



Research Seminar

Development of Active Safety Systems to improve Vehicle Safety

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ABSTRACT

Automotive safety is a critical issue for the United States. The societal costs of vehicular crashes are significant and daunting, affecting everybody at both the state and national level. Since the inception of motor vehicles, crashes have been an issue. It was not long before the industry began to introduce various safety technologies to vehicles. Vehicles continue to get safer through seatbelts, airbags, and vehicle design. Collectively, these "Passive Safety" initiatives have dramatically reduced the rate of injury severity and fatalities. However, in spite of these impressive improvements, still 6.3M vehicle crashes involving over 11.3M vehicles occur each year that accounts for staggering deaths, injuries, and property losses. The annual societal costs for these crashes are over \$230B. Over the last 10 years, the automotive industry has been focusing activities on developing "Active Safety" systems, such as Electronic Stability Control, Night Vision, Collision Warning and Mitigation, Blind Spot Warning, and Lane Departure Warning. These products utilize a variety of detection sensors, such as: radar, lidar, vision, and infrared. The introduction of "Active Safety" products provide a means to further improve roadway safety by enabling sophisticated technologies to recognize precursor collision events and then actively assist the driver to avoid crashes, as well as providing improving protection to the vehicle occupants and even pedestrians. The ultimate objective is to form a "cocoon of safety" around the vehicle. Introduction of these systems are still in the early stages and many issues still need to be addressed to enable the further expansion of these systems into the market. This seminar will explore the issues in the development of sensors and technologies to facilitate the introduction of advanced driver assistance systems.

BIOGRAPHICAL SUMMARY

Dr. Widmann has over 25 years of increasing responsible engineering experiences that includes over 15 years in the automotive industry concentrating on the conceptual design, development and validation of active safety products. He is responsible for providing expert technical guidance and oversight in active safety systems, and formulating the development and integration strategy between active and passive safety systems. He has had assignments in Japan, Germany and the U.S, where he has directed a variety of Active Safety programs, involving the use of Radar/Lidar/Camera technologies. Prior to working with Delphi, Dr. Widmann held engineering positions with Hughes Aircraft Company; and a faculty position in the Electrical Engineering Department at Colorado State University. Dr. Widmann has 7 patents, and over 60 publications in the field of applied controls and signal processing as applied to robotics and automotive systems.