



“New Trends in Control and Filtering of Networked-Based Systems”

The Theme: Recent developments in networking technologies, especially wireless connection, generate a new paradigm of control and filtering for industrial systems via networks. In the past, such systems are controlled and estimated by independent networks which are designed with enough bandwidth and resource. In the future, shared wired and wireless networks will be used to connect the industrial systems and controllers/filters. In this new framework, bandwidth and resource constraints should be taken into account in controller/filter design, and real-time will become increasingly important to control and filtering. Therefore, it is of significance to address several fundamental problems regarding real-time control and filtering, and effects of the network on the performance of such systems.

This special issue aims to provide a timely discussion on the technical trends and challenges of control and filtering over networks with resource constraints for industrial systems. In network-based systems, the control/filtering performance is not only affected by control strategies or filter, but also by network resources. How to properly design controller/filter, and effectively utilize network resource is essential to synthesizing or estimating network-based systems. For example, network-based controller/filter design necessitates a novel, integrated view of both control/filtering and information theory, makes fundamental tradeoffs between network resources and control/filtering goals, tolerates scalability and robustness to subsystems failure, and improve control performance under an unreliable communication medium like the wireless or a shared medium like Ethernet or Internet. To fulfil this purpose, network resource scheduling, network bandwidth allocation, and new control strategies/filter should be simultaneously considered in system synthesis and estimation. The results are useful for industrial electronics systems, intelligent transportation systems, smart grid, power electronics systems, remote fault diagnosis and prognosis. Topics of interest of this Special Issue include, but are not limited to: Topics to be covered in this special issue include, but are not limited to, the following areas:

- Modelling of network-based systems
- Network resource scheduling and control
- Network dynamics and control
- Filtering with network resource constraints
- Filtering over sensor network
- Distributed wireless networks for control
- Distributed sensing and estimation
- Industrial applications of networked control and filtering

Manuscript Preparation and Submission

Follow the guidelines in “Information for Authors” in the IEEE Transaction on Industrial Electronics <http://tie.ieee-ies.org/tie/>
Please submit your manuscript in electronic form through Manuscript Central web site: <http://mc.manuscriptcentral.com/tie-ieee>. On the submitting page #1 in popup menu of manuscript type, select: **New Trends in Control and Filtering of Networked-Based Systems**.

Timetable

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