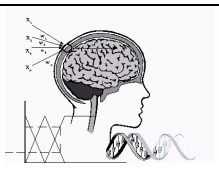
International

Innovation in Knowledge Based and Intelligent Engineering Systems



INVITED SESSION SUMMARY

Title of Session:

Industry 4.0: strategies, models, tools and experiences for smart production system design, management, optimization and maintenance

Name, Title and Affiliation of Chairs:

Dr. Marco Bortolini, Ph.D.
Senior Researcher and Assistant Professor
Department of Industrial Engineering
Alma Mater Studiorum – University of Bologna, Italy

Dr. Francesco Gabriele Galizia, Ph.D.
Junior Researcher
Department of Industrial Engineering
Alma Mater Studiorum – University of Bologna, Italy

Dr. Francesca Calabrese, M.D.
Ph.D. Student
Department of Industrial Engineering
Alma Mater Studiorum – University of Bologna, Italy

Details of Session (including aim and scope):

Industry 4.0 is the current paradigm of modern production. Both manufacturing and assembly processes are requested to be highly flexible, dynamic, customized, reliable, sustainable and smart. An integrated panel of enabling technologies, ranging from cobots and reconfigurable manufacturing systems to real-time dynamic simulation techniques and advanced big data management systems are available to guarantee effective and high standards in production and inbound logistics.

The aim of this Invited Session is to attract contributions from Academics and Industrial Practitioners dealing with innovative strategies, models, tools and top-class experiences for smart production system design, management and optimization within the challenging framework of the Industry 4.0 era. Reviews, original models, quantitative methods, technologies, management techniques and disruptive approaches are welcomed as well as industrial case studies and field experiences.

Relevant topics include, but are not limited to:

- Strategies and applications of Industry 4.0 enabling technologies to production, inbound handling

and maintenance;

- Design, management and maintenance of flexible manufacturing and assembly systems;
- Dynamic simulation models including digital manufacturing and/or digital-twins;
- Collaborative human-automation interaction in production and inbound handling;
- Strategies, approaches and case histories about Smart and Learning Factories;
- Machine learning and artificial intelligence techniques for manufacturing and assembly;
- Big data management systems for production;
- Methods, enabling technologies, predictive models and case histories to increase production system reliability and self-awareness;
- Self-adaptive and self-learning production systems.

Main Contributing Researchers / Research Centres (tentative, if known at this stage):

Researchers and Professors from Bologna, Modena and Reggio Emilia, Padua and Trento Industrial Systems Engineering research groups;
Researchers and Professors from the Italian Academic Industrial Plant Association (tentative);
Researcher and Professors from Universities of Marseille, Wuppertal, Aalborg and Hong Kong (tentative);
Researchers from Interdepartmental Centres for Industrial and Applied Research (tentative);
Managers and Practitioners from SMEs and large-scale industries.

Website URL of Call for Papers (if any):

Dedicate positions on:
https://www.unibo.it/sitoweb/marco.bortolini3/en
https://www.unibo.it/sitoweb/francesco.galizia3/en
https://www.unibo.it/sitoweb/francesca.calabrese9/en
http://www.industrial-engineering.unibo.it/en
and dedicated messages to researchers and practitioners mailing lists.

Email & Contact Details:

E-mail addresses: marco.bortolini3@unibo.it; francesco.galizia3@unibo.it; francesca.calabrese9@unibo.it
Tel. +39 (0)51 2093414 +39 (0)51 2093405