



June 10, 2019

AI-Standards

National Institute of Standards and Technology

100 Bureau Drive, Stop 2000, Gaithersburg, MD 20899

Via email: ai_standards@nist.gov

Re: RFI: Developing a Federal AI Standards Engagement Plan [Docket Number: [190312229–9229–01]]

SAE International (SAE) is pleased to submit the following information in response to the RFI [Docket Number: [190312229–9229–01]] on Federal Register/84 FR 18490/Wednesday, May 1, 2019.

SAE is a global association of over 145,000 engineers, business executives, educators, and students from more than 110 countries which form our network of membership to share information and exchange ideas for advancing the engineering of mobility systems in the automotive, aerospace and commercial-vehicle industries. Through SAE, thousands of engineers and scientists from around the world develop technical information on all forms of self-propelled vehicles including automobiles, trucks and buses, off-highway equipment, aircraft, aerospace vehicles, marine, rail, and transit systems. SAE's technical committees have developed over 35,000 aerospace and ground vehicle standards. SAE experts develop information reports, recommended practices, and open consensus standards. SAE J documents, standards, and the H-Point Machine are referenced in many federal and state regulations.

SAE is pleased to provide input on the following areas:

1. Current status and plans regarding the availability, use, and development of AI technical standards and tools in support of reliable, robust, and trustworthy systems that use AI technologies

In recent years, AI has been making substantial impact in the mobility industry, from product design and development to operation. AI enables applications and service models for mobility stakeholders such as freight, commercial vehicle and transit operators, air traffic controllers, transportation network companies, and automotive corporations. Particularly, automated vehicles capture significant public attention, as they are often regarded as AI's holy grail in the mobility domain due to the high complexity of various machine learning, pattern recognition, and computer vision schemes. As many of those AI applications are developed by private sector, they carry significant safety and security implications, and therefore require leadership and guidance from government agencies.

SAE is working to engage communities to develop AI-related technical standards to meet the needs from the mobility industry. SAE's technical committees are open to all interested parties, and consist of technical experts from government, industry, regulatory agencies, and academia.

In January 2014, SAE published SAE J3016™ Taxonomy and Definitions for Terms Related to Driving Automation Systems for On-Road Motor Vehicles. This SAE Recommended Practice describes motor vehicle driving automation systems that perform part or all of the dynamic driving task on a sustained basis. It provides a taxonomy with detailed definitions for six levels of driving automation, ranging from no driving automation (level 0) to full driving automation (level 5), in the context of motor vehicles and their operation on roadways. SAE J3016 has been widely referred by industry, government and academic for defining the levels of vehicle automation. In September 2016, the U.S. Department of Transportation released a policy guidance on the testing and deployment of automated vehicles with a reference of SAE J3016. Most recent update of SAE J3016 was released¹ in June 2018, free of charge. Preparing for the Future of Transportation: Automated Vehicle 3.0², released on October 4, 2018, also refers to other SAE information reports, recommended practices and standards.

Based on the interest of AI in mobility applications, SAE is looking to grow its AI standards portfolio in areas such as automated driving, road object detection, and Driver Vehicle Interface. SAE also believes that ethical issues, reliability and robustness, as well as algorithmic biases around AI may be addressed in consideration of AI applications. For example, because training datasets for automated vehicles are being collected from public roads in vehicle, subject matter experts in automotive and transportation domains may support AI developers in designing data collection, testing, and evaluation guidelines. Other industries, such as healthcare and consumer electronics, may also benefit from the expertise in their domains in developing AI standards.

2. Needs and challenges regarding the existence, availability, use, and development of AI standards and tools

AI is a cross-cutting domain with rapid technological development; therefore, the produced publications on AI by either government agencies or standards developing organizations need to be frequently updated to reflect the latest technological advancement in the field. The standards development process must be agile. Additionally, more social benefits may be drawn from AI standards and recommended practices when they are less prescriptive.

While data and computer scientists may lead the effort on AI standardization, the inclusiveness of all parties of interest is essential to derive valuable insights. Machine intelligence, like human intelligence, requires domain knowledge from the use cases to which AI may apply. Outreach and education of AI knowledge for experts from other domains are also necessary; and conversely, data and computer scientists need to be equipped with standards development knowledge. Both government agencies and industry organizations may facilitate the roles in the outreach and education.

3. The current and potential future role of Federal agencies regarding the existence, availability, use, and development of AI technical standards and tools in order to meet the nation's needs

AI technical standards development, given its wide breadth of reach and huge potential, requires a wide range of stakeholders across different industries and organizations. In the U.S.,

¹ https://www.sae.org/standards/content/j3016_201806/

² <https://www.transportation.gov/av/3>



technical standards are being developed by various organizations. Federal agencies may serve as conveners to engage broader audiences in order to best assure public interest, particularly in areas of public safety and security.

To align with cross-industry and multi-interdisciplinary characteristics of AI, inter-agency collaborations may also assist government agencies to stay informed of the state-of-the-practice, to support information exchange, and to promote public engagement. In addition, federal agencies may consider developing their own plans to explore AI topics that pertain to their stakeholders.

SAE appreciates NIST for consulting interested stakeholders in developing AI standards, and we look forward to an ongoing dialogue and cooperation in the rapidly developing area of AI.

For additional information, please contact Adrian Guan at 202.336.9744. Thank you for the opportunity to respond to RFI #190312229–9229–01.

Respectfully,

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