The Artificial Intelligence (AI) of Self-Driving Cars

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INTRODUCTION

With the creation of AI, the talk of assisted and automated driving has skyrocketed with companies such as Tesla leading the industry with state-of-the-art AI assistance that allows you to sit back as the car takes over and helps you arrive towards your destination.

ABSTRACT

Self-driving cars have always been a fever dream to people in the past, but now it has become a reality with more car products investing in AI imbedded within the car to adapt to situations. The rise in production of these products has led to some heavy backlash from consumers that feel as though they are not safe within their own cars and how accurately the cars can get them to a destination safely. As AI becomes more advanced, the rise of AI technology within products. So how can people trust AI without having firm evidence that it can work efficiently and effectively each time? Some disadvantages of AI in self-driving cars is the larger sticker price. There is also a lack of self-control by humans that may appear dangerous to some. However, there are more advantages with autonomous vehicles. They could potentially communicate with another to make traffic more efficient. The car can also see from all angles at the same time, which could mean less accidents. Some may feel skeptical of the idea but is important to know how AI works. One way we can think about AI in self-driving cars is that it is the brain of the car. If we do not know how the brain works in people, then it is extremely hard to understand why people make the choices they make. We can make the same explanation for AI in these cars. If we do not know how the AI works, then it would be difficult to fix any problems that arise. We can also use it to help develop more advanced AI that can do more than drive from point A to point B. We can invent AI that can do things that humans can not, and it all starts with the basics.

Figure 1. Futuristic AI Car From Toyota.

OBJECTIVES

For this research project, we sought to find how artificial intelligence has improved during recent years to see how smart and safe self-driving can become.

METHODS

- The baseline that the AI needed to meet was set by a human test that became the standard. Whenever the AI passed that line, that meant that the AI did better than a human could
- Over the years, AI completed this test with 5 different categories. Handwriting recognition, Speech recognition, Image recognition, Reading comprehension and Language understanding
- The tests started in 1998 and the data ends in 2020

RESULTS

- Over the past 20 years, AI has severely increased its ability in different types of recognition as well as comprehension in reading and understanding language
- From 1998 to about 2015, AI was behind the human benchmark but around 2015 is when AI started to pass that line
- Even though Reading Comprehension was one of the last categories to be tested, so far in 2020 that is the category that AI has done the best at
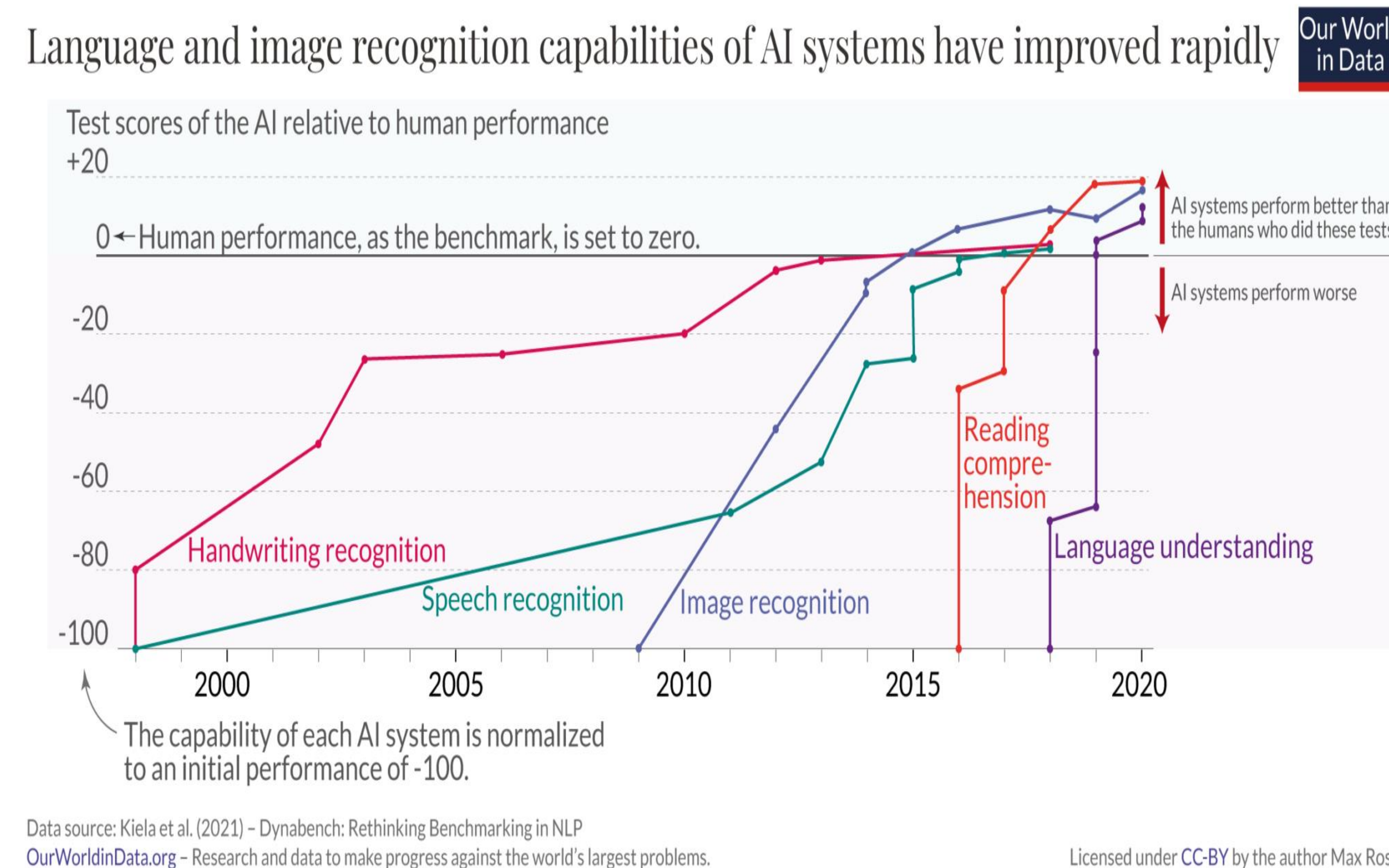

Figure 2. Graph of Improvements in AI Vehicles.

Figure 3. What the Car Sees With AI.

CONCLUSIONS

- In this day and age, automated driving has proven to be as smart and aware has the average human on the road according to the research.
- People do not have to be as skeptical about self-driving cars from the improvements made over the past twenty years.

FUTURE WORK

AI has been growing exponentially over the past few years and with the rise of AI websites that are being backed by multiple billionaires. With the limitless knowledge and potential that AI can have there is only a matter of time until every car is being controlled and monitored by a person or a general AI that has a destination or task that it is set to complete.

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