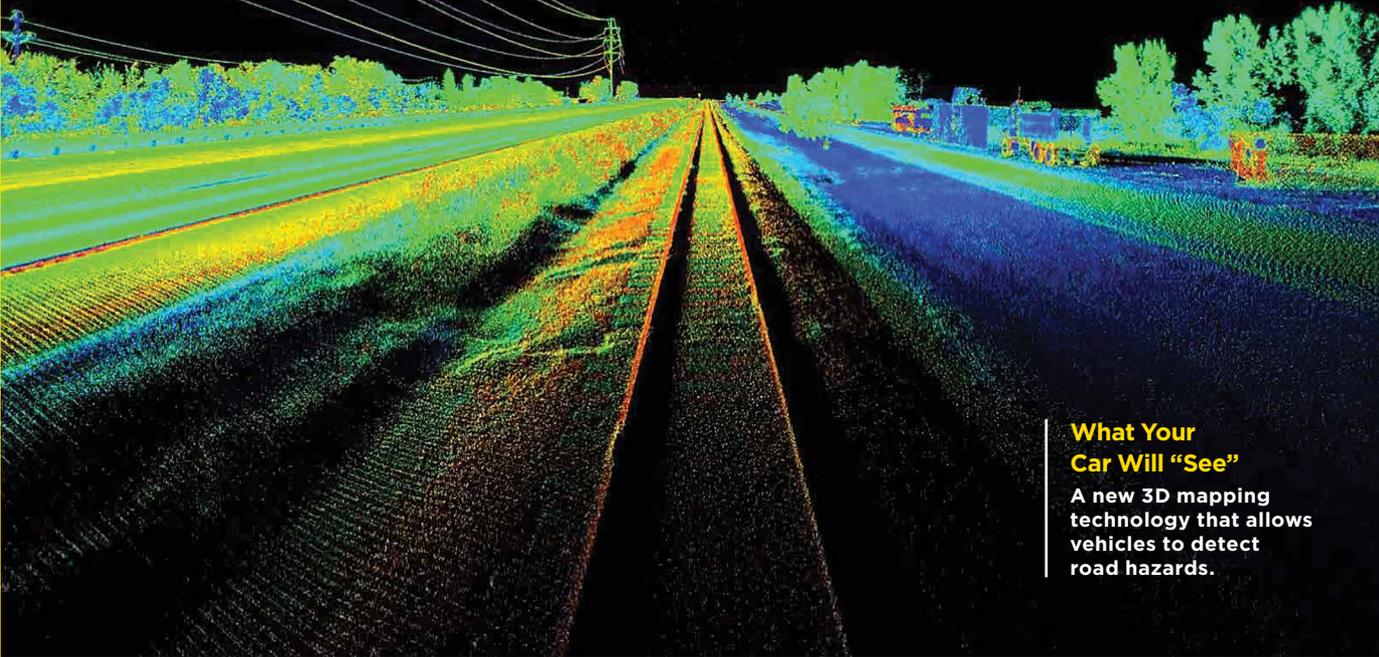


The ‘Driverless’ Car of Today

BY WILLIAM J. HOLSTEIN



What Your Car Will “See”

A new 3D mapping technology that allows vehicles to detect road hazards.

It’s a clear day in upstate New York, and the lush Catskills frame our view as my Cadillac CT6 zips along Interstate 87. I’m behind the wheel, but frankly it feels as if I’m just along for the ride.

We’re on “adaptive” cruise control, which means the Cadillac will automatically apply brakes if we get too close to anything. The lane-drift system, meanwhile, prevents any wandering out of lanes unless the driver makes a concerted effort to move. A 360-degree sensing system warns us about cars in blind spots, while a rearview mirror is actually displaying video of the traffic behind us. Mind you, we’re flying along at a pretty brisk 75 miles per hour, but we’re feeling pretty safe and secure in our metal cocoon, knowing a collision is almost impossible.





Is the world ready for a driverless car? After all, for today's alpha executive, few activities waste more time than driving to work with no real ability to read or write. In its well-known goal to reshape driving, Tesla found out the hard way about pushing the boundaries of going driverless, when one of its cars on an autopilot system crashed and killed its driver in Florida earlier this year. Yet within months, the federal government would make an announcement encouraging the use of autonomous cars in the long term, provided that new safety rules are created and applied.

But while we wait for the age of robot driving, it turns out the major automakers think the future of auto-driving is already here, and for them, it's become a curious blend between man and machine that takes a lot of the work—but not all of it—out of hitting the road. While Tesla, which declined to return messages for comment, still pursues the fully autonomous approach, most other major carmakers argue that the sheer complexity of open road conditions—from kids chasing basketballs onto the road to Mack trucks slamming on brakes—is too great for any software system to completely and safely manage. The answer, they say, is hybrid safety systems that give distracted drivers a whole new cushion of safety.

For its part, Mercedes-Benz is making a case for an “intelligent partnership” between car and driver. It's pouring its newest features, such as Drive Pilot, into its 2017 E-Class vehicles. The feature can keep a vehicle at the correct distance from the car ahead of it at the breathtaking speed of 125 m.p.h. It automatically applies either brakes or the accelerator pedal to maintain a set distance. That feature will be particularly useful on Germany's high-speed autobahns.

In its new E-Class, the company has moved to another frontier with car-to-car communication. The ultimate enthusiast's vision is that all cars will be able to communicate with each other not only to avoid accidents but also to avoid traffic jams with advance warnings. For now, the new Mercedes system will be limited to communicating and receiving notifications of hazards such as accidents, fog or heavy rain. And no one is pitching that any of these gizmos offers a driver-

less experience. “The vehicle can still not be left entirely to its own devices in everyday traffic,” says Anja Weinert, spokesperson for Mercedes-Benz Research and Development in Sunnyvale, Calif.

For now, most automakers say such rapid technological advancements are in pursuit of safety, not autonomous driving. That may be one reason city and state governments, and the federal government, are encouraging a wide spectrum of experimentation. Saving lives is a noble purpose. Other goals include less traffic in urban areas because cars will be guided to parking spots, eliminating the need to keep circling and looking for a place.

In the end, a key change may be in improving the connection between the driver and car, which the industry is researching heavily. One goal is to reassure that a driver will be available in seconds to make a complex judgment for the vehicle, which may include requiring that at least one human hand remains on the steering wheel, a condition sensors can detect. Other systems rely on chimes that become increasingly intrusive as a car detects the need for a human driver. And yet others rely on cameras to watch a driver's eyes to make sure that the human is not sleeping.

Perhaps the most dramatic move is a “haptic” seat, meaning a seat that generates physical interaction with the driver. Cadillac's haptic seats, which the company calls Safety Alert Seats, use an internal roller that creates a thumping, vibrating sensation under the driver's hip. If the car senses a blocked road ahead, the seat starts rousing the driver and bright LED lights erupt on the dashboard. “We're trying to get the driver's attention,” says Cadillac product director Bill Mack. “The driver should be the one taking action. But if the Safety Alert Seat doesn't work, the car will take matters into its own hands” and apply full braking.

Still, even with all these efforts, the quest for fully driverless vehicles is not over quite yet. Tesla CEO Elon Musk is resisting calls to disable the carmaker's Autopilot feature. The company has said drivers should realize they must be prepared to regain control of their Tesla at any time. Maybe so, but for now competitors feel it's just not worth the risk. ●

AUTO PILOT

Five new features that create a more “driverless” experience:

Vibrating seats

Haptic seats that vibrate to warn of impending danger.

Weather alerts

Car-to-car communications for weather advisories.

Rear vision

Rearview mirrors that are video cameras.

Sensors

Rear sensors detect pedestrians crossing the vehicle's backup path and apply brakes.

Cruise control

Active cruise-control systems keep cars at set distances apart.