

2018 IEEE International Conference on Industrial Informatics

Special Session/ Organized Session on

“Emerging Intelligence in Distributed Automation Systems” organized by

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Call for Papers

Theme: With introduction of the Industrial Internet and edge computing, the complexity of industrial automation systems is rapidly increasing as computing powers and communication resources are largely enhanced by latest progresses in embedded systems. Advanced distributed computing architectures are expected to handle new challenges of time-consuming and error-prone engineering of automation systems. By introducing new models, design patterns, middleware, software tools and verification techniques, the future automation systems will be flexible, intelligent and collaborative.

This special session calls innovations from the future industrial automation systems that emerges concepts of Industrial Internet, Internet of Things, Industrial Big Data, Artificial Intelligence to the promise of a breakthrough in achieving seamless integration from enterprise level to the shop floor and real-time self-reconfiguration without disrupting plant operations. The session continues successful history of special sessions on similar topics at INDIN 2015, 2016 and 2017.

Topics of interest include, but are not limited to:

- System and software architectures and design paradigms for distributed intelligent automation systems (model-driven software engineering, object-oriented, component-based design, service-oriented architecture, etc.);
- Automatic Methods for automatic software synthesis and verification of formal models to improve the engineering efficiency of automation systems development and maintenance;
- Applications of artificial intelligence and advanced computing methods for enhancing real-time decision making and self-management features using cognitive and multi-agent systems and knowledge engineering;
- New theories, concepts, trends and approaches aiming at safety and security in distributed automation systems primarily based on edge computing devices;
- Standardization of software architectures and communication protocols for interoperability, portability and configurability in edge nodes;
- Modelling, simulation and verification of industrial automation systems, hardware in the loop simulation and cloud-based simulation technologies;
- Real-time data collections, filtering and analysis on edge computing nodes and adaption to the industrial cloud;
- Pilot applications of automation systems based on the above mentioned concepts (e.g. in manufacturing systems, process control, building automation, smart grid, wireless sensor networks, industrial big data, edge computing).

Submissions Procedure: All the instructions for paper submission are included in the conference website <https://web.fe.up.pt/~indin2018>

Deadlines:

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| Deadline for special sessions proposals | January 30, 2018 |
| Deadline for submission of papers: | February 28, 2018 |
| Notification of acceptance of papers: | May 04, 2018 |
| Final manuscripts due: | June 1, 2018 |