

Special Session title

Traffic Network Optimization and Control with Emerging Transportation Technologies

Special Session proposer(s)

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Abstract

With the development and application of the wireless network communication technology, more comprehensive information can be obtained such as vehicle instant position, speed and trajectories, which revokes more accuracy traffic prediction methods and more advanced traffic control approaches from both online and offline perspectives. Meanwhile, the progressive intelligent vehicular technology brings different levels of connected automated vehicles to the traditional traffic network composed of human-driven vehicles, providing new control measures for the traffic network but also putting up new challenges to the modeling, optimization and control of the mixed traffic networks. Therefore, it is necessary to explore the application of the multi-source information from intelligent vehicle networks, and to analyze the driving characteristics of different levels of intelligent vehicles, so as to optimize the network travel efficiency through multiple measures for intelligent vehicles or the combination of both new control measures and the traditional control methods. In the new situation, different control structures also need to be investigated to tackle the problem of the increasing number of controllable objects. In the special session, the main topic is the modeling, prediction, optimization, and control algorithms for the new generation of traffic networks with the emerging transportation technologies, including but not limited to information sensing, V2X technology and driverless technology.

Keywords

- Road Traffic Control
- Network Management
- Multi-modal ITS

Topics of interest

- Vehicle trajectory-based prediction for travel time, traffic demand, route choice
- Traffic variable prediction based on video, sensor or multimedia information
- Vehicle local trajectory optimization in signalized intersections
- Traffic network control with connected automated vehicles and human-driven vehicles
- Distributed traffic network optimization
- Multi-level traffic network optimization and control
- Integrated optimization and control for route choice and network throughput