ANTONIO GIOVANNETTI

EDUCATION & TRAINING

Degree: *Biomedical Engineering Master's Degree, University of Tor Vergata*

At University, I have chosen the Engineering Path with special attention to Innovative Technologies including Data Analytics, Artificial Intelligence (AI) and Modelling; specifically, I completed my full degree in "Electronic Bio-Engineering" where I studied topics regarding Data Analysis, Applied Statistics and Neural Engineering. During University period I was involved in Research and Development at Tor Vergata University and I participated to International Events and published Research Papers even on International Journals

PROFESSIONAL EXPERIENCES

Thanks to my previous experiences, I was selected in challenging competition for a Research Grant at Genoa University related to Industrial Applications of M&S (Modeling & Simulation) and XR (eXtended Reality) applied to Industrial Processes and Defense. Currently I operate actively within the Simulation Team where I work on innovative Areas; in particular, I combine Big Data, M&S to Complex System and I develop Predictive Models for different Applications.

Indeed, I am currently focused on Strategic Engineering, the new discipline devoted to support Decision Making thanks to the combined use of Data Analytics, AI, Modeling & Simulation in closed loop with Heterogeneous Networks, Multi-Sensor Multi-Platform Data Fusion and Big Data from Digitalization Initiatives.

In Simulation Team, I use my skills in order to optimize Complex Systems, including Industrial Processes, Logistics and Defense/Homeland Security Scenarios. I focused my research in the use of Modeling & Simulation in order to optimize the management of the entire production processes in multiple aspects, form line production to the logistic issue. I worked in Simulation Team to improve efficiency and effectiveness of ship systems in a PNRM (National Relevance Military Project) for Italian Navy and in a NATO MSG on use of XR for creating new generations of MMI (Man Machine Interface) for multiple Applications. I acquired experiences to support decision making in development of project related to Marine Environment, Ship Systems, Space & Interoperable Systems, Industrial Plants and Iron & Steel Industries, Autonomous Vehicles, Medical Sector, Power Generation & Smart Grid.

I am author of Scientific Papers and I served as Speaker at multiple events including I3M 2021 Conference and the NATO CA2X2 Forum ((Computer Aided Analysis, Exercise, Experimentation).

ACTIVITIES

- Currently I am enrolled in the Simulation Team
- I have a Research Grant of Genova University for conducting Researches on Iron & Steel Sector
- I cooperate with SIM4Future, spin off of Genoa University dealing with Innovative Re-engineering of Processes by M&S and AI
- I took part in SEE (Simulation Exploration Experience) Project organized by NASA, Johnson Space Center and Kennedy Space Center in relation to ARTEMIS Project for creating a Moonbase. In this framework I cooperated in creation and development of an interoperable Federation of multiple systems (e.g. Radar, Space Guard Interceptors, Warehouse, Rovers, Vehicles, Satellites, Autonomous Systems) devoted to investigate Extra Planetary Operations
- I am active in researches on AI (Artificial Intelligence), M&S (Modeling and Simulation), UGV (Unmanned Ground Vehicles) and innovative XR (eXtendend Reality) applied to Industrial Plants and Defense.
- I am participating in NATO MSG-189, an AI Augmented Immersive Simulation in Training and Decision Making Course of Actions Analysis, organized by NATO MSG (Modelling and Simulation Group).
- I developed with Simulation Team a UGV Simulator for Industrial Facilities in order to minimize costs and risks within hazardous environments and ensure that the system is easy to be operated and designed in order to fully meet the needs of the users who will be in charge operate, maintain and support the system.
- I am active into a Research focused on Modelling, Simulation and Artificial Intelligence fields, and XR/VR/AR (eXtended, Virtual & Augemented Reality) technologies, in order to contribute to define and create new paradigms with special attention to Human System Integration (HIS) in Industrial Processes and Defense.
- In Simulation Team I collaborated for the development of an innovative XR solution in order to train personnel to work in hazardous areas and to create cyber-physical system including wearable solutions to increase their perception and their ability to contribute to the control of the processes and management of critical situations.
- In Simulation Team I collaborated for the development of innovative autonomous system for safety in Industrial Plants, innovative supervision, Autonomous capability Development, Efficiency Improvements.

COMPUTER KNOWLEDGE

- Python Language (Numpy, Scipy, Pandas, ScikitLearn, Keras, PyTorch);
- Office Pack (Excel, Word, PowerPoint);
- Matlab;
- Unity (C #);
- Blender
- Java
- Arduino (basic skills);
- Solidworks;
- FEKO (basic skills);

LANGUAGES

- English
- Italian

SCIENTIFIC PAPERS

- “Strategic Engineering Applied to Complex Systems with Marine Environment”, July 2021, Annual Modeling and Simulation Conference (ANNSIM)
- “Interoperable Simulation for Space Logistics & Operations for a Moon Base”, January 2021, The 20th International Conference on Modeling & Applied Simulation (MAS)
- “Reducing Dangers within Industrial Plants by Extended Reality”, September 2021, International Multidisciplinary Modeling & Simulation Multiconference (I3M)
- “Autonomous System for Industrial Plants and Iron & Steel Facilities, September 2021, International Multidisciplinary Modeling & Simulation Multiconference (I3M)
- “Simulation as enabler for Engineering Future Smart Grids”, September 2021, International Multidisciplinary Modeling & Simulation Multiconference (I3M)
- “Improving Efficiency and Safety for Heat Exchangers and Water Piping by Innovative Solutions, September 2021, International Multidisciplinary Modeling & Simulation Multiconference (I3M)
- “Deep-MEG: spatiotemporal CNN features and multiband ensemble classification for predicting the early signs of Alzheimer’s disease with magnetoencephalography”, May 2021, Neural Computing and Applications Journal
- “A deep CNN-based approach for predicting MCI to AD conversion: Developing topics”, December 2020, Alzheimer’s & dementia: the journal of the Alzheimer’s Association
- “Sub-dermal battery-less wireless sensor for the automatic monitoring of cattle fever”, August 2020, XXXIIIrd General Assembly and Scientific Symposium of the International Union of Radio Science (URSI GASS)
- “Immersive, Interoperable, Intuitive, Interactive virtual environment for Developing and Delivering training by simulation to operators in dangerous Areas and Activities”, June 2022 , Associazione Italiana Acustica (AIA)

OTHER INTERESTS

I had long experience on Judo at Competitive Level. I like Yachts and Sport Cars, with some experience on sailing as well as in sport driving on track. I appreciate Art and Cultural Heritage as well as traveling.