— Call for Papers —

A Symposium on

Cyber-Physical Systems and Cybersecurity in Industry 4.0

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

In the era of Industry 4.0 and the smart factory, manufacturing automation through cyber-physical systems (CPS) has attracted a lot of attention from industrial organizations and research universities to improve productivity, performance, and profit, and artificial intelligence (AI) and machine learning offer great computing strength in cyber computing to realize real-time predictive monitoring and data analytics. Although CPS, Internet of Things (IoT), big data, and AI have been utilized by major manufacturing companies, a wide use of such technologies in small and medium-sized enterprises (SMEs) is still faced with challenges from limited data, massive computing infrastructure, and high upfront costs. In addition, due to the nature of CPS, both information technology systems and operational technology systems of manufacturing firms are vulnerable to threats including theft of intellectual property (IP) and trade secrets, sabotage of operations, and damage to hardware and software. This symposium will focus on the research advances in the areas of cyber-physical systems and cybersecurity for smart manufacturing, which will benefit more companies with high efficient and more economical manufacturing systems under the privacy and security framework. Specific topics of interest include, but are not limited to:

- Efficient computing in cyber-physical systems.
- Edge computing technologies for Internet of Things.
- Monitoring and health management for industrial robot systems.
- Cyber physical systems with designed-in cybersecurity.
- Artificial intelligence for cyber threat detection.
- Automated vulnerability assessment and detection.
- Sensor design, integration and fusion for security.
- Security of Industrial Internet of Things (IIoT) devices.
- Advanced manufacturing through the digital thread.
- Cybersecurity in manufacturing systems.
- Information technology security.
- Operations technology security.
- Blockchain for security of sensitive manufacturing information.
- Cloud computing security in digital manufacturing.
- Edge computing security in digital manufacturing.
- Case study for cyber-physical security in manufacturing.

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:

Dr. Rui Liu, Rochester Institute of Technology, Rochester, NY, USA. 585-475-6819; rleme@rit.edu
Dr. Dazhong Wu, University of Central Florida, Orlando, FL, USA. 407-823-1561; Dazhong.Wu@ucf.edu
Dr. Guixiu "Helen" Qiao, National Institute of Standards and Technology, guixiu.qiao@nist.gov

* 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.