

***WAMS_288* Immersive XR Simulation for Enhanced Terminal & Port Operations**
 Agostino G. Bruzzone, Kirill Shinelschikov, Francesco Longo, V. Solina, Simulation Team

***WAMS_199* Enabling Federated Interoperability in Enterprise Models with Artificial Intelligence and Simulation**
 Leonardo Daou, Eva Petitdemange, Severine Durieux, Nicolas Daclin, Gregory Zacharewicz, École des Mines d'Alès, IMT, France

***WAMS_147* XR for Enhancing Supervision in Automated Production Plants**
 Marco Gotelli, STRATEGOS, M.Massei, K.Shinelschikov, SIM4Future,

***WAMS_118* Data-Driven Optimization of Shoe Manufacturing Processes: Simulation and AI for Improved Supply Chain Efficiency**
 Marina Massei, Kirill Shinelschikov, SIM4Future

15:00-15:30, CST, November 21, 2024, Science Club Bar, Networking

18:30-21:00, CST, November 21, 2024, Science Club, Showroom, Networking Meeting & Gala Dinner
Venue: Science Club, Keqiao, Int.Research Park, Keqiao District, Shaoxing City, Zhejiang Province, China

Day 2, November 22, 2024

08:30-10:00, CST, November 22, 2024, Session III, Ports and Plant Modeling & Simulation, in Science Club Amphitheater
Chair: Dr. Marina Massei, Liophant Director and WAMS Organization Chair

***WAMS_178* Strategic Engineering Approach for exploring new solutions in Ports**
 A.G. Bruzzone, A.F.Sciomachen, M.Gotelli, STRATEGOS & Simulation Team, F.Shamlu, A.Giulianetti, UNIGE, Italy, Xhulia Sina, SIM4Future

***WAMS_260* Safety in container terminal facilities: two different complementary Approaches to estimate the Consequences of the leakage of Flammable Substances**
 A.G .Bruzzone, Tommaso Vairo, Alessandro Benvenuto, Genoa University

***WAMS_125* Advanced Predictive Models for Optimizing Material Procurement in Industrial Plant Installations Using AI and Digital Twins**
 Marco Gotelli, Piefilippo Monaci, STRATEGOS, X. Sina, F.Ghisi, SIM4Future

***WAMS_133* Automated Maintenance Data Extraction from User Manuals Using Generative AI**
 Antonio Martella, Seanav, Marco Gotelli, STRATEGOS

***WAMS_108* COYOTE Simulator: Enhancing Port Operations with Integrated Simulation, XR & AI Technologies**
 Agostino G. Bruzzone, SIM4Future, A. Giovannetti, B. Gadupuri, J. Karim, Simulation Team

***WAMS_339* Research and Development of Container Terminal Emulation & Simulation Platform**
 Lian Haiyu, Ningbo Tech University

10:00-10:30, CST, November 22, 2024, Science Club Bar, Coffee Break

10:30-12:00, CST, November 22, 2024, Session IV, AIS Docet, Computational Intelligence & Human Behavior Modeling, in Science Club Amphitheater
Chair: Prof. Marco Frascio, Int.Cooperation Pro Rector, Genoa University

WAMS_331 Cyclone Collection Efficiency Optimization by improving Dimensions, Inlet and Vortex Finder Design: An Application on TCD Texas Cyclone 1D3D Design
<u>Amar Missoum</u>, **Shenyang Aerospace University**

WAMS_206 **An Innovative Framework Utilizing Human Behavior Modeling and Generative AI to Enhance Decision-Making and Communication**
A.G. Bruzzone, <u>A.Giovannetti</u>, L.Cirillo, , Simone Gleisson Ferrero, Simulation Team,
Luca Bucchianica, **STRATEGOS**

WAMS_204 **Real-Time Adaptability in Simulation Models: Innovative Architecture for Intelligent Context-Awareness and Dynamic Code Generation**
Antonio Giovannetti, <u>Luca Cirillo</u>, Simulation Team, **M.Gotelli,** **STRATEGOS**

WAMS_160 **Modeling Information Propagation and Cognitive Bias through Simulation and Large Language Model**
Antonio Giovannetti, Luca Cirillo, <u>Simone Gleisson Ferrero</u>, Simulation Team

12:00-13:00, CST, November 22, 2024, Science Club, Showroom, Working Lunch

13:00-14:30, CST, November 22, 2024, Session V, AIS Docet, Strategic Engineering & Simulation for Complex Systems, in Science Club Amphitheater
Chair: Dr. Antonio Martella, Director of SEANAV

WAMS_277 **Strategic Engineering and Simulation-Driven Optimization for Smart Grid Management in Isolated Microgrid Scenarios**
Marina Massei, <u>Filippo Ghisi</u>, Kirill Shinelschikov, SIM4Future

WAMS_159 **Advanced Pump System Optimization using Simulation Techniques and Genetic Algorithm Integration**
Agostino G. Bruzzone, <u>Kirill Shinelschikov</u>, Xhulia Sina, SIM4Future

WAMS_253 **Towards a model-based simulation approach for safety analysis of complex systems**
<u>R.Miemba</u>, M.Kubic, F.Trousset,G.Zacharewicz, École des Mines d'Alès, France

14:30-15:00, CST, November 22, 2024, Science Club Bar, Networking

15:00-15:30, CST, November 22, 2024, Science Club, Showroom, Wrap Up and Closing
Chair: Prof. Agostino Bruzzone, Liophant Simulation and Eurosim President

WAMS Seminars and AIS Docet Workshops are organized along November 18-26 including:

- *"Yachting in West and East" by Dr.Antonio Martella, November 19 in Hangzhou*
- *"<u>Port Transformation and Simulation</u>" with Prof,Agostino Bruzzone,* **STRATEGOS** *& Prof.HaiSheng Yang, Smart Port Institute, Ningbo Technical University, November 20 in Keqiai*
- *Invited Speech on "Advances in 'Digital Twins' as key support for Decision Making in Industry" by Prof.Gregory Zacharewicz on Nov 23 Dinner and his Workshops on Nov.25*
- *"Innovation in new Labs" by Prof.Lin Zhan in Nov.26*