Special Session Proposal:
Data Management and Data Factor Market

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Scope and Aim:

In the last decade, data have energized the unprecedented development of artificial intelligence, learning and control across a disperse range of application areas, which growingly fosters the consensus that "Data is the new Oil". Such a pivotal role of data makes it unequivocal that data is valuable, thus calling for thoughtfully managing the data and timely constructing the data factor market in order to maximize the value of data.

However, there exist various challenges to overcome in the aim of approaching the sound and efficient data management and data factor market, especially in practical application scenarios. First and foremost, the data management and data factor market themselves embody complex systems, which requires meticulous modeling for a diverse group of data contributors and data consumers, and delicate optimization design for the often NP-hard data management and data market decisions. Moreover, complying to the latest data regulations like data privacy protection further raises new obstacles to conquer. Furthermore, the data management and data factor market feature an interdisciplinary nature, which consists of economics, artificial intelligence, information security and privacy, optimization, as well as application-specific knowledge. As a result, the data management and data factor market construction open a great potential for further study and have attracted growing research interest across both academic and industry.

This special session aims to establish a venue where the data-driven optimization community can discuss cutting-edge results in the data management and data factor market, especially those approached with data-driven optimization techniques. It targets to study and address a broad range of related issues in the data management and data factor market construction from perspectives out of research, industry, and businesses.

Topics:

Main topics of this session include, but are not limited to, the following:

1. Data-driven optimization, large-scale and multi-objective optimization, intelligent scheduling for data management and data factor market
2. Information extraction, information retrieval, knowledge discovery, clustering, and data mining
3. Machine learning for data management and vice versa
4. Data protection, data security, data privacy, access control, and differential privacy
5. Distributed data management, federated learning, and multiparty secure computation
6. Data factor market design and planning
7. Data valuation and pricing
8. Revenue management, supply and demand matching for data factor market
9. Platform and system for data management and data factor market
10. Data collection, data cleaning, feature selection, and outlier detection
11. Blockchain for data management and data factor market
12. Data management and data factor market for network data, graph data, spatial data, temporal data
13. Data management and data factor market for health informatics, bioinformatics
14. Data management and data factor market for Internet of Things, edge computing, sensor networks
15. Data management and data factor market for intelligent transportation, smart city