

SMART DRIVING CARS



<http://smartdrivingcar.com/5.7-Summit-032017>

7th edition of the 5th year of SmartDrivingCars

Monday, March 20, 2017



Announcing: SmartDrivingCars Deployment Summit; May 17, 18 Princeton

University, Princeton, NJ

Save the Date: "Princeton University will be hosting on May 18 & 19 a two day conference bringing together the buyers, sellers and facilitators of SmartDrivingCars (& Trucks, & Buses) with the purpose of getting off the ground and accelerating the commercialization/deployment of this technology so that society can emerge from the hype and begin to capture the benefits of this emerging mobility revolution.

The focus ranges from:

- near-term safety benefits of **Safe-driving Cars** (How insurance and new car dealers can benefit by promoting the RoI advantages to fleets and mutually beneficial promotional discounts to consumers.), as well as an update as to the performance in automatically avoiding crashes of the technology options available in showrooms today .
- near-term mobility and community service benefits of the array of emerging low-speed **Driverless** shuttles to all in gated communities and campuses, to the mobility disadvantaged in many/most suburban communities and to address first-mile, last-mile accessibility challenges in transit-oriented communities, and
- near-term regulatory challenges that are needed to facilitate the shared use of our existing streets by low and normal speed **Driverless** vehicles, **and**
- the current state-of-the-art in DeepDriving, to the long-term opportunities of using affordable Computer Vision and elegant Deep Learning training, testing and enhancing techniques in SmartDrivingCars, and more.

*Details in the next issue of SmartDrivingCars. Alain **Save the date***



[Uber's autonomous cars drove 20,354 miles and had to be taken over at every mile, according to documents](#)

J. Bhuiyan, Mar 16, "Some of Uber's self-driving cars aren't driving as smoothly as the company hoped they would. Documents circulated throughout the company's self-driving group, which Recode obtained, gives us a first look at the progress of the ride-hail company's robot cars in Pennsylvania, Arizona and California.

The top line: Uber's robot cars are steadily increasing the number of miles driven autonomously. But the figures on rider experience — defined as a combination of how many times drivers have to take over and how smoothly the car drives — are still showing little progress....

For example: During the week ending March 8, the 43 active cars on the road only drove an average of close to 0.8 miles before the safety driver had to take over for one reason or another...

The good news is the number of miles between these "critical" interventions has recently improved. Last week, the company's cars drove an average of approximately 200 miles between those types of incidents that required a driver to take over..." [Read more](#) *Hmmm... Waymo is so incredibly far ahead. Even with these statistics, it depends on when and where the miles were drive. It is relatively unchallenging in some places at some times, especially if you've experienced it many times before. Its all about being able to handle the unexpected to achieve **Driverless**. Uber accrues no substantive value until it reaches **Driverless**. Self-driving's only value is as a way/process to achieve Driverless. Alain*



[Meet 'Professor X,' the AI genius who left his lab at Princeton to beat Uber, Google, and Intel at their own game](#)

M. Weinberger, Mar 18, "In the spring of 2016, Dr. Jianxiong Xiao — affectionately known among students and staff as "Professor X" — said goodbye to his plum professorship at Princeton and his post as the founding director of the school's [Computer Vision and Robotics Labs](#).

By the fall of that same year, Xiao, known as something of a risk-taker, had moved himself and his family from New Jersey to Silicon Valley, and raised some modest seed funding for his new startup focused on self-driving cars.

His startup, dubbed [AutoX](#), has done its best to stay under the radar to date — apart from a filing with the California DMV to test self-driving vehicles. ...

Nowadays, Xiao says, AutoX is about 20 people strong, almost all engineers, with PhD-level computer vision talent that had previously worked at companies like Apple, Magic Leap, and Microsoft. And with all that brainpower on board, Xiao says that they were able to build their prototype from scratch in only six months, without using anyone's technology.

" [Read more](#) *Hmmm... Congratulations Jianxiong! Chenyi, you spawned a new "49er". Alain*



[There's a raging talent war for AI experts and its costing automakers](#)

[millions](#)

D. Muoio, Mar 12, "...So why is it that tiny startups with little to no brand recognition are getting acquired for millions? AI specialists told Business Insider it has little to do with acquiring the startup's tech and everything to do with nabbing talent.

That's because there's a serious lack of experts in the field of deep learning, a branch of artificial intelligence where computers learn on their own. Deep learning is key to advancing self-driving tech as it allows cars to learn safe driving at a much faster rate than traditional programming.

"The growth of demand is much faster than the rate of which we can produce people with PhDs or even master's in this area," Yoshua Bengio, head of the Montreal Institute for Learning Algorithms, told Business Insider. "There's just an explosion of interest from the industry... and it's like a fire growing on the prairie." ...

"The sad thing is most of these are just for recruiting," he said. "It's kind of a loss for the economy because most often the projects these small companies had don't continue once they've been integrated into the company.... It's kind of a waste of resources and investment in some sense." [Read more](#) *Hmmm...Traditional long-career hardware engineers that produced horsepower, fins and chrome have been Detroit's core; not the software and algorithm whiz kids that have fueled Silicon Valley and Wall Street Banks. Now, the future of the auto industry is in software and algorithms rather than horsepower, chrome and fins. Leapfrogging Silicon Valley in=s neither easy nor cheap. Alain*



[Tesla Autopilot 2.0: Watch the latest and 'greatly improved'](#)

[version of Autopilot at work](#)

F. Lambert, Mar 18, "As [Tesla is reportedly close to finishing its Autopilot 2.0 update](#) that will remove the speed restrictions and bring the system to parity with the first generation, we get a good look at the latest version of Autopilot on the new hardware suite through a 30-minute drive by a Model S owner. [Video...](#)" [Read more](#) *Hmmm...Continued Progress, congratulations.*

Note: it is really impressive how Tesla has been using 'crowd sourcing' and empowering its customers to help in this improvement process. Compare my experience with Daimler in the almost 3 years that I've had my S550 with the '997 package'. Daimler has never even emailed a survey to determine my satisfaction with its drive assistance technology (the 997 package). Nor has it even requested that I share any of the data that is sensed continuously by its array of sensor. Nor has it offered to upgrade any of the software during the 3 major (non-inexpensive) maintenance services that the car has had. More striking, the car was stolen from my driveway 10 days ago. Since I'm so cheap, I never initiated the [mbrace](#) and I was informed that the only way that it could be initiated was from inside the car. I was told that there is no emergency back door. Amazing! I should be thankful that they are protecting my privacy, but what Daimler hasn't seem to realize and Tesla seems to have taken to its fullest is that some of its customers would be interested in helping and their experience in actually using the technology in every day situations is actually very valuable and helpful. I will now go to a showroom to see how much improvement Daimler has actually made in the past 3 years compared to how far Tesla has

come with this technology over the same period of time. I really wish that I didn't have such range anxiety, so I guess I'll get a Volvo. Alain



[Insurance Company Announces Discounts For Tesla](#)

[Autopilot Users](#)

B. Anderson, Mar 17, An Ohio-based company called Root Insurance has announced that Tesla owners can get a discount on their premium if they use the Autosteer feature of Autopilot, a system that automatically keeps the vehicle in its lane without driving input. In the announcement, Root Insurance cites a report from the National Highway Traffic Safety Administration that concluded crash rates of Tesla models have fallen by almost 40 per cent following the introduction of Autopilot..." [Read more](#) *Hmmm... Finally someone has [seen the light!](#) (and) Alain*



[Mobileye's Revenge](#)

R. Lanclot, Mar 14, "...How does the Tesla® Autopilot discount work? During the test drive, Root's app measures Autosteer-eligible highway miles. We apply a tiered discount—above and beyond any good driver discount you've already earned! The higher the percent of highway miles driven, the higher the discount. Good drivers of Tesla cars save a lot of \$\$\$ with Root! More details: <https://blog.joinroot.com/tesladiscount/>...[Read more](#) *Hmmm... With the above. Alain*



[Self Driving versus Driverless – A Mobility Update with Alain](#)

[Kornhauser #CES2107](#)

K. Pyle, Mar 10, "...He alludes to the idea of taking a holistic view of how automation interacts with the built-environment. A self-driving approach that favors single passenger vehicles will be associated with longer commutes, more sprawl and more vehicle miles traveled. Driverless would be more like the elevator scenario, where people summon a shared vehicle, reducing congestion, energy use and vehicle miles traveled..." [Read more](#) *Hmmm...Ken, You are very kind. Thank you. Alain*



[Initial Assessment and Modeling Framework Development for](#)

[Automated Mobility Districts](#)

S. Young, March, 2017, "...This paper examines such a concept to displace privately owned automobiles within a region containing dense activity generators (jobs, retail, entertainment, etc.), referred to as an automated mobility district (AMDs). The paper reviews several such districts including airport, college campuses, business parks, downtown urban cores, and military bases, with examples of previous attempts to meet the mobility needs apart from private automobiles, some with automated technology and others with more traditional transit

based solutions. The issues and benefits of AMDs are framed within the perspective of intra-district, inter-district, and border issues, and the requirements for a modeling framework are identified to adequately reflect the breadth of mobility, energy, and emissions impact anticipated with AMDs...". [Read more](#) *Hmmm...Very informative and worth reading. Alain*



[Austin is fine without Uber and Lyft... until it isn't](#)

F. Tepper, Mar 12, "Since Uber and Lyft left last May, a bevy of alternatives have sprung up — like [Ride Austin](#), [Fasten](#) and [Fare](#). These apps all essentially provide the same experience as Uber and Lyft — drop a pin and a car shows up. All of them comply with Austin's [background-check law](#), and some of them even charge drivers and riders less than Uber and Lyft did.

I had even begun to wonder if maybe Uber and Lyft made a mistake by stubbornly refusing to comply with Austin's fingerprint-based background-check requirement, because it showed that a major U.S. city could actually survive without them.

Until they couldn't.

Last night, arguably the biggest night of SXSW, it rained — and everyone wanted a ride. And on cue, the apps failed. Overloaded with demand, Ride Austin and Fasten were essentially "bricked" — you either got stuck at a loading screen or the apps said there were no cars available — when there clearly were.

Riders were stuck, and drivers were circling the city with no way to get matched up with riders...". [Read more](#) *Hmmm...How much do each of these companies need Driverless Cars?! Once we have them, how many more of these companies will emerge?? (unless the maker keeps them only all for its own use?!). Alain*



[Driverless Shuttle Program Kicks Off in California to Tackle First Mile/Last Mile Mobility Obstacle](#)

P. McCauley, Mar 6, "...During a demonstration March 6, representatives from the Contra Costa Transportation Authority (CCTA), EasyMile and the Bishop Ranch business park gathered in San Ramon, Calif., to announce the launch of a pilot project utilizing two shuttles as a first mile/last mile (FM/LM) mobility solution. The two shuttles, costing \$250,000 each, will begin testing in an empty lot at the business park and will eventually move to an adjacent occupied lot. To abide by current state law, the pilot will transport people across the business park without crossing public streets..." [Read more](#) *Hmmm...It is a start and we desperately need real starts.*

Congratulations Alain



[NVIDIA and Bosch partner on AI self-driving car supercomputer](#)

S. Hanley, Mar 17, "NVIDIA CEO Jen-Hsun Huang announced to attendees at the Bosch Connected World conference in Berlin this week that they have partnered with Bosch to producing an artificial intelligence supercomputer aimed at the self-driving car industry. "I'm so proud to announce that the world's leading tier-one automotive supplier — the only tier one that supports every car maker in the world — is building an AI car computer for the mass

market," said Huang. "We've really supercharged our roadmap to autonomous vehicles. We've dedicated ourselves to build an end-to-end deep learning solution. Nearly everyone using deep learning is using our platform."..." [Read more](#) *Hmmm...Teams are forming. :-)* Alain



[2016 Was The Year Of Autonomous Vehicles For SEC Filings](#)

M. Leder, Mar 10, "...In 2016, Footnoted counted 128 filings that made some kind of reference to "autonomous vehicles." That was up from just 37 in 2015, and 23 in 2014. Between 2000 and 2013, there were a total of 75 references to autonomous vehicles in filings. That number looks to take another giant leap this year. Already through March 7, there were 54 filings with autonomous vehicle disclosures...." [Read more](#) *Hmmm...It's 1849 and its a gold rush. :-)* Alain



[2017 INRIX Autonomous Vehicle Study](#)

March 2017, "..."Shared-use vehicles will be a highly effective deployment of autonomous vehicles, where shorter, intra-city trips can maximize occupancy and efficiency, which means safer, faster and more convenient travel for users," said Avery Ash, autonomous vehicle market strategist at INRIX..." [Read more](#) *Hmmm...Interesting report from the folks that understand traffic congestion throughout the nation. Alain*



[Volvo Trucks tests on-highway three-truck platooning](#)

Staff, Mar 13, "Volvo Trucks and Partners for Advanced Transportation Technology (PATH) at the University of California, Berkeley recently completed a successful demonstration of partially automated truck platooning, made possible by Cooperative Adaptive Cruise Control, or CACC, technology.

Three Volvo VNL 670 model tractors hauled cargo containers at California's Los Angeles Port complex and along Interstate 110, highlighting for public officials and other stakeholders the technology's potential for improving highway safety, reducing greenhouse gas emissions, and increasing the capacity of transportation systems...." [Read more](#) *Hmmm...Platooning is a fine demonstration, but these truck all need really good Automated Collision Avoidance systems that actually work before they go trying to find someone to platoon with. Just as with connected vehicles, it is going to take substantial deployment before meaningful benefits/value can be accrued. Alain*



[NIO unveils new self-driving electric car concept, says they'll have autonomous cars in the US by 2020](#)

F. Lambert, Mar 10 "Electric and autonomous vehicle startup NIO unveiled a new concept today to set the tone for its upcoming mass market car. That's after first showcasing its tech in a \$1 million supercar last year.

In Austin for SXSW today, NIO laid out its "vision" for the future of autonomous cars and the "NIO EVE" concept is the first embodiment of that vision..." [Read more](#) *Hmmm...Welcome the the gold rush. Alain*

[On the More Technical Side](#)

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

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



[Cars Now Talk to Other Cars, if You're Into That Sort of Thing](#)

A. Marshall, Mar 16, "Excellent news for the gas-sipping, headlight-blinking, gossipy autos among us. Cadillac's flagship 2017 CTS sedan will talk to other cars. Well, other 2017 Cadillac CTS sedans, but it's a start. If the government gets its way, all cars will talk to each other one day soon.

Engineers call the technology vehicle to vehicle communication. General Motors and Uncle Sam call it the future of automotive safety in a country where more than 32,000 people died in collisions last year. Today, V2V might let one Cadillac warn another to a predicament..."

[Read more](#) *Hmmm.. The last sentence is too embarrassing to reprint above. Chances that 2 Cadillacs are close enough and both equipped for V2V to be of any value is 'slim to none'. Cadillac, please just focus on getting Automated Collision Avoidance to just work and push that.*
Alain

Calendar of Upcoming Events:



Commercialization Summit

May 17 & 18, 2017

Princeton University

Princeton, NJ

Save the Date