

# Reliable and Timely Vehicle-to-Vehicle Communication: Latency, Age-of-Information, and Analog Antenna Signal Processing

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## Abstract

Vehicular communication for traffic safety and traffic efficiency application is often claimed to require ultra-reliable low-latency communications (URLLC). In this talk, we will argue that this claim is not always justified, at least not for a periodic broadcast of status messages. Indeed, latency as such is not a perfect performance metric for this data traffic model. A more appropriate metric is age-of-information (AoI). Shifting the focus from latency to AoI allows degrees of freedom in the design of communication systems that can be exploited in different ways. As an example, we will present how periodic broadcast vehicle-to-vehicle communication can be made robust against unfavourable propagation conditions by analog processing of imperfect transmit and receive antennas.

## Bio



Erik G. Ström received the M.S. degree from the Royal Institute of Technology (KTH), Stockholm, Sweden, in 1990, and the Ph.D. degree from the University of Florida, Gainesville, in 1994, both in electrical engineering. In 1996, he joined the Chalmers University of Technology, Göteborg, Sweden, where he is now a Professor in Communication Systems. Dr Ström currently heads the Division of Communications, Antennas, and Optical Networks, is the director of ChaseOn, a Vinnova Competence Center focused on the antenna system, and the director of Chalmers' Area-of-Advance Information and Communication Technology. He is a Fellow of the IEEE. Ström was awarded the Chalmers Pedagogical Prize in 1998, the Chalmers Ph.D. Supervisor of the Year award in 2009, and the Chalmers Area of Advance Award in 2020.