

Distributed Video Networks in Intelligent Vehicles and Transportation Systems

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Abstract

In this presentation, we will discuss the need and utility for distributed video networks for observation of humans, vehicles and situational context specifically for applications in the intelligent vehicle and intelligent transportation systems. We consider three main components of the system, *driver, vehicle, and vehicle surround*. We will discuss various issues and ideas for developing models for these main components as well as activities associated with the complex task of safe driving. The presentation will include discussion of novel multi-camera sensory systems and algorithms for capturing not only the dynamic surround information of the vehicle but also the state, intent and activity patterns of drivers. Illustrative multi camera systems for smart airbag deployment, collision avoidance, automatic lane keeping, pedestrian and vehicle interactions and real-time traffic flow and vehicle track analysis will be presented. Progress, utility and promise of such systems will be illustrated with a range of research studies conducted in the context of intelligent vehicles as well as surveillance related projects. The presentation will also attempt to highlight important, outstanding issues which need consideration and resolution.