IEEE Transactions on Industrial Informatics

CALL FOR PAPERS
for Special Section on

Artificial Intelligence and Big Data Analytics for Cloud Manufacturing

Theme: Cloud Manufacturing (CMfg) adopts and extends the concept of cloud computing to virtualize and efficiently manage mass manufacturing resources and capabilities, which forms an extremely large shared and scalable pool of virtual, software-definable resources. They are made widely accessible to users as services through the Internet beyond boundaries of enterprises. It leverages new generation information and communication technologies (ICT) and modern manufacturing technologies to empower and upgrade the manufacturing competitiveness through the transformation of manufacturing modes, technologies, and ecosystems.

The wide deployment of sensor and IoT devices gives rise to the explosive generation of huge and diverse volumes of big data, the new "oil", that hides knowledge and insights to assist optimal decision-making. However, the world of big data includes a rich and complex set of cross-media content, including text, images, video, and audio. This calls for advanced big data analytics, artificial intelligence and machine learning technologies, which can exploit heterogeneous big data and make more accurate and timely decisions. Cloud/Edge Computing, Virtual Reality/Augmented Reality, Software-defined Networking, 5G and beyond wireless communication, and Robotics lay a solid foundation for building highly flexible, large-scale, service-oriented, plug and play, proactive, tele-operational cloud manufacturing systems. Artificial Intelligence and Machine Learning can contribute to not only big data analytics, to assist the reliability, configuration, performance, fault and security management, but also robots' behavior learning and simulation. This emerging research promises to derive concrete endless impacts on the quick deployment, productivity and sustainability of Industry 4.0 beyond the state-of-the-art of cyber-physical systems-based industrial world.

This special section aims to provide a knowledge interactive platform across industrial informatics and computer science for next generation Cloud Manufacturing. We seek and disseminate recent theoretical and methodological developments, significant technical applications, case studies and survey results in areas of cloud manufacturing integrating robotics, advanced networking, plug and play manufacturing Apps, big data analytics and machine learning techniques.

This special section will focus on (but not limited to) the following topics:

- Anomaly detection and prediction for cloud manufacturing
- Architecture, interoperability and standard for cloud manufacturing
- Asset administration shell and digital twins in cloud manufacturing
- Cloud-based big data analytics and artificial intelligence for industrial informatics applications
- Control as a service, manufacturing as a service
- Data-centric management of software-defined networks for cloud manufacturing
- Data mining, statistical modeling, and machine learning for cloud manufacturing
- Emerging sensing technologies for cloud manufacturing
- IoT-enabled industrial process monitoring and control
- Robotics simulation to reality transfer, Cloud robotics, edge-cloud based manufacturing
- Scheduling and process optimization for cloud manufacturing
- Theoretical and empirical performance model for big data applications
- Responsible AI in manufacturing

Manuscript Preparation and Submission

Follow the guidelines in "Information for Authors" in the IEEE Transaction on Industrial Informatics http://www.ieee-ies.org/pubs/transactions-on-industrial-informatics . Please submit your manuscript in electronic form through Manuscript Central web site: https://mc.manuscriptcentral.com/tii . On the submitting page #1 in popup menu of manuscript type, select: SS on **Artificial Intelligence and Big Data Analytics for Cloud Manufacturing**

Submissions to this Special Section must represent original material that has been neither submitted to, nor published in, any other journal. Regular manuscript length is 8 pages.

Note: The recommended papers for the section are subject to final approval by the Editor-in-Chief. Some papers may be published outside the special section, at the EIC discretion.

Timetable:
Deadline for manuscript submissions	**December 30, 2021**
Expected publication date (tentative)	August 2022

Guest Editors:
- Prof. Jiehan Zhou, University of Oulu, Finland, jiehan.zhou@ieee.org
- Dr. Qinghua Lu, CSIRO, Australia, qinghua.lu@data61.csiro.au
- Prof. Wenbin Dai, Shanghai Jiao Tong University, China, w.dai@ieee.org
- Dr. Ray Y. Zhong, The University of Hong Kong, zhongzry@hku.hk

Editor-in-Chief: Prof. Dr.-Ing. Ren C. Luo   tii@ira.ee.ntu.edu.tw
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