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AI Essay

The first two sections of this report mainly introduced the definition and development trend of artificial intelligence, and pointed out that artificial intelligence has become more and more common in the information age and the emergence of the Internet. It will soon be applied to many aspects of production and life, such as manufacturing, Internet customer service, sales, data collection and processing, education, medical care and other fields. These fields can actually see the application of artificial intelligence. However, some of the views in the report are not very convincing and accurate, and can be challenged.

First, the report points out that autonomous transportation will soon become commonplace in North American cities in 2030. Moreover, there will be fewer cars and even aircraft due to autonomous flight. Nonetheless, it will take longer to achieve autonomous driving because there are many challenges. Safety, the most important requirement for autonomous driving, cannot be realized immediately because of the three main challenges: edge computing system design, V2X applications and self-driving car safety. In the design of edge computing systems, scientists are faced with a systematic challenge, that is, to provide more computing power with reasonable energy consumption, and to ensure the safety of autonomous vehicles even at high speeds.

If safety is compromised to any degree, the safety of autonomous vehicles will be threatened. Since each self-driving car is equipped with many sensors and computing units, the attacker will target one of the sensors, computing system, control system or communication network to make the attacked vehicle confused, blind or even take over its control. , Leading to a catastrophic accident.The time to address these challenges is unknown, but certainly not short (SHAOSHAN LIU,\* et al., 2019, p.4). Therefore, I do not believe that the point in the report which indicates the autonomous driving will be implemented on a large scale is reasonable.

In additional, this report points out that reinforcement learning has existed for decades as a framework for experience-driven sequential decision-making, but it has not achieved great success in practice, mainly due to the representation and expansion problems. Nevertheless, scientists have proved that reinforcement learning can help robots avoid collisions,which shows the practical effects of reinforcement learning. Using reinforcement learning algorithms based on policy gradients, multiple robots can be used in a rich and complex environment at the same time. Afterwards, scientists verify the learned sensor-level collision avoidance strategies in real scenarios. The universality of the learning strategy is verified in a set of invisible scenarios. Finally, they show that the collision avoidance strategies learned from the multi-robot navigation task provide a effective collision avoidance solution for a single robot working in a dense real crowd (Tingxiang Fan1\*,\* et al., 2020, p.1). Therefore, the point that reinforcement learning does not make a big breakthrough in the report is not accurate.

To sum up, I mainly challenges two point in the report that are about the future development of autonomous driving and status of reinforcement learning.

As what the report indicates, Sako (2020) also claims that the impact of artificial intelligence on future work should be framed from the perspective of tasks and automated by artificial intelligence. AI replaced some tasks, supplemented other tasks, and created new tasks (p. 27). However, some predictions cannot be believed blindly.

References

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