Journal of Optimization

Hindawi

Special Issue on

Optimization Issues for Smart Internet of Things

CALL FOR PAPERS

The next-generation Internet will be the Internet of things (IoT), which is presumed to be enabled by integrating simple computing plus communications capabilities into common objects of everyday use. By 2020, there will be 50 billion IoT devices interconnected (or connected to Internet), and the generated IoT data will significantly increase 1000 times. With the development of chip manufacturing, IoT devices are becoming increasingly smarter, with better caching, communication, and computing capabilities. Compared with traditional IoT devices, smart IoT devices can make more local decisions instead of simply sensing environmental data and uploading the sensed data to a central controller (e.g., sink node or cloud). Thus, smart IoT may have wider application scenarios such as smart cities, smart home, and smart healthcare.

However, promising prospect is followed by some new challenging issues, which seriously make the smart IoT far from its optimal performance, and cannot be addressed by traditional methods, for example, optimal off-loading strategies: what kinds of tasks should be accomplished locally for saving transmission bandwidth and what kinds of tasks should be forwarded to cloud; optimal collaborating: smart IoT devices sometimes should collaboratively tackle a complex task, because anyone of them does not have such ability. Hence, we need to investigate how to optimally divide the big task and assign the task pieces to collaborators in the best way; and closed-loop optimization: we should dynamically optimize the infrastructure deployment, algorithms, and mechanism of smart IoT with the knowledge from historical IoT data. This special issue aims to create a forum for researchers to present their original work that address such challenging issues to optimize the performance of smart IoT. We believe this will benefit both academic and industrial communities.

Potential topics include but are not limited to the following:

- Optimal data aching, off-loading, task-dividing, and assigning strategies for smart IoT
- Optimization of data sensing, aggregation, gathering, processing, transmission, and analytics for smart IoT
- Optimization of the system architecture for smart IoT
- Improvement of QoS and QoE for smart IoT
- Optimization algorithms, models, and framework for smart IoT
- Experimental results, prototypes, and testbed for optimization-related issues in smart IoT

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Papers are published upon acceptance, regardless of the Special Issue publication date.

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Submission Deadline
Friday, 7 September 2018

Publication Date
January 2019