Artificial Intelligence And Autonomous Vehicles

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Artificial intelligence has been a growing field for the past decade. We see more companies using or implementing some sort of AI within their businesses to better their performance and acquire to the demand of their products.  But what is artificial intelligence and how is it beneficial to our society today. “*Artificial intelligence (AI) is wide-ranging branch of computer science concerned with building smart machines capable of performing tasks that typically require human intelligence.* ”(*What is Artificial Intelligence?*) There are certain products that as long as there is a demand from people who want to go places and travel long distances are going to have a place in society and are going to need to continue to excel and better themselves. These are cars and planes. For the show and tell presentation I talked about how boeing integrates artificial intelligence to their planes in order to make them safer and save a fortune in reparations and maintenance, but another similar article that caught my attention was a presentation from another peer that talked about how tesla uses artificial intelligence and big data for their vehicles. These topics are very similar as they both include some sort of vehicle relying in Artificial intelligence with the help of a human in order to operate, but the intent is to make humans responsibilities easier and less demanding. In this paper I will talk about the different methods both companies use to gather data for the implementation of the AI in their products and how these differ from one another, I will also talk about how they could benefit from each others implementations and how realistic it is to have fully implemented AI that do not require the supervision of a human for these different industries. Is it realistic to have expectations of AI replacing the jobs that humans do that require a vast amount of skills such as driving or flying?

One of the ways Boeing currently uses AI is by the help of their research lab located in Pittsburgh, they are able to use data and analytics with artificial intelligence to help planes that have reported or been diagnosed with some sort of issue land safely (Ghosh, S). They are able to achieve this by gathering data and analyzing the behaviour of thousands of different flights establishing and identifying a pattern to then apply these findings into the embedded systems and sensors of the planes to be used by those planes that require assistance and avoid a catastrophe. For Tesla the way they gather their data is in a more raw approach, Tesla gest the data directly from their customers so only Tesla has access to this data, essentially the different sensors that the car is abilitated with track data such as cars, buildings, road signs and pedestrians and is even able to pick up driving patterns and reactions from their customers such as different zones where cars usually slow down and danger zones, then it sends all that data to the cloud in order to be processed (Lobzhanidze, G. 2018, August 6) . There are approximately 164,000 teslas on the road, gathering data constantly, that is a lot of data that the AI uses in order to make the autopilot experience more accurate. But this is not the only way AI is helping boeing and Tesla. A very important aspect of aviation is not only the safe and successful transportation of passengers and mercaderies but also preventing the occurrence of accidents by detecting these at an early enough stage to avoid putting at risk the lives of others, which happens during the maintenance stage of an plane. Boeing aims to use AI in a way that can produce what they call “*Self healing planes*”(Ghosh, S). Self healing plane does not mean that the plane is going to be able to repair itself mid flight if an issue is detected, rather what it means is that the plane is going to be able to diagnose if there has been an issue anywhere around the aircraft and give the exact location of this wear and tear for the maintenance team on the ground to identify and repair the plane. This is a critical tool that could be very beneficial, this could save time and money to airlines. Tesla has a tool that achieves what Boing’s intended purpose is in a smaller scale, of course as cars do not have the same amount of engineering behind and are much smaller than a plane, already in place for their users. This tool is able to keep track on certain components around the vehicle to let the user know if they need replacing and is even able to order parts ahead of the next service visit, essentially the car is able to diagnose the problem and make it easier for the mechanics to repair by pointing exactly where the issue is and by ordering the exact components that need to be replaced (Schroeder, S. 2019, May 8).  If an issue could be identified before it turns into a greater problem it means that planes do not have to be grounded for longer periods of times and airlines can continue to use them for the transportation of passengers unless there is a bigger issue with that specific model reocurring for different airlines around the world, in that case planes are grounded until the issue is resolved. Which is what happened when one of the most important component in a plane that has been around even before the existence of computers and now benefits of its integration with this failed killing hundred of people, the Autopilot. *“An autopilot is a device used to guide an aircraft without direct assistance from the pilot. Early autopilots were only able to maintain a constant heading and altitude, but modern autopilots are capable of controlling every part of the flight envelope from just after take-off to landing. Modern autopilots are normally integrated with the flight management system (FMS) and, when fitted, the autothrottle system”*(SKYbrary Wiki.) In two thousand and eighteen and two thousand and nineteen there were two significant airplane crashes where the Boeing 737-MAX was involved that lead to the grounding of the plane worldwide until Boeing solved the issue. The issue was tied to the automatic flight control system that is in charge of determining the angle of attack of a plane, which tells how much the aircraft is pointing up or down. The way it works is the AI is in charge of taking input from a multitude of sensors spaced around the aircraft that give air speed, engine throttle settings, air temperature and height in order to be feed to an algorithm and produce a safe flight plan. If the sensors feed wrong information onto the AI then wrong decisions are likely to be made by the artificial intelligence which is what ultimately happened on the crash of the two 737-MAX. According to these findings modifications were made onto the systems on the plane that required the installation of a redundant Angle of attack sensor in case one was behaving in wrongful ways in every single 737-MAX, so every single plane had to be serviced by a maintenance team adding more grounding time. Tesla has a different way of dealing with significant system issues that affect the performance of their vehicles, when different Tesla vehicles needed servicing as per example when several Tesla owners received an alert that a charger plug needed to be fixed because it had been discovered to be a cause for fires. Their users were able to keep driving until tesla resolved the issue. In part is because a car accident and a plane accident lay at different scales, a 737 cost 90 million US dollars while a tesla cost 40 thousand US dollars, the casualties resulting from a car accident are also much less than those produced by a plane crash. Tesla was able to completed the fix for its 29,222 vehicle owners via software update, no need for the cars to be taken to a mechanic or be serviced one by one unlike Boeing planes.

    As of now it is highly unrealistic that AI will take over human presence anytime soon, there have been a number of accident reported due to faulty Artificial intelligence that are alarming enough to still require the supervision of a human. Rather AI can serve as a tool for humans to make for a safer environment while operating the vehicles as AI can see more than the human eye can and has the ability to process more information about the environment than a human will ever be.

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