

— Call for Papers —
A Symposium on
**Collaborative Robotic Assembly: Challenges and Opportunities for the
Manufacturing Industry**

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

Recent advances in robotics and automation have enabled the development of collaborative assembly processes where robots coordinate with humans and/or other robots to perform a task. Robot collaborative assembly can be a design enabler for scalable and reconfigurable manufacturing systems which are capable of accommodating changes in product demand and handling different part geometries. The development of novel end-of-arm tools, multi-arm robot coordination strategies, object-oriented control architectures, and combinations of vision- and force-based control are all active areas within the research community. This symposium will focus on state-of-the-art research to identify and address the challenges and opportunities of Robot-to-Human (R2H) and Robot-to-Robot (R2R) collaboration to perform assembly tasks. During the symposium, advances in the application of these technologies to automotive, aerospace, and consumer good manufacturing from both industry and academia will be presented. Research of interest includes: collaborative robots, path and trajectory planning for robotic assembly, artificial vision, vision-based guidance and force sensing and control. Specific topics of interest include, but are not limited to:

- Robotic assembly and joining
- Multi-arm coordination and control for collaborative assembly
- Reconfigurable end-effector design for assembly tasks
- Hybrid position/force control
- Force control for handling of compliant parts
- Path planning for robotic collaborative assembly
- Vision-based robot guidance
- In-process measurement systems
- Grasp planning for heterogeneous part geometries
- Artificial vision for part and feature recognition
- Machine learning and artificial intelligence for control of robotic arms

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

The symposium organizers will work to attract a high profile international keynote speaker to highlight cutting edge advances in the field. In order to communicate the knowledge generated through this symposium to a wide audience, the organizers will organize a state-of-the-art paper.

Organizers:

Dr. Patrick Spicer, General Motors Research and Development, Warren, MI USA Ph: (734-626-8931), patrick.spicer@gm.com
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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.