

Internet of Vehicles

Fan Bai, General Motors

Recent developments in the automotive industry point to a new emerging domain of connected vehicles, in which vehicles equipped with wireless radios can communicate a wide range of information to each other as well as the Internet infrastructure, including traffic updates, safety notification and infotainment content.

The first half of the talk will focus on how to develop a hybrid network architecture for vehicular networks which combines both the existing cellular infrastructure as well as new vehicle-to-vehicle (V2V) communication capabilities. Compared to either a purely centralized cellular-based approach or a purely distributed V2V approach, our proposed hybrid network architecture will improve cost, capacity and robustness.

The second half of the talk will elaborate one particular example of vehicular applications – collaborative automotive sensing, which could be supported by vehicular networks. In collaborative automotive sensing, hundreds of embedded automotive sensors in each vehicle, coupled with online maps and other databases as well as crowd-sourced information from other cars, can jointly assess vehicular surrounding environments and driving contexts, and be used to enhance system performance and provide assistance to vehicle drivers and passengers.