Peer-to-Peer Networking and Applications

Call for Papers

Special issue on Networked Cyber-Physical Systems: Optimization Theory and Applications

Scope:
Cyber-Physical Systems (CPSs) represent a bold new generation of systems that integrate computation and communication capabilities with the dynamics of physical and engineering systems. A critically essential charismatic of modern CPSs is that such systems are actually networked via the Internet, cloud, or special logical or physical networks including but not limited to industrial 4.0, wireless sensor networks, social networks, to name a few.

In recent years, distributed and large-scale monitoring and distributed control applications have awaken a growing interest in networked CPSs, and considerable research efforts have been dedicated to analysis and control for networked CPSs. However, there still exist many open problems regarding theory and practical applications in the area of networked CPSs. For example, it is an imperative work to formulate hybrid model for networked CPSs based on P2P and client-server models. Another fundamental task is to construct new effective metrics to synthesize the communication, computing and control requirements. Due to the limited resources, the system operators also need to design optimal static/dynamic resources allocations schemes. Different from traditional resources allocation methods, which only consider the resource dispatch from one aspect, new allocation approaches should trade off the communication, computing and control requirements. CPSs are often confronted with data security and privacy issues. Since the attackers are becoming more intelligent, traditional P2P secure communication strategies are not sufficient for the security and privacy requirement. It is very urgent to design more resilient and secure networked CPSs against potential adversaries. In addition, how to promote networked CPSs theory to industrial applications, including smart grids, flexible manufacturing systems, vehicle systems, and intelligent robots, is also of great concern. These call for an urgent quest to explore and investigate the new challenging issues in networked CPSs. In this potential topic, we are applying for recent contributions that focus on theoretical analysis as well as industrial applications on networked CPSs from a variety of perspectives.

This special issue will seek latest significant contributions on decentralized/distributed optimization approaches for networked CPSs in both theoretical and industrial applications, and will try to identify new research issues, opportunities and directions in the emerging theory and technologies.

Topics of primary interest include, but are not limited to:
- Nondeterministic switching systems model of networked CPSs
- Markov stochastic model of networked CPSs
- Optimization and distributed control of mobile P2P networks
- Optimization and distributed control of M2M communications
- Optimization and distributed control of networked CPSs
- Energy-efficient communication/computing/control schemes
- Privacy and security preserving protocol design for networked CPSs
- Secure P2P communication for networked CPSs
- Cooperation in networked CPSs
- Parallel computing in networked CPSs
- Decentralized/distributed design in networked CPSs
- Remote state estimation for networked CPSs
- Stochastic optimal control for networked CPSs
- Industrial applications of networked CPSs
Tentative Schedule
Manuscript Due: Nov. 30, 2018
First Notification: Dec. 30, 2018
Revised version: Feb. 10, 2019
Final notification: Mar. 10, 2019
Publication Date: TBD

Manuscript Submission
The authors should visit [www.springer.com/12083](http://www.springer.com/12083) for information on paper submission. Prospective authors should submit an electronic copy of their complete manuscript through the Editorial Manager system at [https://www.editorialmanager.com/ppna/default.aspx](https://www.editorialmanager.com/ppna/default.aspx) using the article type: “SI: Networked Cyber-Physical Systems.” Manuscripts will be peer reviewed according to the standard of Peer-to-Peer Networking and Applications.

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