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RESEARCH REPORT

Unsettled Topics Concerning Sensors for Automated Road Vehicles

Sven Beiker, Ph.D.

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Sven Beiker, Ph.D. is the Founder and Managing Director of Silicon Valley Mobility, a mobility consulting and advisory firm that specializes in technical diligence, product roadmaps, and business models for mobility topics. The engagements span startups, investors, and corporations in the mobility and adjacent industries. In addition, Dr. Beiker is a Lecturer at the Graduate School of Business at Stanford University where he instructs students on strategies for startups and corporations in the field of automated, connected, electrified, and shared mobility.

With his well over 20 years of experience gained during his tenure at McKinsey & Company, Stanford University, and the BMW Group, Dr. Beiker is dedicated to the future of the automobile and personal mobility. His mission is to improve sustainability, safety, efficiency, and convenience in how consumers use automobiles. He combines perspectives from technology, business, policy, and human factors.

Dr. Beiker also serves on advisory boards of several startups in the mobility space, as an advisor to the German American Chamber of Commerce in San Francisco, and as an advisor / co-editor to the Lecture Notes in Mobility of Springer Science+Business Media.

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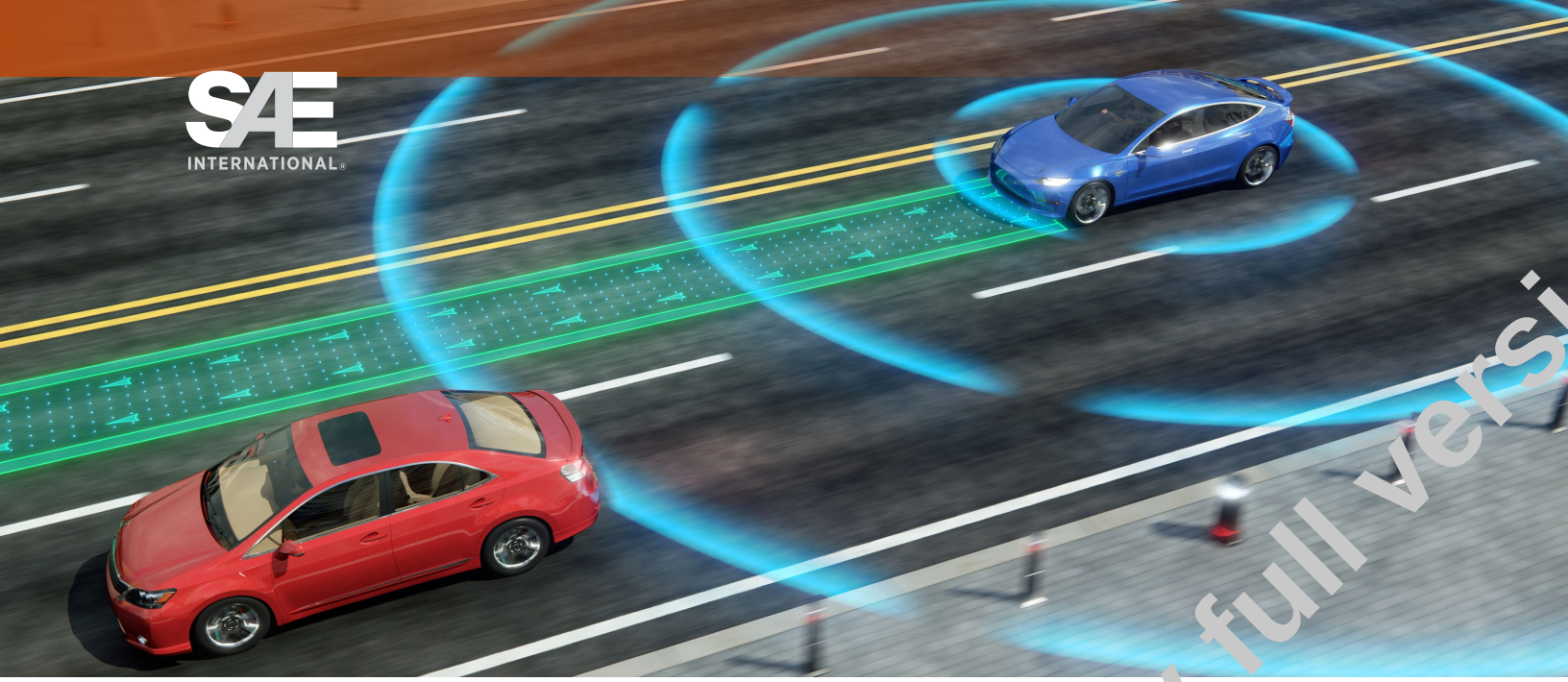

Unsettled Topics Concerning Sensors for Automated Road Vehicles

Abstract

This SAE EDGE™ Research Report identifies key unsettled issues of interest to the automotive industry regarding the new generation of sensors designed for vehicles capable of automated driving. Four main issues are outlined that merit immediate interest: First, specifying a standardized terminology and taxonomy to be used for discussing the sensors required by automated vehicles. Second, generating standardized tests and procedures for verifying, simulating, and calibrating automated driving sensors. Third, creating a standardized set of tools and methods to ensure the security, robustness, and integrity of data collected by such sensors. The fourth issue, regarding the ownership and privacy of data collected by automated vehicle sensors, is considered only briefly here since its scope far exceeds the technical issues that are the primary focus of the present report. SAE EDGE™ Research Reports are preliminary investigations of new technologies. The three technical issues identified in this report need to be discussed in greater depth with the aims of, first, clarifying the scope of the industry-wide alignment needed, second, prioritizing the issues requiring resolution, and, third, creating a plan to generate the necessary frameworks, practices, and protocols.

NOTE: SAE EDGE™ Research Reports are intended to identify and illuminate key issues in emerging, but still unsettled, technologies of interest to the mobility industry. The goal of SAE EDGE™ Research Reports is to stimulate discussion and work in the hope of promoting and speeding resolution of identified issues. SAE EDGE™ Research Reports are not intended to resolve the issues they identify or close any topic to further scrutiny.

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