

— **Call for Papers** —
A Symposium on
Cognitive Manufacturing: Challenges, Technologies, and Applications

Sponsored by the ASME Manufacturing Engineering Division's

Manufacturing Systems Technical Committee

2020 ASME International Manufacturing Science and Engineering Conference (MSEC)*

June 22 – 26, 2020

Cincinnati, Ohio

Hosted by the University of Cincinnati, College of Engineering and Applied Science

Technical Focus

At the intersection of hyper-connectivity and advanced artificial intelligence for the factories of the future, Cognitive Manufacturing holds the promise of transforming industry by endowing production systems with perceptive and decisive capabilities enabling autonomous operations based on embedded cognitive reasoning in which the intelligence and reasoning are retained by humans and backed by core technologies of Industrial Internet of Things, big data analytics, mobility, collaboration, robotics, augmented reality and cognitive computing. With advanced cognitive capabilities, machines, systems, and factories will be able to self-sense, self-communicate, self-reason, and self-configure themselves to prevent potential issues, optimize operations, and enhance the integration between machines, humans, and supply chain. The rise of cognitive intelligence in manufacturing operations from the device level to supply chain collaboration will create a future of intelligent, resilient, and sustainable industry. Specific topics of interest include, but are not limited to:

- Advanced sensing technologies for human, machine, and part monitoring in manufacturing
- Cognitive computing and AI-powered analytics for productivity optimization
- Self-organization and reconfigurable mechanisms and systems
- Machine to Machine communication technologies
- Machine and system architectures for plug-and-produce manufacturing systems
- System architecture of cognitive manufacturing systems
- Design and manufacturing for mass personalization
- Distributed control and decentralized decision-making in manufacturing
- Self-sensing and self-learning manufacturing systems
- Big data extraction, transmission, and processing for knowledge management in manufacturing
- Collaboration mechanisms between manufacturing systems for enhanced cognitive intelligence
- Machine-to-Human and Machine-to-Machine cooperative control and automation
- Factories of the Future
- Industrial applications and case studies that leverage cognitive manufacturing core technologies

Paper Submission

Authors are encouraged to submit an abstract and full manuscript for review by **November 15, 2019** via the conference website. Final revised manuscripts must be submitted by **March 26, 2020**. The [copyright transfer form](#) must be filled out by March 19, 2020 and the presenting author must [pre-register](#) by **April 15, 2020** or the paper will be withdrawn from the conference. **No papers are to be submitted to the organizers; submissions will only be accepted via the conference website at <https://event.asme.org/MSEC/>.**

All papers accepted by MSEC2020 can be further submitted to any ASME journals, such as the highly prestigious Journal of Manufacturing Science and Engineering, for consideration of archival publication. In addition, high quality MSEC2020 papers will be automatically channeled to relevant ASME journals for fast-tracked publications.

Additional Symposium Activities

To highlight advancements in this technical area, symposium organizers will:

- organize a special issue in the ASME Journal of Manufacturing Science and Engineering
- organize a state-of-the-art paper that will be the lead article in the special issue

Organizers:

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* The conference is collocated with NAMRI/SME's 48th North American Manufacturing Research Conference (NAMRC48) and LEM&P (Leading Edge Manufacturing / Materials and Processing) by The Japan Society of Mechanical Engineers (JSME), which will have a separate call-for-papers. Please note that submissions of the same paper to more than one conferences are not permitted.