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RESEARCH REPORT

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Dr. Rahul Razdan

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SAE EDGE™ Research Reports provide state-of-the-art and state-of-the-industry examinations of the most significant topics in mobility engineering. SAE EDGE™ contributors are experts from research, academia, and industry who have come together to explore and define the most critical advancements, challenges, and future direction in areas such as vehicle automation, unmanned aircraft, cybersecurity, advanced propulsion, advanced manufacturing, Internet of Things, and connectivity.

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About the Editor

Dr. Rahul Razdan is Senior Director of Special Projects at Florida Polytechnic University in Lakeland, Florida. In this role, he serves as advisor to the president of the university and helps to manage the Advanced Mobility Institute, an applied research center for the development and testing of autonomous vehicle (AV)-related technology. Named on more than 24 issued patents, Razdan earned a Doctorate (PhD) in Computer Science from Harvard University and both a Master of Science in Computer Engineering and a Bachelor of Science in Electrical and Computer Engineering from Carnegie Mellon University.

Razdan boasts 35 years of experience in startups, academia, and Fortune 500 companies working in such areas as science, technology, engineering, and mathematics education; AV technology; and semiconductor design. The Association for Computing Machinery and the Institute of Electrical and Electronics Engineers have recognized him with "Hall of Fame" inductions. Razdan has also won numerous best-paper awards and has led several successful startups in areas such as electronic design automation (EDA), wireless power, artificial intelligence (AI), and machine learning.

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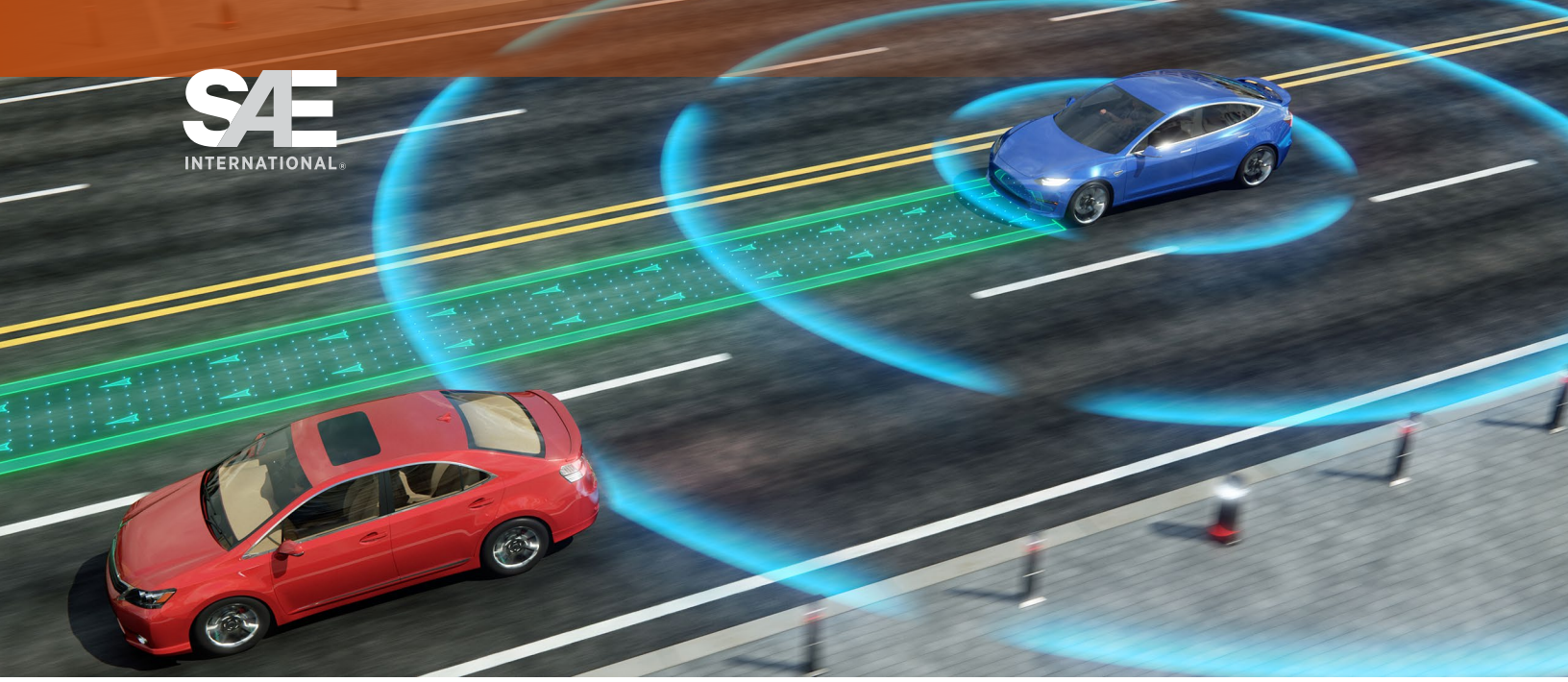

Unsettled Topics Concerning Automated Driving Systems and the Development Ecosystem

Abstract

With over 100 years of operation, the current automobile industry has settled into an equilibrium with the development of methodologies, regulations, and processes for improving safety. In addition, a nearly $2-trillion market operates in the automotive ecosystem with connections into fields ranging from insurance to advertising. Enabling this ecosystem is a well-honed, tiered supply chain and an established development environment.

Autonomous vehicle (AV) technology is a leap forward for the existing automotive industry; now the automobile is expected to manage perception and decision-making tasks. The safety technologies associated with these tasks were presented in an earlier SAE EDGE™ Research Report, "Unsettled Technology Areas in Autonomous Vehicle Test and Validation." In a later SAE Edge Research Report, "Unsettled Topics Concerning Automated Driving Systems and the Transportation Ecosystem," senior executives from the automotive ecosystem explored the impact of AV technology as they faced the prospect of this disruptive technology entering their marketplace. Interestingly, stable use-models and market penetration were all gated primarily by the demonstration of AV safety. Building on these previous verification and validation (V&V)-related reports, "Unsettled Topics Concerning Automated Driving Systems and the Development Ecosystem" explores the open issues in the shift of the development and supplier environment toward a new AV-enabled future.

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 challenges they identify or close any topic to further scrutiny.

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