Distributed and Concurrent Algorithms for Cyber Physical Systems

Nowadays, Cyber-physical systems (CPS) widely used in many real world applications. The vital role of CPS is to link the cyberspace with the physical world through a network of interrelated elements, such as actuators, sensors, computational engines and robotics. Moreover, CPS also used to improve the performance and reduce the complexities in emergency response, electric power generation, traffic flow management, and personalized health care delivery and so on. The societal and economic potential of CPS has been improved noticeably. The major applications of CPS include smart electric grid, smart buildings, smart transportation, next-generation air traffic management, advanced manufacturing and smart medical technologies. Hence, CPS should run dependably, safely, securely, efficiently and in real world applications. More commonly, CPS users connect with each other and transfer data directly, and perform operations asynchronously on the basis of underlying cyber-infrastructure. These additional types of interactions are considered as high impact on how concurrent and distributed algorithms for CPS are designed. Nowadays, tremendous progress has been made in advancing distributed and concurrent algorithms for CPS technology over the last five years. More advance concurrent and distributed algorithms in CPS has solved a wide range of challenges in smart energy systems, such as the fast growth in system complexity and scale, the real-time interaction and distributed control between physical systems and dynamic environments, and the efficiency issues in smart homes, buildings, communities and connected vehicle systems together with their reliability, are highly desirable. The objective of this special issue is to collect and report on recent high-quality research that addresses different problems related to the distributed and concurrent algorithms in CPS.

The special issue on "Distributed and Concurrent Algorithms for Cyber Physical Systems" in Concurrency and Computation: Practice and Experience issue will carry revised and substantially extended versions of selected papers presented at the AICV’ 2018: International Symposium on Artificial Intelligence and Computer Vision, September 26-28, 2018, Chennai, Tamilnadu, India, but we also strongly encourage researchers unable to participate in the conference to submit articles for this call.

Topics include but not limited to:

- Synchronization Primitives in CPS
- Distributed Programming models in CPS
- Resource Allocation methods in CPS
- Message Ordering methods in CPS
- Nondeterministic algorithms in CPS
- Parallel algorithms in CPS
- Mutual exclusion avoidance methods for CPS
- Many-Core Processors for CPS

- Blocking and Non-Blocking Synchronization for CPS
- Memory management in CPS
- Load Balancing in CPS
- Hardware and software models for CPS
- Visualization Model for Concurrent Systems
- Robust Concurrent Computing algorithms in CPS
- Hadoop MapReduce for CPS
- Asynchronous System models for CPS

Deadline:

Submission deadline: Nov 31, 2018

Author notification: Feb 15, 2019

Revised papers due: Apr 1, 2019

Final notification: May 15, 2019

Camera-ready due: Jun 31, 2019

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Conference Website: http://aicv.in/index.html

Google Scholar: https://scholar.google.com/citations?user=-396YCEAAAAJ&hl=en
Official Website: http://www.mitindia.edu/en/about-us?id=502