Effect of active cruise control design on glance behaviour and driving performance

Abstract:
Minimising driver distraction is a crucial factor in the design of new driver assistance systems and in-vehicle information systems. Therefore two different driver-vehicle interface concepts for an Active Cruise Control (ACC) system were designed and tested with 12 drivers in a static driving simulator. These concepts differed in the location (steering wheel vs. dashboard) and type of controls. Feedback on the ACC settings was given in a simulated Head-Up Display. While driving, participants were required to adjust the desired speed and following distance of the ACC system. The concepts were compared based on objective measurements of task times, driving performance and glance behaviour as well as subjective questionnaires. The type of task had a significant effect on all dependent measures, whereas the control concept had a lesser effect. The results are used to derive guidelines for the general design of the driver-vehicle interface of such driver assistance systems.