

SEMINAR

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Calit2 1100

AUTONOMOUS VEHICLES: ADOPTION RATES AND FLOW IMPLICATIONS IN MIXED TRAFFIC STREAMS



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Abstract

We present a general conceptual framework to explore autonomous vehicle adoption. The traffic flow implications of different adoption rates are examined using a microscopic modeling framework of mixed traffic streams in which certain fractions of the vehicles are respectively autonomous, connected or both. We jointly model the properties of the peer-to-peer communication systems for different levels of message content. The framework is used in an exploratory analysis of the flow characteristics of the resulting mixed traffic stream, with particular attention to throughput and stability.

Professor Hani S. Mahmassani is the William A. Patterson Distinguished Chair in Transportation; Director, Northwestern University Transportation Center; Professor, Civil and Environmental Engineering, McCormick School of Engineering and Applied Science; and Professor (courtesy), Managerial Economics and Decision Sciences, Kellogg School of Management. Professor Mahmassani specializes in multimodal transportation systems analysis, planning and operations, dynamic network modeling and optimization, transit network planning and design, dynamics of user behavior and telematics, telecommunication-transportation interactions, large-scale human infrastructure systems, and real-time operation of logistics and distribution systems.