IEEE Internet of Things Journal Special Issue on

Augmented Intelligence of Things for Vehicle Road Cooperation Systems

Vehicle road cooperation aims to use advanced wireless communication and next-generation Internet technologies to implement dynamic real-time information interaction between vehicles, vehicles and pedestrians, and vehicles and roads in an all-round way. Based on the collection and fusion of spatiotemporal dynamic traffic information, it can realize active safety control of vehicles and collaborative management of roads, and achieve the effective coordination of people, vehicles and roads, thus forming a safe, efficient, and environmentally friendly road traffic system. One of the key enablers for vehicle road cooperation is the Internet of Things (IoT), which can exploit state-of-the-art communication technologies to support advanced services. However, IoT devices and management systems are typically manufactured by multiple vendors with multiple processes and standards. Furthermore, these devices will generate large amounts of data from different sources and types of sensors, which cannot be effectively processed by traditional methods.

Recently, augmented intelligence has recently emerged as a powerful weapon that supports very implement efficient data analysis and makes accurate decisions on service provisions in various kinds. Augmented intelligence-empowered solutions, such as deep learning and reinforcement learning, can better process the vast amounts of real-time data that stream from IoT devices to support intelligent services. Thus, a new IoT-the Augmented Intelligence of Things (AIoT), which refers to the combination of the power of Augmented Intelligence algorithms with the vast amount of data collected by IoT devices to enable more advanced decision-making and automation, can greatly benefit vehicle road cooperation. AIoT can make full use of interconnected devices, sensors, and systems to collect and analyze data from the cooperation between vehicles and the surrounding infrastructure, such as roads, traffic lights, and other vehicles, to improve traffic flow, reduce congestion, and enhance safety. Some typical applications of AIoT in vehicle road cooperation systems include real-time traffic monitoring, road and infrastructure monitoring, enhanced vehicle safety, improved energy efficiency, and autonomous driving. In this timely special issue, we aim to gather contributions that focus on: a) AIoT for solving vehicle road cooperation problems and optimizing traffic performance, and b) Optimization of vehicle road cooperation systems for the implementation of AIoT. In particular, major topics of interest pertaining to these areas are given below:

- Implementation of AIoT for vehicle road cooperation
- Intelligent V2Vcommunications for vehicle road cooperation
- Next-generation vehicle networks and AIoT's application in them
- Edge-computing in AIoT over vehicle road cooperation
- AIoT for vehicle road cooperation in the 5G/6G era
- Integration of augmented intelligence and IoT for autonomous vehicles
- Privacy preservation in AIoT for vehicle road cooperation
- Real-time analysis for vehicle road cooperation based on AIoT
- Explainable augmented intelligence for vehicle road cooperation
- Large-scale data analytics tools and technologies for vehicle road cooperation
- Modeling, simulation, and analysis for vehicle road cooperation
- AIoT enabled vehicle road cooperation for Intelligent transportation systems

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