

WORKSHOP ON THE IMPACT OF EMERGING STANDARDS, 5G AND BEYOND, AND MACHINE LEARNING ON CONNECTED VEHICLES

The Workshop will take place on December 16, 2019 as part of IEEE ANTS 2019 IEEE International Conference on Advanced Networks and Telecommunication Systems (ANTS 2019) scheduled during December 16-19, 2019 at Birla Institute of Technology & Science, Pilani, K K Birla Goa Campus, Goa, India.

The field of connected vehicles stands at the confluence of three evolving disciplines – the Internet of Things (IoT), emerging standards for connectivity of vehicles, and AI/machine learning. Fueling the growth in the evolution of vehicles towards total automation is the development of novel sensors, 3D cameras, lidars and radars and their ability to connect to the Internet, upload the data to a cloud. The sensors of an autonomous vehicle collect anywhere from 1.4 TB to 19 TB of data per hour. Whether or not the vehicles are autonomous, one of the key features of connected vehicles is that they are able to share data between themselves in real-time. For example, the scene of an accident or road work encountered by a vehicle can be immediately shared with vehicles it is connected to. Thus vehicles may learn about accidents or road work well in advance so as to enable them to make smart decisions and establish alternate routes to their destinations. Facilitating the connectivity of vehicles is the development of standards in various standards organizations. They are aimed at ensuring communication takes place between various entities in a connected vehicles network and develop vehicle-to-vehicle (V2V), vehicle-to-infrastructure (V2I), infrastructure-to-vehicle (I2V), vehicle-to-pedestrian (V2P), and vehicle-to-nomadic devices (V2ND) protocols. The workshop will help in understanding the role of emerging standards, 5G and beyond, as well as the application of machine learning with use cases relevant to connected vehicles.

The workshop will address a number of technical issues involving connected vehicles such as, but not limited to, the following:

- Standards for connectivity of vehicles – IEEE 802.11p, DSRC, WAVE, Cellular V2X
- Performance of protocols through tests and simulation
- Algorithms for smart routing, congestion avoidance.
- Applications of connected vehicles
- Smart mobility management
- Safety issues – Pedestrian safety
- Relevant industry trends
- Major policy and regulatory issues
- Spectrum allocations – IEEE 802.11p, DSRC, C-V2X, IEEE Next generation V2X
- Privacy and ethical issues
- Capabilities and requirements of CV
- Security issues in connected vehicles – blockchain technology, trust and repudiation management, social issues
- Use cases – applications of machine learning, cloud, blockchain
- Field trials, testbeds for connected vehicles

- Other issues such as spectrum leasing, cognitive radio based connected vehicles, visible light and mm wave.

Besides assembling a panel of experts who will address the various topics listed above, the Workshop will provide an opportunity to understand the key aspects of emerging trends in the area of connected vehicles. Papers are solicited addressing the various topics relevant to connected vehicles, which can be submitted via the link:

<https://edas.info/M1570587825>

Workshop Organizers:

1. Dr. Seshadri Mohan, UA Little Rock, Little Rock, Arkansas, USA
2. Dr. Sachin Sharma, Graphic Era Deemed to be University, Dehradun, India

Submission Timeline

Paper Submission: November 1, 2019

Notification of Acceptance: November 8, 2019

Camera Ready: November 15, 2019