

Heterogeneous Industrial Networks of the Current and Next Generation Factories

Theme: The usage of highly sophisticated and performing communication technologies in contemporary factories is one of the key issues in designing and implementation of leading-edge production systems that are smart, flexible and resilient. Currently, several automation, telecommunication and IT technologies need to be incorporated in and integrated to the production systems in order to realize a vast variety of industrial applications. Wired technologies are able to achieve high performance, sufficient reliability, timeliness and security, however typically only within a strictly defined technology or vendor specific domain. On the contrary, wireless technologies are still far from assuring the required communication quality, but they are pervasively entering in today's factories. Configuration, management and interoperability of such heterogeneous network systems has been an issue, requiring research on how to improve and adapt the characteristics of the newest communication technologies to industry. Many companies are looking for effective methods to overcome this problem, and look for new architectures, management approaches or new ways to realize QoS in communication in such complex systems. Thus, we invite all researchers involved in this matter to disseminate their work in this special section.

The main objective of this special section is to bring the ideas of the worldwide research community from various domains, such as IT, Telecommunication and Automation into a common platform, to present the latest advances and developments in innovative design, modeling, management, and other concerns of industrial networks, including latest work related to industrial communication technologies to be used in the future.

This special section will focus on (but not limited to) the following topics:

- Industrial Communication. Including innovative topics related to industrial network architectures, algorithms, communication scheduling, protocols, performance, simulation, modelling, engineering, and real-time issues.
- Communication in Cyber-Physical Systems. Including all communication issues related to CPS concept.
- Communication Technologies for Industry 4.0. Including all communication issues related to the concept of 4th industrial revolution.
- Utilization of solutions coming from the IT domain. Including time sensitive networks (TSN), virtualization, cloud computing, software defined networking (SDN), network slicing, etc.
- Management of heterogeneous Industrial Communication Systems. Including innovative, future-proof and user-friendly management concepts.
- Industrial Wireless Communication. Including areas of IEEE 802.11, sensor and actuator networks (WSAN), industrial internet of things (IIoT), integration and coexistence, dependability, high-reliability and low-latency solutions, 4G and 5G concepts, communications for smart factories, protocols as LoRa, wirelessHART, IO-Link, 6TiSCH, and other.
- Security and Safety Concerns in Industrial Networks. Including ownership of the information, redundancy, systems dependability, security and safety concerns in IIoT, security analysis and monitoring, functional safety, black channel approach.
- Interoperability of Legacy and New Technologies. Including all innovative techniques which are able to assure an effective integration of existing solutions with modern ones.

Manuscript Preparation and Submission

Follow the guidelines in "Information for Authors" in the IEEE Transaction on Industrial Informatics <http://www.ieee-ies.org/pubs/transactions-on-industrial-informatics>. Please submit your manuscript in electronic form through Manuscript Central web site: <https://mc.manuscriptcentral.com/tii>. On the submitting page #1 in popup menu of manuscript type, select: SS on **Heterogeneous Industrial Networks of the Current and Next Generation Factories**

Submissions to this Special Section must represent original material that has been neither submitted to, nor published in, any other journal. Regular manuscript length is 8 pages.

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 the EIC discretion.

Timetable:	Deadline for manuscript submissions	February 28, 2019
	Expected publication date (tentative)	September 2019

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