



New trends on Data Analysis, Modelling, and Simulation in a CPS-Based Factories context.

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Short presentation:

The 4th industrial revolution involves major changes in our factories and supply chains. In particular, the emergence of Cyber Physical System (CPS), which can be seen as interacting networks of physical and computational components, will provide the foundation of many new factories infrastructure and improve the quality of both products and processes. Those new industrial infrastructures will dramatically impact the use of traditional centralized systems used to manage and control the manufacturing activities like Enterprise Resource Planning (ERP) or Supply Chain Management (SCM) and will impact also the implementation of approaches like Lean or TPM.

The design and control of such socio-technical eco-systems capable to adapt their behaviour to the changing environment is one of the big recent challenges. To support decision-making processes, simulation can cover a wide range of scenarios along production life-cycle from design and engineering phases to production execution. Moreover, in recent years, the digital transformation adopted by many companies and facilitated by recent technological advances in the field of communication and computer science, led manufacturing processes to generate gigantic amount of data from their fleet of assets (machines, products, plants...). For decision-making processes, coping with this huge mass of data can lead to problems or, on the contrary, be a valuable aid if tools for data analytics are used.

The main purpose of this special session is to identify research works and challenges aiming to exploit the full potential of data analysis, modelling and simulation in the CPS-Based Factories context, starting from data acquisition and analysis, simulation model development to application execution.



This session will focus on (but not limited to):

- Reviews of new trends on Modelling and Simulation for Manufacturing Control
- Methods and tools to cope with Industrial Big-Data (IBD) in CPS-Based context;
- Current gains and future expectations of IBD techniques for CPS-based factories;
- Methods and cases studies for coupling optimization tools with simulations tools
- New manufacturing architectures based on simulation tools

Keywords:

HMS, CPS-based Factories, Modelling and simulation, Big-data

Important dates:

- Full paper submission: June 17
- Notification of acceptance: July 15
- Final, camera-ready paper submission: September 10
- Early registration and fee payment: September 15