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IEEE Transactions on Industrial Informatics



Special Section on:

“Formal Methods in Manufacturing”

Special Section Guest Editor

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Design and operation of manufacturing systems is a large and complex domain of application. The complexity of this domain stems from the large dimension and from the degrees of flexibility of such systems that are highly parallel and distributed. Formal methods are a fault avoidance technique that helps in the reduction of errors introduced into a system, particularly at the earlier stages of design. Therefore, formal methodologies and techniques for the modeling, analysis, optimization and control of manufacturing systems are necessary to cope with the complexity of such systems.

In the last years, we have seen advances and developments in the newly emerging areas of technology, as well as actual and potential applications to flexible manufacturing systems. However, the development of suitable methodologies has not kept up with the fast technological changes. There exists a gap between the level of complexity inherent to manufacturing systems and the very large potentiality of formal methods which, nevertheless, are not presently completely mastered.

This Special Section on “Formal Methods in Manufacturing” aims at presenting some of the most significant research works representing the state-of-the-art in the area of formal methodologies for manufacturing systems.

Topics include, but are not limited to, the following:

- *Specification, validation, performance evaluation and scheduling of manufacturing systems based on formal models*, including queueing networks, Petri nets, and process algebras.
- *Control of discrete event, continuous, or hybrid systems using formal models*, including process control, intelligent control, and supervisory control.

Submissions to this Special Section must represent original material that have been neither submitted to, nor published in, any other journal. Extended versions of papers previously published in conference proceedings, digests or preprints may be eligible for consideration, provided that the authors inform the Special Section Guest Editors at the time of submission.

All contributions must focus on formal methods in manufacturing.

Manuscript preparation and submission: Follow the guidelines in “Information for Authors” in <http://iee-ies.org/tii/>

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Paper submission deadline: November 30, 2008

Expected publication date: November 2009 (tentative)

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 his discretion.