

Special Issue on "Recent Advances on the Emerging Technologies for Connected Vehicles in Smart Cities"

Transactions on Emerging Telecommunications Technologies

Last decade has witnessed a remarkable interest from both research and industrial community in the realization and development of connected vehicles, due to major advancements in Vehicular Ad hoc Networks (VANET). Today, connected vehicles represent those smart and intelligent vehicles which are equipped with various on-board sensors, communication modules, and Internet access, etc. Thus, enabling them to disseminate the generated data towards other neighbouring connected vehicles via vehicle-to-everything (V2X) communication. This results in the realization of a wide range of safety and non-safety applications. To meet the challenges for realizing these applications, various emerging technologies can be integrated within VANET.

Technologies including Edge/Fog Computing, Blockchain, Cloud Computing, Software Defined Networking (SDN), 5G communication, and Information-Centric Networking (ICN) are some of the recent emerging technologies across the globe. Integrating these emerging technologies in the VANET architecture can increase the scope of possible applications. For instance, Edge Computing can be utilized to relay messages to vehicles with minimum possible delay. Blockchain, on the other hand, can be helpful to transmit messages in a transparent way, thus providing security-by-design up to certain level. ICN, a future Internet paradigm, can be integrated within VANET, due to the fact that it relies on content naming and anycast data fetching, thus, matching the data broadcasting requirement of VANET.

Although these technologies can be helpful to increase the scope of applications within VANET, however, this integration is not straight-forward. Many constraints and challenges need to be addressed before making it a reality. This special issue is aimed to disseminate and identify those relating areas, which can increase the efficiency of various aspects of emerging technologies within VANET. To this end, we are seeking high quality research papers in the domain of emerging technologies including Edge/Fog Computing, Cloud Computing, Blockchain, and ICN within VANET, but are not limited to.

This special issue invites original research that investigates emerging technologies with VANET. Potential topics include but not limited to the following:

- Applications of emerging technologies (e.g., Edge/Fog Computing, Cloud Computing, 5G, Blockchain, etc.) within VANET.
- VANET over future Internet architectures.
- Novel architectures for emerging technologies based VANET.
- Efficient routing protocols for VANET applications.
- Efficient content dissemination schemes over emerging technologies based VANET.

- Energy efficiency and quality-of-service support within VANET.
- Integrating Internet-of-Things (IoT) applications within VANET.
- Security, privacy, and reliability of VANET applications using Edge Computing and Blockchain.
- Trust management schemes for VANET and emerging technologies.
- Cyber security aspects within transportation.
- Performance evaluation of Inter and Intra-vehicular communication mechanisms (i.e., vehicle-to-vehicle, vehicle-to-infrastructure, vehicle-to-sensors, vehicle-to-pedestrians) within VANET.
- Testbed and simulations for VANET applications.

Submission Deadline:

- Submission deadline: July 01, 2020
- First round notification: September 01, 2020
- Second round due: November 01, 2020
- Final notification: January 01, 2021

Guest Editors:

1. **Dr. Farhan Ahmad** (*Managing GE*)

Affiliation: Cyber Security Research Group, University of Derby, Derby, United Kingdom

Email: f.ahmad@derby.ac.uk

2. **Mr. Boubakr Nour**

Affiliation: School of Computer Science and Technology, Beijing Institute of Technology, Beijing, China

Email: n.boubakr@ieee.org

3. **Dr. Asma Adnane**

Affiliation: Networks and System Research, Loughborough University, Loughborough, United Kingdom

Email: a.adnane@lboro.ac.uk

4. **Dr. Moayad Aloqaily**

Affiliation: xAnalytics, Ottawa, ON, Canada.

Email: maloqaily@ieee.org