Call for Papers of
IEEE Transactions on Intelligent Transportation Systems
Special Issue on
Big Data and AI for Computational Transportation in the Cyber-Physical-Social Space

MOTIVATION AND SCOPE

The past decades have witnessed the rise and power of big data, artificial intelligence, Internet of things (IoT), and high-performance computing techniques. These advanced techniques have great potential and capacity to enable new methodology, applications, and dramatic improvements for current Intelligent Transportation Systems (ITS). To this end, developing new concepts/methodology/tools/algorithms/applications for future ITS with these technologies become more important and promising.

ITS is a typical class of cyber-physical-social systems, in which physical and cyber elements are tightly conjoined, coordinated, and integrated with human and social characteristics. The IoT devices can sense physical transportation systems in real time, while the social sensor network can monitor traffic state and behavior from the cyber space. The generated traffic big data in the cyber-physical-social spaces have flourished in almost all aspects of ITS, which can provide new insights and perspective on transportation systems analysis, modeling and understanding.

More and more transportation management and control tasks require sophisticated and high-performance computational methods/platforms to deal with the complexity and dynamics of traffic environments. For examples, traffic big data processing and analytics with the video and trajectory data, activity pattern mining with the cell phone data, large-scale traffic simulation and traffic signal control. The tight interaction between transportation science and engineering with the high-performance computing techniques is needed.

This special issue aims to provide a forum for researchers and practitioners in academia, industry and government to present their latest research findings and engineering experiences in developing and applying big data, AI, and high-performance computing techniques for ITS in integrated cyber, physical, and social spaces.
LIST OF TOPICS: We are soliciting original high-quality research papers on topics that include, but are not limited to, the following:

1. Traffic data sharing and collaborative applications
2. Traffic big data analytics and mining
3. Traffic Knowledge graph for ITS operations
4. Crowdsourcing for sensing, managing, and controlling of ITS
5. City-scale traffic simulation with high-performance computing techniques
6. Big data for ITS modeling
7. Travel behavior analysis under cyber-physical-social spaces
8. Knowledge discovery and pattern recognition from human mobility
9. Social Transportation
10. Environment and ITS
11. Parallel transportation Systems
12. Advanced machine learning and deep learning techniques for ITS
13. Ride-sharing Transportation
14. Intelligent and comprehensive control of transportation systems
15. Case studies

PAPER SUBMISSION

Manuscripts should be submitted at http://mc.manuscriptcentral.com/t-its.

IMPORTANT DATES

First submission deadline:       June 30, 2020
Notification of first decision: September 30, 2020

First Revision submission deadline: November 30, 2020
Notification of final decision: December 31, 2020

Final manuscript (camera ready) submission deadline: January 15, 2021
Expected Publication Issue: May, 2021

GUEST EDITORS
1. Weifeng Lv  
Professor, School of Computer Science and Technology, Beihang University  
Email: lwf@buaa.edu.cn

2. Yisheng Lv  
Associate Professor, The State Key Laboratory for Management and Control of Complex Systems, Institute of Automation, Chinese Academy of Sciences  
Email: yisheng.lv@ia.ac.cn

3. Andreas A. Malikopoulos  
Associate Professor, Department of Mechanical Engineering, University of Delaware  
Email: andreas@udel.edu

4. Eleni I. Vlahogianni  
Associate Professor, Department of Transportation Planning & Engineering, National Technical University of Athens  
Email: elenivl@central.ntua.gr

5. Fei-Yue Wang  
Professor, Institute of Automation, Chinese Academy of Sciences  
Email: feiyue.wang@ia.ac.cn