— Call for Papers —

A Symposium on

Advances in Human Systems Integration and Intelligence Augmentation in Manufacturing Systems

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

Bringing "big data" and Internet of Things (IoT) to manufacturing has left manufacturers with data of many different forms. Meanwhile the desire to adopt Artificial Intelligence (AI) solutions has increased, with recent buzz around more accessible, easy-to-use toolkits, and techniques to improve operational performance. However, AI and other Smart Manufacturing (SM) technologies are not one-size-fits-all solutions, whether across data types or problem domains. Incorporating a variety of expertise under diverse scenarios into an AI system is often cost-prohibitive. implementation risk-assessments are difficult to perform. In addition, most AI and digitization solutions do not work out-of-the-box, and cannot directly replace personnel—even in the best case. Instead, better operational performance can often be achieved by using technologies that **maximize the ability of personnel to perform their tasks, improving the design of a system's operation, support, and maintenance by incorporating the skills and limitations of the personnel executing these tasks.** For instance, maintenance is a largely human-centric processes. It could be uniquely suited to a digitization approach designed to intertwine human and digital capabilities. This paradigm shift toward **collaboration** between human and machine is a core goal of Human Factors Engineering. It must be holistically applied as mounting technological, logistic, organizational, and cultural challenges stand between current state of practice and the Smart Manufacturing Systems of the future. Specific Topics of interest include, but are not limited to:

- Uses for AI within/in support of task analyses or Human Reliability Analysis
- Expert knowledge structuring and expert elicitation pipelines
- Natural Language Processing applications to manufacturing operations
- Anthropometric or behavioral models to quantify error sources
- Novel visualization tools and user interfaces with quantified improvements over traditional methods
- Sensory feedback designs that minimize confusion, obfuscation, or mistrust

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:
- work to attract high profile international keynote speakers from industry

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.