

December 2018

SAE NEWS

Painting the big picture on autonomy



Velodyne Lidar Inc. President Marta Hall (middle) initiated the World Safety Summit, which included Jamie Hyneman (left) of the TV show *MythBusters* and former NTSB Chairman Christopher Hart.

Autonomous vehicle proponents foresee a day when traffic accidents are so rare that concern about roadway safety is a thing of the past. Getting there requires a strong focus on all aspects of safety, one that extends far beyond technologies like sensors, controllers and artificial intelligence.

Design engineers and product planners throughout the auto industry will need to take a big-picture view of safety, according to a host of speakers at the initial [World Safety Summit on Autonomous Technology](#), held in October in Santa Clara, Calif. That broad viewpoint includes the components and systems in vehicles, communications technologies that provide additional information, and non-technical factors such

as how AVs respond to police officers directing traffic.

Panelists from vehicle and system suppliers as well as groups as diverse as the California Highway Patrol, Mothers Against Drunk Driving, SAE International, and the National Transportation Safety Board highlighted their concerns at an event spearheaded by Marta Hall, President and Chief Business Development Officer at Velodyne Lidar, Inc.

Hall noted that many surveys show that consumers view autonomous driving skeptically, so the auto industry needs to clearly describe the benefits. This focus on consumer awareness was highlighted by the selection of *MythBusters* star Jamie



Nearly 300 people participated in the inaugural World Safety Summit on Autonomous Technology in Santa Clara, Calif. Velodyne Lidar hosted the event to explore the use of AV technology in a global effort to increase roadway safety.

Hyneman as host of the conference.

"Mrs. Hall has a clear understanding and vision of how we can positively impact safety," said Mircea Gradu, Senior Vice President of Quality and Validation at Velodyne Lidar. "We collaborate with more than 50 customers in the autonomous vehicle space, so we're also learning how other people think. There's value in bringing a converged viewpoint to the public."

One of the primary challenges for autonomous vehicle manufacturers and their suppliers is to ensure that all safety elements are functioning well. When component failures or conditions like snow render some systems ineffective, redundant technologies must fill in, or drivers must take over. All elements related to safety will have to remain viable throughout the lifetime of the driverless vehicle.

"The whole space of Level 4 and 5 brings a new set of requirements for quality,

reliability, and durability," said Gradu, who's also SAE International President.

The drive toward autonomy is already changing the way engineers work. Today's safety systems often include a number of components and subsystems that work together. That is forcing design teams from different fields to work more closely together. In the near and distant future, engineers will have to understand a range of technologies rather than specialize in narrower fields.

"In the past, at the big OEMs, an engineer could be responsible for something like door handles throughout his or her career," Gradu said. "With functional safety today, everyone deals more with systems, engineers have to understand the big picture. The younger generation has to start with systems and do deep dives down to the level that they need." ■

By Terry Costlow