

CLW 2013 Keynote Address: Cooperative Driving as a New Paradigm for Highly Automated Vehicles

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ABSTRACT

More than 125 years of automobility remind us that we should be aware of the fact that individual mobility is based on the fact that the driver contributes exceptionally high activity and human performance in the human-vehicle system. Besides improved vehicle technology this human factor is crucial to avoiding accidents in critical situations. However, critical incidents and accidents can often be caused by human error or limited capacity. Since the 90s these effects have been successfully countered with a variety of driver assistance functions. Sensory deficits of the driver and misperceptions are compensated by technical sensors. Drivers use these assistance systems temporarily and shall be assisted in the execution of sub-tasks of the driving task where they remain – following the Vienna Convention – in the supervisory role.

Much of the automotive period is thus characterized by the fact that the driver must manage the driving task for the most part alone and may delegate sub-tasks only for a short time. The great advantage of the car was a significant gain in mobility, based on various assistants, in addition to the additional active safety, leading to sometimes monotonous driving. The potential automation or partial automation of driving is not only more of the same but a radical qualitative and quantitative change in individual mobility, provoking many questions in the area of human factors and human-vehicle interaction.