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Title: Relay Selection Strategy for Efficient Message Dissemination in Platooning Applications

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Abstract: Platooning may reduce fuel consumption considerably by preserving short inter-vehicle distances. However, to achieve the benefits of aerodynamic efficiency, the intra-platoon communications must not only be reliable but also able to meet strict timing deadlines. In this talk, a relay selection scheme for efficient message dissemination in platooning applications is derived, based on the targeted probability of error at the intended receiver(s). Considering the co-existence of both time-triggered and event-driven control messages, a fully centralized approach based on time division multiple access (TDMA) is suggested, which e.g., can be placed on top of the current standard IEEE 802.11p. Finally, a full analysis of the resulting error probability and delay, when disseminating event-driven messages within a platoon, is presented. Numerical results indicate that the proposed relaying policy significantly enhances reliability for a given number of available time-slots.

Bio: Le-Nam Hoang received his B.Eng in Electronics and Telecommunications in 2007 from Hanoi University of Science and Technology in Vietnam and his M.Sc in Electrical Engineering, with specialization on Radio Communications, in 2010 from Blekinge Institute of Technology in Sweden with the master thesis titled “On the Performance of Two-Way Amplify-and-Forward Relay Networks”. Later, he worked for the Research Centre of Vietnamese Post and Telecommunications Institute of Technology. He joined CERES at Halmstad University in Sweden in February 2012 as a PhD student under the supervision of Elisabeth Uhlemann and Magnus Jonsson. His current research interest is in real-time and reliable wireless communications, especially for vehicular communications.