Prospects and Perspectives of Road Vehicle Automation

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In recent years, the automotive industry has made substantial progress integrating new electronic and communication technologies into production vehicles, leading to the new trend of road vehicle automation. Many auto makers, traditional or new comers, are expecting commercially viable automated vehicles on the road by 2020. There are significant differences in interpretations of each automation level, and categorized by characteristics, operation environments, operation policies of the road vehicle automation system, aside from technological issues. Through the years, two schools of concepts have been explored, the so-called autonomous driving and the cooperative vehicle-roadway automation. Much of the autonomous vehicle research has been concentrated in the sensors and control technologies inside the cars, whereas the cooperative vehicle roadway automation is characterized by coordinated control among automated vehicles and the infrastructure. While the two systems approaches mostly share same functionalities, they may require different enabling technologies and deployment paths, presenting a very im! portant crossroads for road vehicle automation. As road vehicle automation moves toward deployment, the transportation community faces important decisions that will reshape the future of transportation system. This talk will discuss about future possibilities for road vehicle automation and how different roadmap and deployment strategies can define the future transportation systems.

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Wei-Bin joined UC Berkeley Institute of Transportation Studies in 1987 and participated in the early founding of the California PATH Program. He initiated PATH vehicle control projects and has been leading California and national research in a wide range of areas in ITS. Between 1994 and 1997, Wei-Bin was the Technical Director of the National Automated Highway Systems Consortium (NAHSC) and managed a US Congress-mandated national technical feasibility demonstration of Automated Highway Systems (AHS) in 1997. Since 2000, Wei-Bin led PATH efforts to establish PATH transit research program and a number of new initiatives including vehicle assist and automation for bus rapid transit and highway maintenance, collision warning for urban driving, traffic demand management through real-time information and Connected Vehicle supported applications.

Wei-Bin has published over two hundred papers and reports. Wei-Bin has published over two hundred papers and reports. Wei-Bin is an IEEE Fellow is currently the Vice President for Conference of IEEE ITS Society. He also served on! various Technical and program committees for TRB, ITS America and APTA. Wei-Bin is a member of ITS American International Council and was the Chair for ITS America's China Committee.