**Introduction**

The 13th IEEE International Conference on Automation Science and Engineering (IEEE CASE 2017), sponsored by the IEEE Robotics and Automation Society (RAS), was held in Xi’an, China, 20-13 August 2017. IEEE CASE is a flagship automation conference of the IEEE RAS and constitutes the primary forum for cross-industry and multi-disciplinary research in automation. Its goal is to provide a broad coverage and dissemination of foundational research in automation among researchers, academics, and practitioners.

Authors of papers included in the proceedings of CASE2017 are kindly invited to submit a journal version of their contributions to this special issue, which will undergo a full review process.

The central theme of CASE 2017 and of this special issue is **Automation for Next Industry Revolution**. The advances in information science and technology such as Internet Plus allow us to make many industrial systems smarter and more creative particularly: Smart Manufacturing Systems, Smart Buildings, Smart Cities, Smart Transportation Systems, Smart Energy Systems, etc.

**Scope, Description, and More Information**

This special issue aims to publish original, significant and visionary automation papers describing scientific methods and technologies that improve efficiency, productivity, quality and flexibility for automation for the next industry revolution, with both solid theoretical development and practical importance.

This special issue only accepts submissions made by previous authors of papers included in the proceedings of CASE2017. A small number of such papers – those containing *significant scientific results as recognized by CASE2017 reviewers’ comments* – will be accepted to submit a journal version to this special issue. Authors are kindly requested to expand significantly the conference version to contain substantial new technical materials due to the restriction in duplicated publications and the competitive acceptance (usually more than 30% of the results are new in the journal paper).

Topics to be covered include, but are not limited to the following topics:

* Future Manufacturing Systems: reconfigurable manufacturing systems, industrial robotics, coordination and scheduling, and CPS and industrial Internet;
* Foundation of Automation: discrete event systems, hybrid systems, fault analysis and recovery, system modeling and simulation, and monitoring and control;
* Life Sciences and Healthcare: lab automation, automation in treatment diagnosis and disease, hospital and medical robotics, and healthcare management systems;
* Automation in Meso, Micro, and Nano-scale: cluster tool scheduling, fab modeling and analysis, metrology, and nano-manufacturing;
* Big Data for Automation: web, data, and text mining, web services and service oriented architectures, machine learning, software engineering in automation, and workflow management systems;
* Automation in Logistics and Supply Chain Management: material handling and assembly, IT-enabled planning, coordination, and scheduling, resource allocation and management, and automation in remanufacturing and reverse logistics;
* Networked and Control Systems: distributed control systems, multiagent planning and control, sensor/actuator networks, and wireless communication and control;
* Cyber Physical Energy Systems: smart buildings, intelligent transportation systems, smart cities, and micro and smart grids.

**Important Dates**

* November 30, 2018: paper submission deadline.
* March 15, 2019: completion of the first review round.
* April 15, 2019: second round/final submission deadline.
* July 30, 2019: completion of the second review round, and final publication decision.

**Special Issue Guest Editors**

All enquiries about the special issue should be sent to any of the guest-editors:

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**Submission Information**

All papers are to be submitted through the IEEE’s Manuscript Central for Transactions on Automation Science and Engineering (<http://mc.manuscriptcentral.com/t-ase>). Please select “Special Issue” under Manuscript Category of your submission. All manuscripts must be prepared according to the IEEE Transactions on Automation Science and Engineering publication guidelines (<http://www.ieee-ras.org/publications/t-ase>).

Prospective authors are encouraged to email to one of the guest editors abstracts of possible contributions including a cover letter with authors’ contact information.