

IEEE Transactions on Intelligent Transportation Systems

Call For Papers

Special Issue on “*Edge Intelligence for Internet of Vehicles*”

Empowered with advanced computation units, autonomous sensing platforms and various wireless access capabilities, connected and autonomous vehicles evolve over time and become tightly coupled and closely cooperative. Being one of the most active research fields in both academic and industry, Internet of Vehicles (IoV) enables various types of vehicular applications, such as autonomous driving, precise fleet management and real-time video analytics, which contribute significantly to bring us traffic efficiency, driving safety and ride comfort. However, these powerful applications always require intensive computation and very large size caching services under ultra-low latency constraints, and thus pose significant challenges on resource constrained vehicles.

To address the challenges, edge intelligence is emerging as a promising solution. Through pushing artificial intelligence (AI) inspired computing, caching and communication resources to proximity of smart vehicles, appropriate edge service deployment and flexible resource scheduling are enabled for IoV systems. These abilities greatly help realize high performance processing for mission-critical applications, real time services to connected and autonomous vehicles as (e.g., HD maps, accidents alerts, real-time information), low latency content delivery for interactive entertainments and smart transmission for QoS-aware information. Despite these potentially promises brought by edge intelligence, many challenges as well need to be addressed in this new paradigm. For instance, high mobility leads to time-varying service relations among IoV entities, which renders more complexity and thus challenges to edge resource scheduling. Moreover, there exists essential and so far unexplored correlations between diverse types of edge resources deployed in different time and space dimensions with various capacities, which need to be extensively investigated and efficiently utilized in serving process management.

The objective of this special issue is to present the latest results, insights, and perspectives on the new area of edge intelligence empowered IoV. We are soliciting original contributions that have not been published and are not currently under consideration by any other journals.

LIST OF TOPICS: Topics of interest to this special issue include, but are not limited to:

- Architectures, frameworks, and models for edge intelligence empowered IoV
- Universal end-edge-cloud architecture enabling edge AI and IoV
- New concept, theory, principles and protocols for edge intelligence empowered IoV
- Resource optimization for edge intelligent IoV applications
- Communications, computation and caching convergence with edge intelligence
- Learning empowered heterogeneous edge resources synergy in IoV
- Big data and learning fusion in edge intelligent IoV
- Knowledge discovery and traffic predictivity from the aspect of edge intelligent IoV
- Services discovery and mobility as a service for edge intelligent IoV
- Energy efficiency and greenness-performance tradeoff for edge intelligent IoV

- Security and privacy in edge intelligent IoV
- Comparison studies of different AI approaches for edge intelligent IoV
- Use cases/applications highlighting the potential of edge intelligence for IoV

PAPER SUBMISSION GUIDELINES

Paper submission should conform to the information for authors available at <https://mc.manuscriptcentral.com/t-its>.

IMPORTANT DATES

First submission deadline: March 31, 2020

Notification of first decision: June 30, 2020

First revision submission deadline: August 30, 2020

Notification of final decision: December 31, 2020

Final manuscript (camera ready) submission deadline: January 31, 2021

Issue of Publication: March 31, 2021

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