Building Simulation: An International Journal

Topical Issue on

Advanced Data Analytics for Building Energy Modeling and Management


Dear Colleagues,

Nowadays' buildings are not only energy intensive, but also information/data intensive. The wide adoption of information technologies in modern buildings has facilitated collection and store of massive amounts of building operational data. Big data and advanced data analytics are transforming the world including buildings and cities. The insights and data-driven knowledge obtained from analyzing the big building operational data are valuable complements to the rich domain expertise in building engineering, which will bring more powerful solutions to smart energy efficient buildings.

In recent years, there are increasing interests in effectively utilizing the big building operational data for building energy modeling and management by adopting advanced data analytics. Machine learning techniques have been adopted to develop predictive models on building energy consumptions, indoor environment, operating parameters of different equipment and so on. Unsupervised data mining techniques, such as clustering analysis and association rule mining, have been applied to explore the intrinsic structures and correlations among building variables. Although encouraging results have been obtained, more research efforts are needed. On the one hand, advanced data analytics algorithms are constantly emerging and their potential in analyzing high-complexity and low-quality building operational data should be further explored. On the other hand, the values and potentials of data-driven knowledge obtained from analyzing building operational data have not yet been fully exploited.

To bridge the knowledge gap between advanced data analytics and building energy modeling and management, a topical issue, entitled “Advanced Data Analytics for Building Energy Modeling and Management”, was proposed for the prestigious journal Building Simulation, which is indexed in Science Citation Index and Scopus. This topical issue mainly covers original research studies, including, but not limited to the following topics:

- Exploratory data analysis and data preprocessing techniques for big building operational data
- The general framework for analyzing big building operational data
- Deep learning-based methods for analyzing building operational data
- Interpretable machine learning-based methods for building energy modeling
- Reinforcement learning-based methods for building optimal controls
- Temporal-spatial knowledge discovery from building operational data
- Unsupervised data mining techniques for building energy management
- Generic data-driven knowledge interpretation and applications

Papers selected for this topical issue are subject to a rigorous peer review procedure before being rapidly and widely disseminated.

We sincerely invite you to submit your original work to this topical issue and are looking forward to sharing your outstanding research outcomes with the peers around the world.

Paper submissions: When preparing your manuscript, please follow the Instructions for Authors of Building Simulation, which can be downloaded from the journal website (www.springer.com/journal/12273). Submit your paper online at www.editorialmanager.com/buil and mark “Topical issue on Advanced Data Analytics for Building Energy Modeling and Management” in your manuscript.

The submission deadline has been extended.

Important Dates:

- Submission deadline of full papers: September 30, 2019 (extended)
- Completion of the first-round review: November 15, 2019
- Submission deadline of revised papers: December 15, 2019
- Final notification: January 15, 2020
- Issue published: February 2020

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