Hofmann, Rieder, Dickmanns (2003). **Radar and Vision Data Fusion for Hybrid Adaptive Cruise Control on Highways.** Int. J. 'Machine Vision and Applications', Vol. 14(1), 2003, Springer-Verlag, pp 42-49.

A system for hybrid adaptive cruise control (HACC) on high-speed roads designed as a combination of a radar-based ACC and visual perception is presented. The system is conceived to run on different performance levels depending on the actual perception capabilities. The advantages of a combination of the two different types of sensors are discussed in comparison to the shortcomings of each single sensor. A description of the visual lane detection and tracking procedure is given, followed by an overview of the vehicle detection, hypothesis generation, and tracking procedure. Enhanced robustness is achieved by cooperative estimation of ego-motion and the dynamics of other vehicles using the lane-coordinate system as a common reference. Afterwards, the assignment of vehicles to lanes and the determination of the relevant vehicle for the longitudinal controller are described.