

SMART DRIVING CARS



http://smartdrivingcar.com/5.21-NTSB_TeslaDocket-062517

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NTSB Opens Docket on Tesla Crash

Press release, June 19, "As part of its ongoing investigation into the fatal 2016 highway crash involving a Tesla Model S and a tractor-semitrailer truck near Williston, Florida, the National Transportation Safety Board on Monday opened the accident docket, releasing more than 500 pages of information.

System performance data downloaded from the Tesla revealed that the driver was operating the car using automated vehicle control systems: Traffic-Aware Cruise Control and Autosteer lane keeping systems.

The docket includes reports that cover various aspects of the investigation, including highway design, vehicle performance, human performance, and motor carrier factors. The crash reconstruction report, also included in the docket, provides a description of the crash sequence. The docket also includes interview transcripts and summaries, photographs, and other investigative material. The docket contains only factual information collected by NTSB investigators; it does not provide analysis, findings, recommendations, or probable cause determinations. No conclusions about how or why the crash occurred should be drawn from the docket. Analysis, findings, recommendations, and probable cause determinations related to the crash will be issued by the Board at a later date.

The docket material is available at: <https://go.usa.gov/xNvaE>" [Read more](#) *Hmmmm... A few comments...*

- 1. Since lateral control (swerving) couldn't have avoided this crash (the truck is almost 70 ft long (6 lanes wide) stretching broadside across the highway) , it doesn't matter if Josh Brown ever had his hands on the steering wheel. That's totally irrelevant.*
- 2. Why didn't autobrake kick in when the tractor part of the tractor-trailer passed in front of the Tesla?*

3. *How fast was the truck going when it cut off the Tesla. I couldn't find the answer in 500 pages.*
4. *With sight distances of greater than 1,000 feet, why didn't the truck driver see the Tesla? Was it the drugs?*
5. *This intersection invites "left-turn run-throughs" (no stop or yield and a 53 foot median and turn lane need to be crossed before one slips through a gap in two traffic lanes. So you certainly roll into it, (plenty of room to stop if you see something coming) and if you don't see anything, you hit it. If you're in the Tesla, you think you've been clearly seen, you expect the truck to stop, it doesn't, you can't believe it, BAM! All in probably a second or so.*
6. *The head injury description ([Table 1 p2 of 3](#)) certainly suggests that Joshua Brown was seated upright facing forward at impact. The bilateral lacerations on the lower arm from the elbow to the wrist may indicate that he saw it coming in the last second and raised his arms in an attempt to protect his head. The evidence reported doesn't seem to suggest he saw this early enough to bend toward the passenger seat and try to pass underneath.*
7. *About 40 feet of tractor and trailer passed directly in front of the Tesla prior to impact. Depending on how fast the truck was traveling, that takes some time. Has NTSB run Virtual Reality simulations of various truck turn trajectories and analyzed what the truck driver and the Tesla driver could/should have seen? Seems like a relatively simple thing to do. We know what the Tesla was doing prior to the crash (going 74 mph straight down the road.) and we know where it hit the truck. How fast the truck was traveling doesn't seem to be known.*
8. *Why wasn't there any video captured from the Tesla. Didn't that version of the MobilEye system store the video; I guess not, :-{*
Anyway, lots to read in the [500 pages](#), but there is also a lot missing. I'm not linking the many articles reporting on this because I disagree with many of their interpretations of the facts reported by NTSB. Please reach your own conclusions. Alain



[Tesla, others seek ways to ensure drivers keep their hands on the wheel](#)

D. Shepardson, June 23, "...In a report this week on the May 2016 crash of a Tesla Inc (TSLA.O) Model S that killed a driver who was using Autopilot, the National Transportation Safety Board demonstrated that users could mostly keep their hands off the wheel for extended periods despite repeated warnings from the vehicle...." [Read more](#) *Hmmmm... So what??? The Tesla didn't steer off the road. It didn't brake even though 40 feet of tractor trailer passed directly in front of it. Even if you have a hand on the steering wheel, it doesn't mean that you are paying attention. If the automated emergency braking system worked properly it may have seen the cross traffic coming and applied the brakes. Let's make that stuff work! Alain*



[CONGRESS FINALLY GETS GOING ON THAT REGULATING ROBOCARS THING](#)

A. Marshall, June 21, "SEVEN YEARS AFTER Google started developing robocars, 13 months after a Florida man died in a Tesla Model S that was driving itself, and almost a year after self-driving Ubers started picking up passengers in Pennsylvania, Congress might actually start regulating autonomous vehicles...."

No longer. Maybe. Last week, the Senate published bipartisan principles outlining what the legislation might look like. House Republicans, meanwhile, started circulating the drafts of a 14-bill package making it easier for federal regulators to make all the rules. ..." [Read more](#)
Hmmmm... Way too early! We are still at the very beginning. If the Benz Patent on Jan 19, 1886 is the beginning of the transition from the buggy whip to the steering wheel. Little got off the ground until 22 years later when Henry Ford unveiled his Model T on Oct 1, 1908. If we take the 2005 DARPA Challenge as equivalent to the Benz patent and we really don't have a Henry Ford in sight, then we are probably at "1898" in the evolution from the Steering wheel to the Chauffeured Driverless "Downton Abbey" Mobility-on-Demand. Can you imagine Congress in 1898 regulating the car???? Henry wouldn't have had a chance. So, today, please No! Way too early. Give the technology a chance before you go in there and screw it up. Alain



[Arizona getting ahead of autonomous vehicle industry by stepping aside](#)

R. Randazzo, June 23. "With major testing by Waymo, Uber, General Motors, Ford and Intel, Arizona is more than holding its own in the race to attract the self-driving car industry.

Though 22 states have either passed legislation or executive orders addressing the industry, Arizona has several things working in its favor...

...A 2015 executive order from Gov. Doug Ducey didn't hurt, either, he said. The order aimed to make suggestions if needed, but not over-regulate the fledgling industry. Ducey directed a committee to advise the Department of Transportation, law enforcement and universities on how they can advance the deployment of the vehicles on state roads...

....Arizona's oversight group has met just twice in the last year, and found no reason to suggest any new rules or restrictions on autonomous vehicles, so long as they follow traffic laws. The group found no need to suggest legislation to help the deployment..." [Read more](#) *Hmmmm... Nice! Alain*



[Ready or not, states get ready for self-driving revolution](#)

M. della Cava, June 25, "Self-driving vehicles are synonymous with sophisticated sensors producing terabytes of data being analyzed by powerful computers. But it seems the success of this transportation revolution hinges on a decidedly low-tech material: Paint.

That's because when it comes to getting the nation's infrastructure ready for autonomous traffic, the most critical upgrade amounts to making sure the lines on our 4 million miles of roads are solid, bright and preferably white so they can be picked up by computer vision gear..." [Read more](#) *Hmmmm... And they can easily be seen by us as we continue to drive. Alain*



[AUTONOMOUS VEHICLES | SELF-DRIVING VEHICLES ENACTED LEGISLATION](#)

Blog, June 19 "...NCSL has a NEW autonomous vehicles legislative database, providing up-to-date, real-time information about state autonomous vehicle legislation that has been introduced in the 50 states and the District of Columbia..." [Read more](#) *Hmmmm... Excellent source of enacted autonomous vehicle legislation. Alain*



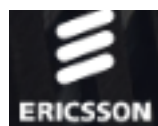
[Inside Travis Kalanick's Resignation as Uber's C.E.O.](#)

M. Issac, June 21, "At a Chicago hotel on Tuesday, two venture capitalists presented Mr. Kalanick with a list of demands, including his resignation by the end of the day..." [Read more](#) *Hmmmm... Those with the money, call the shots. Money talks, Brashness walks. Always been that way. Alain*

THE WALL STREET JOURNAL [The End of Car Ownership](#)

T. Higgins, June 20, "Cars are going to undergo a lot of changes in the coming years. One of the biggest: You probably won't own one.

Thanks to ride sharing and the looming introduction of self-driving vehicles, the entire model of car ownership is being upended—and very soon may not look anything like it has for the past century..." [Read more](#) *Hmmmm... WSJ weighing in without anything new. I wish that they would not confuse self-driving (which will reinforce the current car ownership model) with driverless, (which enables affordable mobility as a service and severely deminishes car ownership). Just as some people still own horses, some people will still own their own car. They just wont use it much.. Alain*



[Remote operation of vehicles with 5G](#)

Mobility report, June 2017, "In the near future it will be a common occurrence to see driverless buses on city streets. A key step towards introducing autonomously driven buses into the public transport system is the development of remote monitoring and control capabilities, which will help to ensure safety, the Ericsson Mobility Report describes...." [Read more](#) *Hmmmm... Seems very likely that remote monitoring with possible operation may well be an evolutionary step to driverless. I suspect that when Google sent their driverless bug around without test engineers that remotely monitored the operation in an intense fashion. Alain*



[Bosch to Build \\$1.1 Billion Chip Plant for Self-Driving Cars](#)

E. Behrmann, June 19, "Auto supplier Robert Bosch GmbH will build a 1 billion-euro (\$1.1 billion) semiconductor plant, the biggest single investment in its history, as the maker of brakes and engines prepares for a surge in demand for components used in self-driving vehicles..." [Read more](#) *Hmmmm... Very interesting. Bosch is protecting its "make or buy" options by making its own. Seems like a stretch with this technology. What edge do they have? Alain*



[Uber Made an Unusual Legal Pledge to the Head of Its Driverless Car Project](#)

J. Rosenblatt, June 23, "Uber made an unusual commitment to the engineer it hired to lead its driverless car project: It would cover the costs of legal actions against him over information stored in his head from his previous job at Waymo. That promise -- buried in the fine print of

an otherwise straightforward employment contract for an executive -- emerged in documents unsealed last week in San Francisco federal court. ...

The Alphabet Inc. unit's claims were bolstered Wednesday when it told the court Uber has said that Levandowski informed then-Chief Executive Officer Travis Kalanick more than a year ago that he had five discs containing Google data. Kalanick told him not to bring the information with him to Uber, and Levandowski said he then destroyed the files, according to the filing...."

[Read more](#) *Hmmmm... Very interesting. Alain*



[Tesla loses 3 more computer vision experts on the Autopilot team](#)

F. Lambert, June 23, "After several changes in the Autopilot team's leadership over the past few months, Tesla ended up [hiring one of the leading AI](#) and computer vision researchers this week.

At the same time however, we learn that several of the team's top computer vision experts have left the company over the past few weeks. [Read more](#) *Hmmmm...All of this is VERY competitive with very limited supply. Also see [Tesla Autopilot: early test shows improvements w/ latest 'silky smooth' control algorithm and cyclist detection](#) Alain*



[Uber's Other Big Problem: Driverless Cars Aren't Ready Yet](#)

P. Burrows, June 22, "Its new CEO will inherit many problems, but a business plan based on the elusive dream of driverless cars is the largest...." [Read more](#) *Hmmmm...Pretty obvious. Alain*

Some other thoughts that deserve your attention



[A Street Fight Among Grocers to Deliver Your Milk, Eggs, Bananas](#)

R. Abrams, June 24, "Every couple of days, Sinclair Browne fights through traffic in Times Square, squeezes his delivery truck into a parking spot, walks up four flights of stairs and delivers groceries to a guy whose order he knows by heart.

"I'm fast," said Mr. Browne, slicing his hands in the air, ninja style. "In and out, in and out." Delivering food requires military precision: Bananas can't get cold. Produce can't get warm. Eggs, of course, must not get broken. And people expect their food to arrive at specific times.

Mr. Browne, 40, is a driver for the online grocery business Peapod. He plays the most important role in solving the biggest problem vexing the online grocery industry: moving food, undamaged and unspoiled, from the warehouse to the customer's house. It's known as the last-mile problem...." [Read more](#) *Hmmmm... If Amazon is really going to disrupt the Grocery business with Driverless vans (Hopefully) or drones (Unlikely) they'll need to have paid attention to this article. Alain*



[Easiest Path to Riches on the Web? An Initial Coin Offering](#)

N. Pooper, June 23, "A new crop of technology entrepreneurs is forgoing the usual routes to raising money. The entrepreneurs are not pitching venture capitalists, selling stock in an initial public offering or using crowdfunding sites like Kickstarter.

Instead, before they even have a working product, they are creating their own digital currencies and selling so-called coins on the web, sometimes raising tens of millions of dollars in a matter of minutes.

The pitch is that once the products are up and running, the currencies — with names like BAT, Mysterium and Siacoin — will be redeemable for services like data storage or anonymous internet access, and could appreciate in value in the meantime....

Known as initial coin offerings,..." [Read more](#) *Hmmm... These could be new transit tokens for those investing in Driverless cars. ??? Alain*



[A discussion about AI's conflicts and challenges](#)

N. Lomas, June 17, Thirty five years ago having a PhD in computer vision was considered the height of unfashion, as artificial intelligence languished at the bottom of the trough of disillusionment.

Back then it could take a day for a computer vision algorithm to process a single image. How times change...." [Read more](#) *Hmmm... Yup!, except... "Blake sees cracking unsupervised learning as the next big challenge for AI researchers to grapple with...." I disagree.*

Unsupervised learning is an oxymoron. There can be no learning unless there is an arbiter that states/reinforces truth/untruths, right/wrong, good/bad, ..."Labeled data" very valuable. "un-labeled data" is worthless until it gets labeled correctly. Incorrectly labeled data is worse than worthless. Seems all very simple and straightforward to me. Alain



[Uncle Sam Wants Your Deep Neural Networks](#)

C. Metz, June 22, "The Department of Homeland Security is turning to data scientists to improve screening techniques at airports.

On Thursday, the department, working with Google, [introduced a \\$1.5 million contest](#) to build computer algorithms that can automatically identify concealed items in images captured by checkpoint body scanners.

The government is putting up the money, and the six-month contest will be run by Kaggle, a site that hosts more than a million data scientists that was recently acquired by Google.

Although data scientists can apply any technique in building these algorithms, the contest is a way of capitalizing on the progress in a technology called deep neural networks,..." [Read more](#)
Hmmmm... This is all about the training data. If DHS has invested in capturing the scans and their associated operator interpretation of those scans ("Labeled Data"), then the problem is trivial. If they haven't (which it seems as if they haven't), then its extremely challenging, if not impossible. As is any of these problems, its all about the labeled training data. Alain



[Can NVIDIA's Strong Growth Momentum Continue in Fiscal 2018?](#)

P. Tanner, June 15, "As we move toward a data-centric world, the demand for computing power is growing. The technology industry (QQQ) is transitioning from microprocessor computing to GPU (graphics processing unit) accelerated computing as Moore's law slows.

Moore's law states that the number of transistors in a microprocessor would double every two years, improving its performance and power efficiency and reducing the cost of manufacturing....NVIDIA (NVDA) is at the epicenter of the GPU-accelerated computing trend and has seen strong growth momentum for more than a year. The company is in the early stage of the artificial intelligence and self-driving cars supercycle. This is visible from NVIDIA's 60% and 70% CAGR1 in its Data Center and Automotive segments, respectively, between fiscal 2014–2017." ..." [Read more](#) *Hmmmm... Interesting. Alain*

[On the More Technical Side](#)

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

Calendar of Upcoming Events:

**AUTOMATED VEHICLES
SYMPOSIUM 2017**

[July 10 -14, 2017](#)

[Hilton San Francisco Union Square](#)



[2nd Annual Princeton SmartDrivingCar Summit](#)

May 16 & 17, 2018

Princeton University

Princeton, NJ

[Save the Date](#)