## Editorial: Multimedia and Social Data Processing in Vehicular Networks

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## **Editorial:**

As the growth of auto industry and wireless communication technologies, vehicular computing and communication devices have been widely installed on automobiles in recent years. Multimedia and social data processing in vehicular network, however, is facing several technical challenges. First, despite of the growing computing capability, vehicular multimedia and social applications still need to be carefully designed such that the resources being used and the associated network traffic can be minimized. Second, current vehicular network bandwidth is far less than the data generation rate of most vehicular multimedia applications. How to enable efficient communication among multimedia applications of different cars becomes acritical technical issue. In the end, the multimedia and social data generated by vehicles contain tons of hidden information.

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This special issue features five selected papers with high quality. The first article, "The Signal Control Optimization of Road Intersections with Slow Traffic Based on Improved PSO", authored by Hongluan Zhao, Guoyong Han, Xiaofei Niu, established a multi-objective signal timing optimization model about the vehicle average delay, slow traffic delay, vehicle stopping times and traffic capacity; furthermore, used an improved particle swarm optimization algorithm (PSO) to solve it.

The second article titled "An Anomaly Recognition and Autonomic Optimization Method to User's sequence behaviors for D2D communications in MCC", presented a recognition method to user abnormal behaviors for D2D communications in mobile cloud environment from the perspective of user trustability, covering hierarchical matching, blacklist mechanism, maximum and right-most path extension.

In the next article with the title "Physical Layer Security Performance of Mobile Vehicular Networks", authors investigated the physical layer security performance of the mobile vehicular networks over N-Nakagami fading channels in order to overcome the challenges of the mobile vehicular networks, such as broadcast nature of wireless channels, vehicular user mobility, and the diversity of vehicular network structures.

As an important component for vehicular network, road infrastructure network plays an important role in transportation. Reasonable road network density and traffic demand work as a good foundation for easing the traffic pressure. The fourth article titled "Estimating the Floor Area Ratio of the Vehicular Infrastructure Network Based on Road Grid Cell" proposed a model to estimate the floor area ratio upper limit from the perspective of traffic demand-supply equilibrium, designed an automatic tool based on a typical scenario, set up some parameters to do numerical simulation.

The last article titled "Socially Aware Security Message Forwarding Mechanism in VANETs" proposed a security



message forwarding mechanism for vehicular ad hoc networks (VANETs) to deal with the security challenges of VANETs, such as data privacy protection, data security transmission, vehicular relationship aware, vehicular trust assessment and trust forwarding decision.

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