Sit back, relax, and enjoy a ride through the history of self-driving cars
Seemingly within just a few years, autonomous cars have gone from science fiction fantasy to reality. But while it seems like this technology emerged virtually overnight, the path to self-driving vehicles has taken a whole lot longer than that.
While it’s not easy to compress the history of self-driving cars into just ten milestones, we’ve done our best. While there are dozens of autonomous vehicle projects which didn’t make our list, here are the major stops on the road that you need to know about as self-driving cars get set to change the face of transport as we know it!

The driverless dream begins

It didn’t take long after the birth of the motorcar for inventors to start thinking about autonomous vehicles. In 1925, the inventor Francis Houdina demonstrates a radio-controlled car, which he drives through the streets of Manhattan without anyone at the steering wheel. According to the New York Times, the radio-controlled vehicle can start its engine, shift gears, and sound its horn, “as if a phantom hand were at the wheel.”
As an amusing aside, Houdina’s name sounded sufficiently like that of the famous escape artist and illusionist Harry Houdini that a lot of people thought this was Houdini’s latest trick. Houdini visited the Houdina Company and got into a physical altercation, during which he broke an electric chandelier.

John McCarthy’s robo-chauffeur
In 1969, John McCarthy — a.k.a. one of the founding fathers of artificial intelligence — describes something similar to the modern autonomous vehicle in an essay titled “Computer-Controlled Cars.” McCarthy refers to an “automatic chauffeur,”
capable of navigating a public road via a “television camera input that uses the same visual input available to the human driver.”

He writes that users should be able to enter a destination using a keyboard, which would prompt the car to immediately drive them there. Additional commands allow users to change destination, stop at a rest room or restaurant, slow down, or speed up in the case of an emergency. No such vehicle is built, but McCarthy’s essay lays out the mission for other researchers to work toward.

No Hands Across America

In the early 1990s, Carnegie Mellon researcher Dean Pomerleau writes a PhD thesis, describing how neural networks could allow a self-driving vehicle to take in raw images from the road and output steering controls in real time. Pomerleau isn’t the only researcher working on self-driving cars, but his use of neural nets proves way more efficient than alternative attempts to manually divide images into “road” and “non-road” categories.

In 1995, Pomerleau and fellow researcher Todd Jochem take their Navlab self-driving car system on the road. Their bare bones autonomous minivan (they have to control speed and braking) travels 2,797 miles coast-to-coast from Pittsburgh, Pennsylvania to San Diego, California in a journey the pair dubs “No Hands Across America.”

The Grand Challenge is too challenging
In 2002, DARPA announces its Grand Challenge, offering researchers from top research institutions a $1 million prize if they can build an autonomous vehicle able to navigate 142 miles through the Mojave Desert.

When the challenge kicks off in 2004, none of the 15 competitors are able to complete the course. The “winning” entry makes it less than eight miles in several hours, before catching fire. It’s a damaging blow to the goal of building real self-driving cars.

Parking gets smarter

While autonomous vehicles still seem way in the future in the decade of the 2000s, self-parking systems begin to emerge — demonstrating that sensors and autonomous road technologies are getting close to ready for real world scenarios.

Toyota’s Japanese Prius hybrid vehicle offers automatic parallel parking assistance from 2003, while Lexus soon adds a similar system for its Lexus LS sedan, Ford incorporates Active Park Assist in 2009, and BMW follows one year later with its own parallel parking assistant.

Google searches for an answer
Starting in 2009, Google begins developing its self-driving car project, now called Waymo, in secret. The project is initially led by Sebastian Thrun, the former director of the Stanford Artificial Intelligence Laboratory and co-inventor of Google Street View.
Within a few years, Google announces that its autonomous cars have collectively driven 300,000 miles under computer control without one single accident occurring. In 2014, it reveals a prototype of a driverless car without any steering wheel, gas pedal or brake pedal, thereby being 100 percent autonomous. By the end of last year, more than 2 million miles had been driven by Google’s autonomous car.

The big car manufacturers dive in
By 2013, major automotive companies including General Motors, Ford, Mercedes Benz, BMW, and others are all working on their own self-driving car technologies. Nissan commits to a launch date by announcing that it will release several driverless cars by the year 2020.

Other cars, such as the 2014 Mercedes S-Class, add semi-autonomous features such as self steering, the ability to stay within lanes, accident avoidance, and more. The likes of Tesla and Uber also begin actively exploring self-driving technology, while Apple is rumored to be doing so.

The first autonomous car fatality
Sadly, but inevitably, the first autonomous car fatality takes place. The incident occurs in Florida while a Tesla Model S is in self-driving Autopilot mode. The Tesla’s human occupant dies when the car hits an 18-wheel tractor-trailer, failing to brake in time after the trailer turns in front of it.
The death sparks renewed debate about self-driving cars and some of the technical and ethical issues surrounding them on the road. It’s a setback, but one which underlines the fact that — like it or not — autonomous cars are well and truly here.

Audi A8 becomes the first Level 3 production car (maybe)
Audi claims its next-generation A8 luxury sedan will be the first production car with SAE Level 3 autonomy (see below for an explanation of autonomy levels). The A8’s Traffic Jam Pilot allows the car to drive itself without any human
intervention, but only under certain conditions. The system only works in traffic at speeds up to 37 mph, in divided highways with clearly-marked entrance and exit lanes.

But Audi’s quest to free commuters from the drudgery of traffic jams faces more than just technological hurdles. While we can confirm that Traffic Jam Pilot works, it’s still unclear whether regulators will approve the use of the system in cars sold to the general public. It’s just one facet of a bigger debate over self-driving car regulations that is just getting started.

AI comes to self-driving cars
At CES 2018, Nvidia unveiled a new self-driving car chip called Xavier that will incorporate artificial-intelligence capabilities. The company then announced that it was partnering with Volkswagen to develop AI for future self-driving
cars. While not the first effort to imbue autonomous cars with AI (Toyota was already researching the concept with MIT and Stanford), the VW-Nvidia collaboration is the first to connect AI to production-ready hardware. It opens up the possibility for self-driving cars to perform better, as well as for new convenience features like digital assistants.