

# SMART DRIVING CARS



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**1st edition of the 5th year of SmartDrivingCars**

**Saturday, February 4, 2017**



**Autonomous Vehicles Meet Human Drivers: Traffic Safety Issues for States**

J. Hedlund, Feb 2017 Fully autonomous vehicles – cars and trucks that can drive themselves, without a human

at the controls – are coming soon. In fact, they already are on the road. *Yes!* ...Autonomous vehicles will change our lives in many ways. *Yes!* ... But all vehicles on the road will not be autonomous for a very long time, perhaps never. Until then, autonomous vehicles must share the road with vehicles driven by humans. *Yes!* How can this be done safely? States are responsible for safety on the roads – for licensing drivers, registering vehicles, and establishing and enforcing traffic laws. So states must take the lead in dealing with the many traffic safety issues that a mix of driver-operated and autonomous vehicles will bring. *Yes!* In particular, states should help educate the public about the benefits that autonomous vehicles will bring and the risks that they may present, educate drivers of semi-autonomous vehicles about their driving responsibilities, and educate all drivers about how to share the road safely with autonomous vehicles. *Yes!* This report should help states understand and address these issues. It's written for state Departments of Transportation (DOTs), Departments of Motor Vehicles (DMVs), and State Highway Safety Offices (SHSOs)....*Great!*

The public's views on new technology can change quickly. AVs today may well be similar to automobiles a century ago or smart phones only 10 years ago: a new technology with a few ardent supporters and many skeptics initially but which quickly became both acceptable and highly desirable. As Henry Ford is purported to have said regarding automobiles (probably incorrectly), "If I had asked people what they wanted, they would have said faster horses." Also, today's teenagers are more accepting of AVs: in the Kelley Blue Book survey, 48% of respondents age 12-15 said they would be comfortable riding in an AV compared to 36% of all respondents....*Yes!*

Laws or regulations formed in haste may hinder rather than help AV testing and implementation. (p17) *Yes!* " [Read more](#) *Hmmm... This is a very well written and well referenced report that is well balanced and properly presents the challenges. Some modest suggestions are: Abandon the SAE/NHTSA Levels and go with 3 types/classes/levels: Safe-*

*Driving, Self-driving and Driverless. Also, this is not the first technological change that DMVs have faced. The advent of turn signals changed driver testing. Self-driving is really not that much different. DMVs could start by addressing cruise control in that they could promote & educate on the best use of cruise control. By the way, I am not aware of a single sign along any highway encouraging/promoting/prohibiting the use of cruise control. DMVs could start with that since it really is not much different that Self-driving. Alain*

**Los Angeles Times**

[Self-driving car prototypes need less human help, data show](#)

AP, Feb 1, "Self-driving car prototypes appear to be getting better at negotiating California streets and highways without a human backup driver intervening, according to data made public Wednesday by California transportation regulators. ... Waymo, ..., did far more testing than the other 10 companies combined — and had much greater success. Its fleet drove itself more than 635,000 miles with 124 safety-related "disengagements," which must be reported when the technology fails or the backup driver takes control out of concern the car is malfunctioning.

The Google project's disengagement rate was the equivalent of two incidents every 10,000 miles, a notable decrease over the prior year, when there were eight disengagements per 10,000 miles.

"[This four-fold improvement reflects the significant work](#) we've been doing to make our software and hardware more capable and mature," Dmitri Dolgov, Waymo's head of self-driving technology wrote in a blog post .

Waymo's chief critic acknowledged the improvement, but John Simpson of the nonprofit Consumer Watchdog said the number of disengagements shows the cars still "simply aren't ready to be released to roam our roads" without human backup drivers." [Read more](#) *Hmmm... No one has yet suggested that these are 'Driverless Cars' with no one in them. This reliability improvement demonstrates substantial progress towards 'Self-driving cars' in many/most places. [Click on Link](#) and then [Click on Manufacturer](#) to get details of the improvement by Manufacturer. Congratulations to all! Alain*



[Serving the Nation's Personal Mobility Needs with the Casual Sharing of autonomousTaxis & Today's Urban Rail, Amtrak and Air Transport Systems](#)

A. Kornhauser, et al. Feb 3, "Orf467F16 Final Project Symposium quantifying implications of such a Nation-wide mobility system on [Average Vehicle Occupancy \(AVO\)](#), [energy, environment and congestion](#), including estimates of [fleet size](#), [needed empty vehicle repositioning](#), and ridership implications on existing rail transit systems ([west](#), [east](#), [NYC](#)) and [Amtrak](#) of a system

that would efficiently and effectively perform their '1st mile'/'last-mile' mobility needs. [Read more](#) *Hmmm... Now linked is Draft Final Report Alain*

## [Driverless cars better sooner than later:](#)

F. Fishkin, Feb 3, "Techstination, your destination for gadgets and gear. I'm Fred Fishkin. Driverless cars...better sooner than later. You've been hearing about autonomous vehicles...or driverless cars...for years now. As the kids in the back seat like to say...are we there yet? And the answer..." [Listen](#) *Hmmm... Nice :-)* *Alain*



## [Autonomous Car Pricing Will Turn Your Town Into A Science Experiment](#)

M. Turck, Jan 29, "In a future driven by shared autonomous vehicles, transportation becomes a utility. The name of the game is efficiency — you pay for what you use, and how you use it. No car ownership, no car insurance, no maintenance, no gas, no driveways or garages... you pay for a ride from A to B, and when you get out, you've washed your hands of the investment. But all those things have a cost, so it must mean someone else is coughing up the dough, right?..." [Read more](#) *Hmmm... Some nice ideas; however, Google/Alphabet/Waymo may just offer it for free and have its advertisers pay to have the opportunity to secure your undivided attention to buy stuff during the ride. HmMMMMM\$\$\$ Alain*



## [Fight Over Tesla's Self-Driving Pro Shows Talent War Escalating](#)

D. Hull, Jan 30, "There was chatter for months within the tight-knit network of Silicon Valley self-driving whizzes: Where was one of their industry's most-prominent players going to land? The world found out last week when Tesla Motors Inc. sued Sterling Anderson, the former director of its Autopilot program. The electric-car maker alleged Anderson started working months ago with Chris Urmson, the former head of Google's self-driving car program.

The legal fight involving autonomous-driving hot shots is the latest to show how the war for talent in Silicon Valley is heating up, as tech and auto companies alike compete for skilled engineers...."All of the sudden, people realize that self-driving cars are becoming a reality," said Sebastian Thrun, who founded Google's self-driving car project and researches robotics and artificial intelligence as a professor at Stanford University. "Every CEO of an automaker has made autonomous cars a priority, and 2016 was the year when people of influence woke up to the potential of this." [Read more](#) *Hmmm... Yup!*

*Alain*



## [Ohio backs next-gen car center](#)

Feb 3, "The country's biggest automotive testing facility outside Columbus will receive a \$45 million grant to expand as the state furthers its efforts to become a national leader in advancing autonomous vehicle research and smart road technology, Gov. John Kasich and other officials announced recently at Ohio State University in Columbus.

The state, OSU and JobsOhio are providing the grant for the Transportation Research Center in East Liberty, a testing facility about 45 miles northwest of Columbus. The university is contributing \$25 million, the state \$12.5 million and JobsOhio \$7.5 million..." [Read more](#)  
*Hmmm... Nice to see the Ohio governor, state university and jobs program coming together to support this emerging transformative industry. Alain*

## **SCANIA** [Scania takes lead with full-scale autonomous truck platoon](#)

Press Release, Jan 9 "Scania will design the world's first full-scale autonomous truck platooning operations, based on its own advanced technology. The platoon will traffic public roads while transporting containers between port terminals in Singapore. The aim is to organise convoys of four trucks – with the following three trucks behind the lead truck autonomously driven, as well as to fully automate the processes for precise docking and undocking of cargo..." [Read more](#)  
*Hmmm... See embedded video. Fine, but still at the "The aim to..." stage for what is a very small market niche with a challenged value opportunity. I really wish that they would focus on perfecting and selling Automated Collision Avoidance (aka Safe-driving Trucks), that would deliver to each so equipped truck trip a substantial value proposition (a much lower liability risk/expectation). It's only cash. Alain*



## [The Self-Driving Car's Bicycle Problem](#)

P. Fairley, Jan 31, "Robotic cars are great at monitoring other cars, and they're getting better at noticing pedestrians, squirrels, and birds. The main challenge, though, is posed by the lightest, quietest, swerveiest vehicles on the road. "Bicycles are probably the most difficult detection problem that autonomous vehicle systems face," says UC Berkeley research engineer Steven Shladover.

Nuno Vasconcelos, a visual computing expert at the University of California, San Diego, says bikes pose a complex detection problem because they are relatively small, fast and heterogenous. "A car is basically a big block of stuff. A bicycle has much less mass and also there can be more variation in appearance — there are more shapes and colors and people hang stuff on them." [Read more](#) *Hmmm... Yes, bicycle recognition is very important, so is motorcycle recognition which because of higher speeds may well be tougher. Alain*

Just for Fun..



## [Mercedes AA-Class Electric Car](#)

[Watch video](#) *Hmmm... Cute. Alain*

## Some other thoughts that deserve your attention



### [Supplier's Role Shows Breadth of VW's Deceit](#)

J. Ewing, Feb 1, "When Volkswagen executives decided in 2006 to use software to evade emissions rules, they needed help. No one inside Volkswagen knew how to write the software. So the company turned to one of its most trusted partners: the German supplier, Robert Bosch. Working from Volkswagen specifications, Bosch developed code that instructed computers in diesel engines to fully deploy pollution controls only when the cars were being tested in laboratories, according to lawsuits in the United States and Germany....

In 2008, Bosch asked Volkswagen to guarantee that it would take responsibility if the fraud were discovered, according to court documents filed as part of the lawsuit by the German owner. Volkswagen refused. Bosch maintains that a letter seeking the guarantee has been misinterpreted and actually refers to a gasoline engine, not the diesel engines at the heart of the scandal...." [Read more](#) *Hmmm... Nothing pretty about this and we MUST all make sure that nothing like this goes on with the code for SmartDrivingCars. Alain*

### [On the More Technical Side](#)

<http://orfe.princeton.edu/~alaink/SmartDrivingCars/Papers/>

## Half-baked stuff that probably doesn't deserve your time



### [Tesla S Falls Short of Luxury Rivals on Tougher Safety Test](#)

C. Jensen, Feb 1, " Tesla has long promoted its cars as among the safest available. After its Model S electric sedan was reviewed by the federal government's National Highway Traffic Safety Administration in 2013, Tesla said it had received the best safety rating of any car ever tested.

But a more rigorous safety review has reached a different conclusion: that the Tesla S is not on a par with several of its luxury rivals. On Wednesday, the Insurance Institute for Highway Safety, a group known for its strict testing, [announced that the Tesla S](#) did not receive either of its safety awards. That was, in part, because in one of five crash tests the dummy's head hit the steering wheel....

The insurance institute **did not test the Model S's forward collision prevention and automatic braking system** because it bought the car before Tesla added new hardware and software in October..." [Read more](#) *Hmmm... Seems to suggest that IIHS desperately needs to change its safety ratings. Yes, Crash Mitigation is important, BUT Crash Avoidance is MORE important and should AT MINIMUM be taken into consideration. If Crash Avoidance Systems (aka 'Safe-Driving Cars') that work greatly decreases the probability of the IIHS crash test and thereby rendering it essentially irrelevant, shouldn't IIHS be testing the veracity of the Crash Avoidance System??? Isn't the 'Tougher Safety Hurdle' the one that avoids the crash in the first place?? NHTSA's and IIHS (and Euro NCAP) Safety Ratings are desperately in need of a substantial overhaul. As they currently exist they do NOT do not perform as good of a public service as they could. Alain*

[C'mon Man!](#) (These folks didn't get/read the memo)



[Reliance on autonomous systems the cause of fatal Tesla crash with tractor-trailer](#)

J. Jailet, Feb 2, "Department of Transportation regarding the high-profile 2016 crash involving a Tesla Model S and a tractor-trailer reached the conclusion — again — that the inattention of the Tesla's driver was to blame for the crash. NHTSA says the car's operator, who died in the collision, was leaning too heavily on the car's driver assist systems, which failed to brake when a **tractor-trailer crossed** the road in front of the car..." [Read more](#) *Hmmm... What???? Is this more Fake News?? How does tractor-trailer crossing/'cutting off' a car on a highway all of a sudden NOT be the 'blame' for a crash??? Oh yes, this CCJ and the [era of alternative facts](#). C'mon Man! :-( Alain*

[I was 'Onioned' in the last edition of SDC ... This was a fake reporting: Trump team compiles infrastructure priority list](#)

L. Horsley, Jan 24, "President Donald Trump's team has compiled a list of about 50 infrastructure projects nationwide, totaling at least \$137.5 billion, as the new White House tries to determine its investment priorities,... Among the projects could be a new terminal for the Kansas City airport, upgrades to Interstate 95 in North Carolina (*Hmmm... NC again, maybe some of Foxx's down home projects will make it to the new administration*) and a proposal to replace the nation's radar-based air traffic control system with one called NextGen, based on satellites....a list of about 50 infrastructure projects nationwide, totaling at least \$137.5 billion. [Read more](#) *Hmmm... which produce 193,350 'Direct' job years and 241,700 'Indirect' job years. Doing the arithmetic, that's \$711K per direct job-year ( or \$316K per combined job-year.). Those are expensive job-years! What is built had better be something that doesn't require a Washington (or other public-sector) subsidy to keep it operating once it is built; else it would be better just create 3 times as many (1.375M) \$100K welfare jobs-year and not be forever begging for operating subsidies.*

*Well what's on the list...# 13 Texas Central RR, #23 Maryland Purple Line, #24 M-1 Rail, Detroit, #24 MBTA Green Line Extension... all projects that, at best, have no hope of being able to operate without perpetual public subsidies. Moreover, each is likely to have been made totally obsolete by driverless MaaS systems before they serve their first customer. Seems like some of these infrastructure projects will be filling rather than draining the swamp. So sad! Alain*