IEEE Transactions on Intelligent Transportation Systems

Special Issue on:

"Cognitive Networking for Intelligent Transportation Systems"

Background and Motivation

Cognitive networking is expected to analyze and utilize the various information for improving the intelligence of transportation systems. For example, through the vehicle-to-vehicle (V2V), infrastructure-to-vehicle and vehicular-to-infrastructure (V2I) communications, which are the foundation and key support technologies determining the overall performance of advanced intelligent transportation systems (ITS), road safety and traffic efficiency are significantly improved.

To address the advanced demands of ITS which cannot be met by the traditional technologies, such as high throughput, high mobility, low latency, heterogeneity, and scalability, etc., innovative cognitive networking technologies has been applied to ITS for raising the user experience through providing high-performance communications between the vehicular network nodes, reconstructing the vehicular network structure, and optimizing the networking coverage, system security, communication latency, etc. Especially, novel ITS assisted by cognitive computing, data mining, machine learning, and other advanced techniques are available to support entertainment, navigation, location-based services, etc., and even significantly improve the user experience, and even effectively guarantee traffic safety. For example, through cognitive vehicular networks, it is available to monitor the driver's physiological and psychological state for avoiding traffic accidents caused by fatigued driving and mood swings. In this direction, the integration of different body sensors and enhanced computer vision tools can provide useful information to detect driver's stress conditions promptly reacting.

Technical Scope of the Proposal

Some of the most important areas include, but are not limited to:

1. Innovative networking architecture, infrastructure, techniques and testbeds for ITS
2. Cognitive computing, affective computing, machine learning, and other novel tools, services, technologies, algorithms and methods for data

analysis in ITS
3. Individual and social behavior analysis for ITS
4. Contextual data management and mining platforms for ITS
5. Multi-modal information fusion in ITS
6. Cognitive and interactive interface for ITS
7. Augmented reality and mediated reality for ITS
8. Spatial intelligence for ITS
9. Privacy protected discovery and adaptation in ITS
10. ITS standardization and implementation challenges
11. Edge-based Vs. Cloud-based solutions to support ITS

Important Dates

- First submission deadline: September 2021
- Notification of first decision: December 2021
- First revision submission deadline: February 2022
- Notification of final decision: June 2022
- Final manuscript (camera ready) submission deadline: July 2022
- Issue of Publication: September 2022

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