



**SOHOMA'20:** 10th Workshop on Service Orientation in Holonic and Multi-Agent Manufacturing for the Industry of the Future.  
1-2 October 2020. Paris, France

## **Session title: Cloud-based manufacturing control**

### **Organisers:**

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### **Short presentation:**

Control paradigms for the manufacturing domain have evolved over time from centralized to decentralized or semi-heterarchical, being mainly driven by the new trends in information, control and communication technology (IC<sup>2</sup>T) such as: mobility, connectivity, increase of the decisional capabilities, service orientation and more recently the usage of cloud infrastructures to host control applications, run intensive optimization procedures and store large amount of production and resource data. This is how the concept of cloud manufacturing (CMfg) arose with the objective of handling manufacturing resources and processes according to the quality of services they provide, and thus efficiently operate and manage them in a unified manner, providing optimality, high availability and flexibility in realizing customer orders in both small batches and mass production.

This novel concept (CMfg) encapsulates distributed resources into cloud services and renders them available to consumers over the Internet through centralized management and operation. Service is a core concept in cloud manufacturing and innovative, effective management of services in different stages throughout the entire life cycle (ranging from service creation, service application, service evolution, to service demise) is critical for the successful implementation of cloud manufacturing. During the past years, many technologies such as multi-agent systems (MAS), industrial internet of things (IIoT), artificial intelligence (AI), block chain, big data analytics, digital twin (DT) were growing at an unprecedented pace, which provides new solutions for innovative service life cycle management and applications. With the development and application of the CMfg more and more manufacturing enterprises are embracing smart manufacturing as an essential step toward the realization of industry 4.0.

This session intends to foster researchers and practitioners to discuss their theoretical and practical works in the following research areas:

1. Cloud manufacturing models, architectures and services
2. Multi-agent systems for manufacturing control
3. Industrial Internet of Things for manufacturing
4. Machine learning, prediction and anomaly detection
5. Edge and fog computing for distributed intelligence



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6. Resource streaming and data analytics
7. Big Data and production optimization
8. Cyber physical systems in networked manufacturing
9. Manufacturing as a service and networked enterprises

**Keywords:** cloud manufacturing, digital twin, industry 4.0, big data, production optimization

**Important dates:**

- Proposals of Special Sessions: March 1<sup>st</sup>
- Full paper submission: April 15<sup>th</sup>
- Notification of acceptance: May 25<sup>th</sup>
- Final, camera-ready paper submission: June 25<sup>th</sup>
- Early registration and fee payment: July 25<sup>th</sup>
- Workshop days: 1-2 October 2020