

**Symposium 2021 Breakout Session Title:**  
**B406-What's Next in AV standards?**

**Session Contact/Organizers:**

- Shawn Kimmel, PhD, Director of Engineering, Quantitative Scientific Solutions (QS-2)
- Shaun Kildare, Research Director, Advocates for Highway and Auto Safety
- Jim Misener, Senior Director, Product Management and Global V2X Ecosystem Lead, Qualcomm Technologies, Inc.
- Gil Amid, Chief Regulatory Affairs Officer, VP Operations, Foretellix
- Robert Dingess, President, Mercer Strategic Alliance
- Jacobo Antona, Automated Vehicle Safety Standardization, Japan Automobile Research Institute
- Ben Engel, Global Technology Manager, ASAM
- Ed Straub, Vice President, Land-Based Systems, SAE ITC
- Tim Weisenberger, Program Manager, Emerging Technologies, SAE International
- Kevin Gay, Manager – Safety Standards, Aurora
- George Nicols, Advanced Technology Standards Engineer, Toyota Motor North America
- Gil Amid, Chief Regulatory Affairs Officer, VP Operations, Fortellix
- Jack Weast, Sr. Principal Engineer at Intel, Vice President of Automated Vehicle Standards at Mobileye
- Simon Fürst, Principal Expert Autonomous Driving Technologies, BMW Group

**Session Description**

With a dizzying array of acronyms and numbers, how do we make sense of past, present, and future standards? This session will highlight three “hot topics” in standards, including physical infrastructure, cooperative driving automation, and scenario-based testing activities. Participants will learn about standards that may be important to their positions and companies. Finally, we will conclude with collaborative, interactive breakout sessions to identify gaps and priorities for the year ahead.

**Goals/Objectives/Outputs**

- Make sense of the myriad of safety standards activities
- Understand the types of “standards” (e.g., industry voluntary vs. regulatory), and their role in controlling safety
- What standards are on the immediate horizon?
- How will standards impact different organizations?
- What standards are needed to enable the future of ADS?
- Highlight the influence of ODD on the different standards and regulation

## Agenda

### **(10 mins) Introduction**

Description: This will include a brief overview of the 3 hot topic areas and set the stage for answering some key questions. What does the standards landscape look like right now? Why is there a recent proliferation of AV standards activity? How are people tracking and visualizing this dynamic and complex area? This will include a presentation of the living, interactive SAE ADS Standards Roadmap.

Moderator:

- Shawn Kimmel, Ph.D., Director of Engineering, Quantitative Scientific Solutions (QS-2), Vice-Chair SAE ORAD Committee

### **(20 mins) Hot Topic 1: ADS Safety Assurance Demonstration**

Description: Explore the latest developments in safety assurance demonstration standards, including methods, notations and scenario-based testing implementation.

Lightning Round Updates on Current and Planned Activities:

- ASAM - Ben Engel, Global Technology Manager, ASAM
- ISO TC22 WG9, ISO 34502 – Jacobo Antona, Automated Vehicle Safety Standardization, Japan Automobile Research Institute
- ISO TR 5083 / TS 4804 - Simon Fürst, Principal Expert Autonomous Driving Technologies, BMW Group
- IEEE P2846, SAE ORAD V&V TF - Jack Weast, Chair P2846, Co-chair ORAD V&V TF
- UNECE GRVA – Daniel Smith, Assistant General Counsel, Regulatory, Waymo

### **(20 mins) Hot Topic 2: Physical Infrastructure**

Description: How can physical infrastructure standards support the deployment of AVs? What considerations for markings, signage, geometry, and other aspect of physical infrastructure can improve the functionality of AVs? Whether Smart Cities or Interstate Highways, automated vehicles will operate in a diverse road environment that includes ADAS and human drivers. In the US, the MUTCD decides how traffic control will adapt to these new design drivers. The FHWA is proposing to make significant changes to road marking standards and created a new Part 5 – Automated Vehicles. If an Automated Vehicle Section within the MUTCD is retained, what is it? What should the industry consider when it comes to AVs relative to MaaS and Freight/Port accessibility? Will the MUTCD adapt to incorporate digital data that could be valuable to HD Map development?

Lightning Round Updates on Current and Planned Activities:

- FHWA Activities – John Harding, Connected/Automated Vehicles and Emerging Technologies Team Leader, FHWA
- MUTCD Part 5c “What’s Next?”, SAE ORAD Infrastructure TF – Rob Dingess, President, Mercer Strategic
- SAE Activities: Edge Report on Open Infrastructure Challenges – Edward Straub, Vice President, Land-Based Systems, SAE ITC
- CAV Physical and Digital Infrastructure Code – Mahmood Nesheli, Project Manager, CSA Group

### **(20 mins) Hot Topic 3: Connectivity and Cooperative Driving Automation**

Description: Explore developments in connectivity standards since the FCC ruling. Explore cooperative driving automation standards developments, including efforts to advance use cases.

#### Lightning Round Updates on Current and Planned Activities:

- SAE CDA Committee, SAE J3216 – Barb Wendling, Senior Engineer, QS-2, Chair SAE CDA Committee
- V2X and Connected Intersections - Roy Goudy, Senior Principal Engineer, Nissan
- 5GAA Roadmap - Jim Misener, Senior Director, Product Management and Global V2X Ecosystem Lead, Qualcomm Technologies, Inc.

#### **(1.25 hr) Interactive Breakouts**

Description: Interactive activity using breakout rooms to discuss priorities and next steps

Breakout 1 Moderator: Physical Infrastructure

- Rob Dingess, President, Mercer Strategic
- Ed Straub, Vice President, Land-Based Systems, SAE ITC

Breakout 2 Moderator: Connectivity and CDA

- Barb Wendling, Senior Engineer, QS-2, Chair SAE CDA Committee
- Jim Misener, Senior Director, Product Management and Global V2X Ecosystem Lead, Qualcomm Technologies, Inc.
- Tim Weisenberger, Program Manager, Emerging Technologies, SAE International

Breakout 3 Moderator: ADS Safety Assurance Demonstration

- George Nicols, Chair SAE ORAD Committee
- Gil Amid, Chief Regulatory Affairs Officer, VP Operations, Fortellix
- Joel Sanchez, Manager – Safety Standards, Aurora

(5 mins) Breakout 1 Report Out: Physical Infrastructure (from moderators)

(5 mins) Breakout 2 Report Out: Connectivity and CDA (from moderators)

(5 mins) Breakout 3 Report Out: ADS Safety Assurance Demonstration (from moderators)

#### **(35 mins) “Herding Cats”**

Description: **Is there any hope of harmonizing AV standards? Can we justify the chaos?**

Moderator:

- Gil Amid, Chief Regulatory Affairs Officer, VP Operations, Foretellix

Panelists:

- SAE – George Nicols, Chair SAE ORAD Committee
- ISO - Jacobo Antona, Automated Vehicle Safety Standardization, Japan Automobile Research Institute
- ASAM - Ben Engel, Global Technology Manager, ASAM
- IEEE - Jack Weast, Sr. Principal Engineer at Intel, Vice President of Automated Vehicle Standards at Mobileye
- V2X & CDA – Roy Goudy, Senior Principal Engineer, Nissan
- ADS Industry Perspective – Joel Sanchez, Manager – Safety Standards, Aurora