

Brief Analysis on the Legal Personality of Artificial Intelligence

–Taking Intelligent Driving Vehicles as an Example

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Abstract—Recently, among all worldwide research fields, Artificial Intelligence has become a hot spot and has had a lot of impact on all walks of life and has a positive impact on people's quality of life. With the aim to control the influences on the traditional legal system of personality brought by artificial intelligence, and to better deal with the legal infringement brought by autonomous vehicles, this article analyzes from the perspective of legal subject and subject attitude, object and object attitude. A complete legal system and a mature legal system will surely lay a foundation and could be applied to promote and boost the development of AI.

Keywords—Artificial intelligence; Intelligent vehicles; Legal personality; Infringement

I. THE LEGAL IMPACT OF INTELLIGENT DRIVING VEHICLES IN CHINA

A. The techniques of intelligent driving vehicles

With the help of an intelligent driving system and an assistant driver, driving is performed in the intelligent driving vehicles. The operating principles of auxiliary driving in self-driving vehicles is : The auto driving system makes use of the inductive radars and sensors, cameras, positioning devices and many complex analytical procedures and algorithms. It can self-identify the road conditions and take the traffic, weather, and all other external conditions affecting the safety of driving into consideration to voluntarily adjust the speed and route according to the sensor. And the intelligent driving vehicle is able to avoid collisions by programming. All of this is due to the achievements of the development of machine technology

B. Autonomy of intelligent driving vehicles

Intelligent vehicles (self-driving vehicles) refers to using the artificial intelligence, remote communication, cloud computing and other high-tech technologies to control vehicles. As artificial intelligent driving has walked into all the fields in our life, applying the reasonable legal status to artificial intelligence is a demand of historical necessity and social change. Applying the ability of the individual vehicle to perform the driving behaviour independently can achieve partially or fully automatic driving of the new generation of vehicles. With the rapid growth of the era of big data, the age

of intelligent driving is getting closer to our daily life. As for the traditional legal personality, the identification on the legal personality of self-driving vehicles has become an unavoidable problem. Intelligent vehicle is a kind of commodity in the legal provisions. And arguments on its legal personality have arisen among the scholars. In traditional legal personality, artificial intelligence is regarded as a computing program. The value it creates must rely on hardware equipment whose technical support is provided by human beings or Internet virtual cloud computing. Meanwhile artificial intelligence has a certain degree of independence and autonomy.

C. Legal personality is the premise and foundation of science and technology

Legal personality is the legal premise and basis for settling the conflicts and issues between human beings and artificial intelligence. However, the feature that the artificial intelligence relies on the material carrier does not allow it to bear the legal consequences of its own behaviour [1]. By developing a legal relation between human beings and artificial intelligence and applying the legal personality to artificial intelligence, artificial intelligence is able to undertake the legal consequences independently with its own legal personality; at the same time, we should take it into consideration that the artificial intelligent vehicle is a kind of commodity, which doesn't possess the independent personal property. As it is unable to undertake all legal consequences, its user should bear the material legal responsibility. Artificial from the human's control and dominance. Therefore, both of them form an unequal legal relationship. The commodity nature of an artificial intelligent driving vehicle determines that it cannot be equated with human legal personality.

II. SUBJECTIVE RECOGNITION OF THE INTELLIGENT DRIVING SUBJECT

A. Direct intention

When judging the subject of liability, the question on whether the subject has subjective intentions follows. Direct intention means that the actor knows that his or her behaviour certainly or probably has a harmful effect on society, and that he/she may even hope that it will cause the harmful result or

have the mental attitude of knowing the inevitable harmful result and letting it happen², which means whether the assistant driver has direct intention responsibility for the damage caused by the intelligent driving vehicle. For the damage caused by an intelligent vehicle, the user not only realizes the possibility of its occurrence but also wants it to happen, which results in a harmful consequence caused by the intelligent driving. Therefore, for the result or behaviour that has not actually happened, it is not necessary to ask the actor to realize the happening process, but be aware of "the result or the actual behaviour may occur" or "foresee the outcome or the possibility of the behaviour".

B. Indirect intention

Indirect intention refers to the mental state that knowing his/her behaviour may cause the harmful results to society and letting such results happen.³ The damage caused by the user's intelligent driving vehicle is indirect intention. For the damage caused by the self-driving vehicle, the user not only knows that it may happen but also allows it to happen, which have the intelligent driving vehicle cause damage. Since the indirect intention factor of "let it be" is less severe than the direct intention factor of "hope", it can be punished mercifully by adhering to match punishment with crime and responsibility when sentencing.

C. Careless Negligence

Careless negligence refers to that the actor should foresee his/her behaviour may result in the consequences of damage, and the psychological attitude of the result of the damage caused by negligence. It is also known as unconscious negligence.⁴ It is a negligent psychological attitude of the user to let the accident of the intelligent driving vehicle happen. For the serious injuries and deaths caused by intelligent driving vehicles, the user is unaware of that it may occur but has the ability to realize, which results in the self-driving vehicle damage. Such kind of user's driving behaviour does not constitute a crime. After all, the actor does not want or let the result happen, and a limited definition should be made. The definition is that: the actor's conduct must violate the statutory duty of care. When the intelligent driving vehicle causes injury or death, the user's driving behaviour violates the duty of care: the user's driving behaviour violates the traffic rules. Secondly, for the severe damage caused by the intelligent driving vehicle, if the user is unable to realize the possibility of occurrence, such driving damage caused by the self-driving vehicle will not constitute a crime.

D. Negligence caused by overconfidence

Overconfident negligence refers to that the actor has foreseen that his/her behaviour may result in harmful consequences, but he/she believes that he/she is able to avoid happening. For the serious injuries or deaths caused by self-driving vehicles, the user is aware of that it may happen but confidently believes that it can be avoided. For the large amount of property damage caused by the intelligent driving vehicle, the user is aware of the possibility of its occurrence and can be avoided. The cognition factor of indirect intention and overconfident negligence is "realizing that the result may

occur". The will factor of indirect intention is "believing that the outcome will not happen", and the latter will factor is "letting the result happen." The third person having the experience in intelligent driving and objective rationality when causing the injury and death and property damage judges whether the assistant driver has helped to avoid the consequences. If yes, the driver's driving behaviour is due to overconfident negligence. If not, his/her driving behaviour is indirect intention.

III. LEGAL PERSONALITY OF LEGAL FICTION

A. Independent legal personality given by legal drafting techniques of legal fiction

The nature of intelligent driving vehicle is more "being close to human nature" than "personification" [2]. Although the current intelligent driving technology is the performance of strong artificial intelligence or even super artificial intelligence, it can not become a traditional legal personality. We can only acknowledge that the intelligent driving is "being close to human nature". Viewing it as "human being" will help to simplify and standardize the series of legal relationships. The development direction of intelligent driving is the high-intelligent imitation based on the existing intelligent human thinking and behaviour framework. Therefore, the legal personality fiction of intelligent driving has become the essential and urgent legal necessity [3].

B. Establish an artificial intelligence limited liability system

The legal personality of intelligent driving depends on the purpose and application of manufacturing intelligent driving vehicles. Applying legal personality to intelligent driving is unavoidable. It means that what the social group can do is to approve or disapprove of the legal personality of intelligent driving. However, intelligent driving will never take the place of the user's driving. Therefore, it cannot be completely equivalent in legal personality. A limited liability system for artificial intelligence has to be established. Any vehicle being put into traffic will bring a potential risk to the transportation, and people who bring up the risk should be responsible for it. It is impossible to completely attribute the legal responsibility to intelligent driving vehicle, which will be a way for users to break away from their legal responsibilities [4]. Therefore, we should establish a limited legal liability system for intelligent driving. If it is the user's fault for the occurrence of the accident, he/she must undertake the corresponding legal tort liability based on his/her fault. Firstly, even in a fully automatic driving, the results of injury and death and property damage that traffic accidents caused by intelligent driving is the same as the traditional traffic accidents. The user's responsibility certainly exists, and the user is the beneficiary of the operational dominance and operational benefits. Secondly, the user is the beneficiary and controller of starting up and stopping the intelligent driving. Even if the user does not directly control the driving steering wheel, he/she should perform his/her full supervision obligation for various operation, maintenance and insurance of the vehicle, as well as the cost. Therefore, the user should undertake the corresponding share of legal responsibility according to his/her

own fault. For the distribution of legal liability, we should divide the damage into three parts: the damage caused by human operation, the damage caused by the intelligent automobile itself, and the damage caused by the unidentified factors .

C. Establish a registration and filing system for artificial intelligence

The independent legal personality of artificial intelligence refers to enjoying the qualifications of rights and undertaking obligations, which are acknowledged by law [5]. It includes the subject of natural persons and the fiction of legal subjects . No identical conclusion has been drawn on the legal personality of intelligent driving vehicles yet, and a number of difficulties and issues need to be settled in practice. There is no doubt that a breakthrough will be achieved with the rapid development of artificial intelligence. However, the current ambiguous attitudes of laws and regulations towards the legal personality on the artificial intelligence have made the development of intelligent driving vehicles lack the guidance of social values, especially on the key issues such as the rights and tort liability subjects.

IV. DISTRIBUTION OF TORT LIABILITY

A. Difficulties in identifying the tort liability

Compared with human driving, the on-board control system is more scientific and quick when processing the road information. Together with the technological convenience brought by the automatic driving system, the risks arise one after another. When the intelligent driving vehicle causes the damage to the third party in the traffic accident, the actual reasons for the accident is unable to be identified based on the current evidence and technical conditions. Firstly, it is impossible to identify whether it is the human driver's incorrect operation or the wrong choice in the operation made by the intelligent system. Secondly, whether the future technology of intelligent driving vehicles has the ability of independent learning, independent decision-making and independent upgrading. Therefore, it is necessary to carry out the further research on whether the intelligent driving vehicle has independent legal personality or not.

B. Difficulties in the distribution of user's responsibility

The key solution to settle the problem of the vehicle user's responsibility is whether the vehicle user should undertake the tort liability during the fully automatic driving period. In the period of fully automatic driving, how to make the proper distribution on the tort liability as a passenger of a self-driving vehicle? Even in the fully automatic driving period, the user should undertake a certain part of responsibilities. The criteria for judging the user's responsibility are the dominance and benefits in the operation. Firstly, in the fully automatic driving period, the vehicle driver gets the control of the actual operation and domination, and he or she is able to take the place of the self-driving system in time to take over the car in a critical situation. Secondly, the vehicle driver enjoys the relevant benefits, which are generated from the vehicle operation. In the perspective of the risk source, it is the vehicle

driver that brings up the risks. "Any vehicle that is put into operation may bring up some potential risks, and the risk starter should be responsible for the risks he or she brings." Some scholars believe that the driver of artificial intelligence is able to instruct and control the vehicle operation. He or she should always play a leading role in artificial intelligence and should undertake the main tort liability for traffic accidents. Therefore, if the driver is at fault for the accident, he or she should undertake the corresponding tort liability based on his or her fault as well.

V. THE RIGHTS CONSCIOUSNESS AND APPEAL OF ARTIFICIAL INTELLIGENT DRIVING VEHICLE

A. Intelligent driving vehicle has consciousness ability

The artificial intelligent driving vehicle has an independent consciousness, which is built on the basis of human control consciousness. The use of intelligent driving vehicle will certainly result in the rising of rights awareness. For the society, it needs relatively equal rights. With further research on intelligent driving vehicles, human beings apply legal independent personality and legal rights to the intelligent driving vehicle from the perspective of law and ethics [6]. Some scholars believe that the recognition ability is the motivation of its behaviour and the ability of result. Based on its recognition ability, it creates the behaviour automatically, which is the premise of giving the capacity for action of natural persons. As an intelligent driving vehicle with rational analysis ability and action execution ability, it not only has the ability of consciousness, but also has the corresponding ability to express its consciousness. Intelligent driving vehicle can identify the nature of traffic obstacles and make the right decisions and actions that are in accordance with its own interest. At present, this ability comes from human-preset instructions or code. In the perspective of legal, the ability of consciousness is an important basis to judge the behavioral ability of the legal nature subject. The premise that artificial intelligent vehicles create legal independent personality is that it should be able to identify the result of the autonomous driving behaviour. On the basis of that, the right instruction judgment is made to prove that it has the ability of consciousness to make the right judgments. Meanwhile, it must also have the ability to act according to its ability of consciousness. At present, although China's current law hasn't applied the independent legal subject status to the intelligent driving vehicles, actually has given certain behavioral ability similar to the subject of legal natural person. If the intelligent driving vehicle develops a relevant legal relationship with independent consciousness, and the legal denies its subject qualification, the problems of distribution on relevant liability will arise, such as who is responsible for the breach of contract. It becomes urgent to give an independent legal personality to the intelligent driving vehicle, which has the ability of consciousness and the capacity for action.

B. Intelligent robots can bear civil liability relatively independently

The behaviour of intelligent driving vehicle causing damage to the person or property, and the issue of the distribution of civil liability have drawn the attention of many scholars. The distribution of legal responsibility is a key factor in determining whether an intelligent driving vehicle can obtain the qualification of a legal subject. Legal obligations and rights complement each other, and undertaking responsibility is the inevitable result of violating obligations. The duty code and responsibility code programmed by the programmer for intelligent driving vehicles become the general guideline to build up the behaviour of intelligent driving vehicles. Under the situation of violating the legal obligation, it can make the driver of the intelligent vehicle bear the corresponding legal responsibility, which becomes an important guarantee for intelligent robots to bear the civil liability independently .

The essential attribute of artificial intelligence belongs to "being close to human nature". The problem on legal personality of artificial intelligence can also be interpreted into: in the perspective of the essential attribute, the artificial intelligent vehicle has the legal personality, however, the legal personality of artificial intelligence is unable to be completely denied or nearly being close, or even getting close to the legal personality of minors. Up till now, there hasn't been any identical settlements to the legal personality of artificial intelligent driving. There are some distinct periodic differences in the performance of the legal personality of the artificial intelligence - especially being covered under the instrumental role before the period of "being close to human" . The nature of independent legal personality of the artificial intelligence is reflected in the "being close to human nature" of artificial intelligence. In a word, whether the legal personality of artificial intelligence is able to be developed is not determined by humans freely, but is determined in the process when human develop the path and code of the artificial intelligence vehicles. If the future of artificial intelligent driving still follows in the direction of the current legal thinking "being close to human nature" , the traditional law will finally acknowledge the legal personality of artificial intelligence. It is just a matter of time [7].

VI. CONCLUSION

The social changes and legal changes brought by artificial intelligence are the general trend. With the increasing dependence of people's daily life on vehicles, the intelligent vehicles must become the leading product of artificial intelligence products. All countries in the world have realized this huge income market, and have invested heavily in the research and development of intelligent vehicles. China must seize the opportunity of developing the intelligent vehicles. A complete legal system and a mature legal system will surely lay a foundation on the advancement of technology.

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