

# The Identification of Infringement Liability of Artificial Intelligence Products - Taking Self-driving Cars as An Example

Tingting Zhang \*

Anhui University of Finance and Economics, Bengbu 233030, China

\*Corresponding Author

## Abstract

With the progress of artificial intelligence technology, autonomous vehicles have begun to get research and development support and promotion applications worldwide. Compared with traditional artificially driven vehicles, the advantage of autonomous vehicles is that they can use intelligent driving systems to sense road information in real time, and the overall driving safety is higher. However, as an emerging technology, the laws, regulations and management system matching automatic driving technology are not perfect. When an autonomous vehicle has a traffic accident, there is a huge dispute about the confirmation of the responsible body and the fault identification. To this end, this paper discusses the legal dilemma about the identification of infringement liability of autonomous driving vehicles, analyzes the legal dilemma of the division of infringement liability of autonomous driving vehicles from the perspective of the identification standard of infringement liability, the identification of infringement facts and the implementation of compensation liability, and puts forward some suggestions on the identification of infringement liability.

## Keywords

Artificial Intelligence products, tort Liability, self-driving cars, exoneration.

## 1. Introduction

A revolution is brewing in the future of cars, and intelligence will become the main trend, bringing more convenience and comfort. From artificial intelligence to autonomous driving, cars are constantly advancing on the road to intelligence. Autonomous driving technology provides us with convenience and reduces accidents caused by fatigue, negligence or mental stress. Let us rest assured that we can loosen the steering wheel, vehicle autonomous driving will become the trend of the future. Artificial intelligence provides vehicles with intelligent recognition, reasoning, learning and decision-making capabilities, making vehicles smarter, safer and more environmentally friendly. With the development of the Internet of Things and 5G technologies, the interconnection between vehicles and vehicles and between vehicles and infrastructure will become even closer. Smart, connected technology gives us traffic information, including road conditions, traffic flow, parking locations and weather. Communication oil helps reduce traffic accidents. From artificial intelligence to autonomous driving, car intelligence is constantly improving, becoming smarter, greener and safer. Technological progress and market competition will bring more opportunities and challenges. Under the current legal framework, the issue of liability for the infringement of artificial intelligence products is not clear enough, and this uncertainty can easily lead to legal disputes and increase the legal risks of developers and users. If the legislation can define the tort liability and provide a clear legal framework, it will reduce unnecessary risks. Secondly, the infringement of autonomous vehicles will be decoupled from the tort liability of traditional traffic accidents, and the accident liability of traditional traffic accidents is generally the user

and owner of the vehicle. But the issues involved in self-driving cars are complex<sup>[1]</sup>. When a driverless car has a traffic accident, it involves the division of responsibility, and the self-driving car needs to be separated from the vehicle manufacturer, the software developer, the driver, the vehicle owner, the manager, other vehicles or pedestrians. The lack of tort liability relief system requires the formulation of relevant laws and regulations and supporting measures. How to determine the division of tort liability of autonomous vehicles is the focus of this paper<sup>[2]</sup>. Perfect laws and regulations will provide high-quality soil for the growth of artificial intelligence products in China. Enhance the international competitiveness of China's artificial intelligence products.

## 2. Legal Dilemma of Tort Liability

### 2.1. Unclear Legal Positioning

When self-driving cars cause traffic accidents, the division of tort liability is inevitable. Whether self-driving cars have the subject qualification in the legal sense and whether they can bear tort liability is a topic of concern in the current academic circle. Different from human drivers in the traditional sense, autonomous vehicles have the possibility to bear tort liability due to their high degree of autonomy. <sup>[3]</sup>At present, the academic research on the subject status of autonomous vehicles is mainly divided into two theories, namely, the negative theory and the support theory. The negation theory holds that autonomous vehicles do not qualify as subjects. The reasons are as follows: First of all, the current mainstream view in our country believes that the subject of tort liability is still a natural person, although non-human beings such as organizations or animals will also infringe under specific conditions, but they do not carry out negative evaluation as the subject of responsibility and make them bear responsibility independently. At present, China's judgment criteria for natural persons are only discussed from the biological significance, and they need to have breathing and independent human consciousness, which are obviously not possessed by autonomous vehicles. In this view, the tort liability rules applicable to non-human subjects are referred to when determining tort liability. <sup>[4]</sup>Secondly, even if the autonomous vehicle is regarded as the subject and made to bear responsibility, the autonomous vehicle will not bear responsibility independently like the human subject, and its ultimate responsibility still depends on human beings. The affirmation believes that the self-driving car has the ability to assume responsibility, can independently bear the consequences of infringement, <sup>[5]</sup>and provide relief to the infringed with its independent property. However, this kind of view only pursues the efficiency of problem solving on the level of infringement rules, and ignores the standard of the whole subject of tort liability, that is, the qualification of civil subject. The author supports the negative view, that is, the autonomous vehicle does not have the subject qualification and still belongs to the category of things. In the view of negation, the subject status of self-driving cars is not recognized, and

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<sup>[1]</sup> Xiaoping Chen. Ethical Governance of Artificial Intelligence: Underlying Logic and Innovative Exploration of a New type of problem [J]. Chinese Bulletin of Life Sciences, Vol. 34, Issue 8.

<sup>[2]</sup> Jiyu Zhang. Concept Establishment and mechanism Construction of Enabling Artificial Intelligence Governance [J]. Chinese Law, No. 5, 2024.

<sup>[3]</sup> Huanmin Lin. On the Basic Path of Artificial Intelligence Legislation [J]. Chinese Law, No. 5, 2024.

<sup>[4]</sup> Kaining Zhu. Research on the Identification of Tort Liability in Traffic Accidents of Autonomous Vehicles [J]. South Journal, No. 8, 2024

<sup>[5]</sup> Ruowang Ji. Research on the Type of Intelligent Vehicle Infringement: Taking Hierarchical Proportional Liability as the Path [J]. Journal of Nanjing University (Philosophy, Humanities and Social Sciences), 2020, 57(02): 120-131+160.

its tort liability is still borne by humans. But at this time, there will be a difficult problem when determining the tort liability, that is, which natural person shall bear the damage result. In view of this problem, there are mainly two voices in the current academic circle: one is to assign the damage as the tort cause in the traffic accident, and deal with it according to the liability of motor vehicle traffic accident. In the traditional traffic accident liability, the motor vehicle user bears the corresponding tort liability in most cases, and the motor vehicle owner or the person who has an interest in the traffic accident bears the liability in special cases. <sup>[6]</sup>The other is to regard the accident as product infringement and assign responsibility according to the relevant parties in product liability. China's Civil Code stipulates that the product liability applies to strict fault liability, that is, the producer and the seller bear the responsibility, and the producer and the seller bear the real joint and several liability, and the seller has the right to recover from the fault producer after assuming the corresponding responsibility. However, it is precisely because of the particularity of autonomous vehicles, the simple application of the Civil Code and Product Quality Law is not enough to exhaust the subject of infringement, and at this time, the developer of autonomous vehicles may also fail to bear the corresponding responsibility because of the inaccurate initial data setting, resulting in the infringement subject being too narrow. Of course, there are also a few views in the academic community that the infringement of autonomous vehicles will be identified in accordance with the investor's investment liability in the Company Law, or the application of highly dangerous liability. The liability form of "Company Law" which is responsible for investors has been experienced in judicial practice for a hundred years, and the rule has been relatively mature in practice. As an emerging product, the form of liability applicable to the Company Law is obviously not acceptable to the public. If the damage is identified as highly dangerous, it is necessary to determine whether the accident caused by the self-driving car is highly dangerous. China's Civil Code stipulates that highly dangerous operations, highly dangerous goods and other highly dangerous things cause damage to people, and whether autonomous vehicles are highly dangerous, the current law has no such provisions, so it is not appropriate to simply apply highly dangerous liability.

## 2.2. Decoupling from Traditional Traffic Accident Tort Liability

Autonomous driving technology is the application of artificial intelligence in the field of transportation, in theory, the popularity of the technology can help reduce traffic accidents caused by improper operation of the driver, but in practice, if the automatic driving system has defects or failures, it may lead to more serious infringement. <sup>[7]</sup>Compared with traditional traffic accidents, the infringement of autonomous vehicles involves more diversified legal subjects, the causal relationship between the infringement and the damage consequences is more vague, and the driving system has an algorithm black box, a series of changes make it more difficult to determine the legal liability. The gradual improvement of China's legal liability system for infringement of autonomous vehicles is of great significance and practical demand for promoting the orderly development of the autonomous driving industry. It is generally believed that since the autonomous vehicle does not have legal personality, it cannot bear the liability as an independent subject, and the liability for damage should ultimately be borne by the automobile manufacturer, system designer and car user, but it is necessary to assign the responsibility among these subjects according to specific circumstances.

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<sup>[6]</sup> Zhijian Zhang. On the Status of Electronic Legal Person in Artificial Intelligence [J]. *Modern Law*,2019,41(05):75-88.

<sup>[7]</sup> Qiushi Yin. Issues and Countermeasures of Intelligent Vehicle Tort Law [J]. *Legal Science (Journal of Northwest University of Political Science and Law)*,2018,36(05):42-51.

### 3. Principle of Liability for Tort Liability

The benefits of self-driving cars in terms of efficiency and safety are well known, but, like all human creations, they also carry the risk of harm. Once the risk becomes actual harm, how should liability be determined? By whom? According to China's Civil Code, Product Quality Law, Road Traffic Accidents.

#### 3.1. Liability of Vehicle Driver/Owner

<sup>[8]</sup>According to the relevant provisions of the Civil Code of the People's Republic of China, in the event of a traffic accident resulting in damage, if the damage belongs to the party of the motor vehicle, the motor vehicle user, that is, the driver, shall bear the liability for compensation. In general, the driver needs to bear the primary responsibility because they are the people who directly operate the vehicle and are responsible for following the traffic rules and driving safely. If drivers violate traffic rules or cause accidents due to personal fault, they will bear the corresponding legal responsibility. However, in some specific cases, the owner of the car also needs to take responsibility. For example, if the owner of the vehicle does not conduct a reasonable examination of the driver's driving qualifications when lending the vehicle, or the vehicle has hidden safety risks without maintenance, resulting in an accident, the owner shall also bear the corresponding compensation liability. The division of specific responsibilities needs to be judged according to the specific circumstances of the accident and relevant laws and regulations. If the accident involves a complex legal relationship, such as an employment relationship or an accident in the performance of a unit task, the acceptance of liability may be more complicated, and various factors need to be taken into account to determine the final liability.

#### 3.2. Producer/Seller Responsibility

According to Article 1,202 of the Civil Code of the People's Republic of China, if a defective product causes damage to others, the producer shall bear tort liability. Article 1,203 Where a defect in a product causes damage to another person, the infringed party may claim compensation from the producer of the product or from the seller of the product. Where the defect of a product is caused by the producer, the seller shall have the right to seek compensation from the producer after making compensation. <sup>[9]</sup>Where a product is defective due to the fault of the seller, the producer shall, after making compensation, have the right to recover from the seller. Article 1,204 Where a defect exists in a product due to the fault of a third party such as a transporter or warehouse, causing damage to another person, the producer or seller of the product shall, after making compensation, have the right to claim compensation from the third party. Article 1,205 Where a product defect endangers the safety of the person or property of another person, the infringed person shall have the right to request the producer or seller to bear the tort liability of stopping the infringement, removing the obstruction, eliminating the danger, etc. Article 1,206 Where defects are found in a product after it has been put into circulation, the producer or seller shall promptly take remedial measures such as suspension of sales, warning, recall, etc. Failure to take remedial measures in time or ineffective remedial measures resulting in increased damage shall also bear tort liability for the increased damage.

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<sup>[8]</sup> Zuyang Zhang. Fan Qirong. On the System Construction of Compulsory liability Insurance for Intelligent Vehicle products in China [J]. Jiang Han Forum,2023(07):122-128.

<sup>[9]</sup> Huiting Yu. Research on Tort Liability of Autonomous Vehicle Traffic Accident [D]. Lanzhou: Northwest University for Nationalities, 2022.

### 3.3. Responsibility of Public Road Management Authorities

Whether a road manager is liable in a traffic accident depends on the circumstances.<sup>[10]</sup> If a traffic accident is caused by the maintenance defects of the road manager, the road manager shall be liable. However, the road manager shall not be liable if he can prove that he has fulfilled his duty of safety protection and warning in accordance with the relevant standards. According to the law, if the road manager due to maintenance defects caused by motor vehicle traffic accident damage, the parties request the road manager to bear the corresponding liability for compensation, the people's court should support. However, the road managers can prove that they have fulfilled the obligations of safety protection, warning and other management and maintenance in accordance with laws, regulations, rules, national standards, industry standards or local standards, except . For example, if there are potholes on the road that are not repaired in time and no protection and warning signs are set up, the road manager should bear the corresponding responsibility; On the contrary, the road manager is not liable if he can prove that the maintenance has been carried out in accordance with the regulations and the necessary warning signs have been installed. Specific cases show that when the court judges the responsibility of the road manager, it will consider whether the road manager has fulfilled reasonable maintenance and management obligations. For example, if the road manager fails to repair the road in time and does not set up warning signs, the court may judge him to bear a certain proportion of the liability 5. In another case, a highway company was held liable for failing to install protective barriers and warning signs at dangerous turns 5. These cases show that the responsibility of road managers needs to be determined in the context of the circumstances, including whether reasonable maintenance and management obligations were met.

## 4. Conclusion

In view of major related issues, it is necessary to explore and establish new governance models. As the deep cause of major relevant problems lies in the limitations of the current innovation model Schumpeter innovation, the governance of major relevant problems involves the exploration of new innovation models. This new innovation model should better adapt to human needs in the era of artificial intelligence, and better play a supporting and guiding role in improving human well-being. In the context of the rapid development of artificial intelligence, self-driving cars, as a high-tech emerging product, continue to facilitate human production and life, so it is placed on high hopes. However, due to the imperfection of legislation, the infringement field of autonomous vehicles has not yet realized the effective relief of the rights and interests of victims. This paper focuses on how to identify traffic accidents caused by high-level autonomous vehicles, and on this basis puts forward corresponding countermeasures to further protect the legitimate rights and interests of victims. The emergence of new products promotes the development of The Times, and at the same time, in order to ensure the smooth operation of the overall society, it is also necessary to provide a good environment for the development of new products in terms of systems and policies.

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<sup>[10]</sup> Naizhen Cong. Research on Tort Liability in Traffic accidents of Autonomous Vehicles [D]. Shanghai: East China University of Political Science and Law, 2022.

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