



IEEE Transactions on Industrial Informatics

CALL FOR PAPERS

for Special Section on



Advanced Industrial Communication Systems

Theme: The technological development of recent years has initiated a new turn in industrial communication. The rapid change in consumer electronics towards high performance, low latency, communications has affected industrial communications as well. The promises of 5G and the performance targets of WIFI6 are some of the driving motivations to push the industry forward in this new communications domain. However, these strong and appealing ideas will create many challenges. This special section will emphasize the research questions on communication in IT and OT industrial networks, from the analysis and design process to governing the technologies and their new techniques to foster new applications. It will be organized jointly with the 17th edition of International Conference on Factory Communication Systems (WFCS), which is the prestigious premier IEEE conference dedicated to communications for industrial systems. This 17th edition will bring together researchers, developers and practitioners to review and discuss most recent trends in the area and share innovative research directions. It will be a valuable opportunity for cross-fertilization in the ever-evolving industrial communication scenario, for instance taking advantage from recent research activities in emerging topics like machine learning (ML) and cyber security. The adoption of the Industrial Internet of Things (IIoT) paradigm permitted to process and collect data anywhere in factory, but on the other hand the data trustworthiness and processing need to be improved, especially considering latency and real-time requirements. The traditional approach of the consumer IoT exploiting Cloud-based data processing cannot be used for applications where latencies of milliseconds are required, e.g., to tackle safety-critical applications or to manage cobots. Communication reliability is another big issue, especially when wireless communication in harsh industrial environment is considered. Trustworthiness in industrial communications can be enabled by the redundant network, by quality of service driven communication models which are derived from TSN standards or other reliability centered wired approaches. Thus, it is expected that this special section will benefit all the researchers involved in this very challenging field, possibly fostering cross-contamination from related research areas.

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

- Real-time communication Systems and Technologies;
- Networked Embedded Systems;
- Edge computing for industry;
- Intelligent network planning;
- Wireless Jamming detection and avoidance;
- 5G standard and URLLC with energy autarky;
- Cyber-Physical Systems;
- Safety and Security of real-time Networks;
- Network structure in factory;
- Secure dependable wireless communication;
- High performance wireless communication;
- Recent advances in domains with similar communication requirements.

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 **Advanced Industrial Communication Systems**.

Submissions to this Special Section for the IEEE Transaction on Industrial Informatics 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 full submission: July 30, 2021**
Expected publication date (tentative) March 2022

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