VTC2019-Fall
HONOLULU
Intelligent Connection & Transportation

# W4: Network-Assisted Collaborative Automated Driving

Sunday 22 September 2019 • 13:30 – 17:30 • Kealohilani Tower Kaimuki 2 (2nd floor)

As driving becomes increasingly automated, how to design a robust ADAS that operates reliably across the entire spectrum of driving environments attracts tremendous attention from both industry and academia. One promising way of approaching this goal is to take advantage of vehicular wireless communications. By connecting with other vehicles and/or to the roadside, a vehicle collects information regarding its surrounding environment from multiple angles and with diverse granularities. Such information is expected to augment ADAS's perception, location, and mapping functionalities, resulting in a more smooth and confident navigation. However, many challenges exist in this promising area.

This dedicated full-day workshop concerns the most recent advancements in wireless communications, sensory technologies and information processing. It aims to compile a refreshed view on the solutions combing the power of wireless communications and traditional ADAS for a safer, more efficient automated/autonomous vehicle. Challenges, opportunities and benefits of performing research in this interdisciplinary domain will be analyzed and highlighted.

**General Chairs**
***Hongsheng Lu***, Toyota Motor North America InfoTech Labs, USA
***Rui Guo***, Toyota Motor North America InfoTech Labs, USA

**Technical Program Committee**
***Bin Cheng***, WINLAB at Rutgers University
***Ehsan Moradi Pari***, Honda US R&D
***Hendrik-Jörn Günther***, VOLKSWAGEN
***Ivan Wang-Hei Ho***, The Hong Kong Polytechnic University
***Malik Khan***, Cohda Wireless
***Miguel Sepulcre***, Universidad Miguel Hernandez de Elche (UMH)
***Seng W. Loke***, Deakin University
***Seung R. Yang***, LG Electronics
***Zhe Xuanyuan***, BNU - BUHK united international college

13:30 Welcome: Hongsheng Lu and Rui Guo, Toyota Motor North America InfoTech Labs

Keynote: Collaborative Perception in Connected Automated Driving
Hao Zhang, Colorado School of Mines

Session I

14:15 Towards Emergency Braking as a Fail-Safe State in Platooning: A Simulative Approach
Shahriar Hasan, Ali Balador, Svetlana Girs, Elisabeth Uhlemann, Mälardalen University

14:40 In Vehicle Resource Orchestration for Multi-V2X Services
Mohammad Irfan Khan, Eurecom; Stefania Sesia, Renault Software Labs; Jérôme Härri, EURECOM

15:05 A New Distributed Mobility-Based Multi-Hop Clustering Algorithm for Vehicular Ad Hoc Networks in Highway Scenarios
Ke Huang, South China University of Technology, China

15:30 Refreshments break

15:45 Session II—Panel: Opportunities and Challenges in Network-assisted Cooperative Automated Driving

Moderator: Hongsheng Lu (Toyota Motor North America InfoTech Labs)
Panelists: Yan Wan (University of Texas)
Dinesh Bharadia (University of California)
Gaurav Bansal (Airbus $A^3$ Labs)

16:15 Network Driven Performance Analysis in Connected Vehicular Networks
Manveen Kaur, G. G. Md. Nawaz Ali, Anjan Rayamajhi, Beshah Ayalew, Jim Martin, Clemson University

16:40 A Light-Weight Smartphone GPS Error Model for Simulation
Ali Rostami, Bin Cheng, WINLAB, Rutgers University; Hongsheng Lu, John B. Kenney, Toyota InfoTechnology Center; Marco Gruteser, WINLAB, Rutgers University

17:05 Experimental Evaluation of Floating Car Data Collection Protocols in Vehicular Networks
Ion Turcanu, University of Luxembourg; Florian Adamsky, Hof University of Applied Sciences; Thomas Engel, University of Luxembourg

17:30 Session Closing