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## CRIMINAL LIABILITY OF SELF-DRIVING VEHICLES UNDER HUNGARIAN CRIMINAL LAW

### Abstract

As self-driving evolves day by day, the accidents attributed to such technology will increase as well. If the legal environment does not prepare for these cases, the ‘liability-vacuum’ caused by the diverging court practices could lead to the rejection of the self-driving vehicles both by the consumers and the legislators. I am approaching the various questions posed by this technology from a continental standpoint, therefore the research examines the liability of the natural persons behind the technology. If we can provide possible answers to these issues, then the criminal liability of legal persons – an unfamiliar concept from the standpoint of the majority of the continental criminal law regimes – does not have to be applied to answer the central questions. If the national rules can determine the obligations of the natural persons travelling in a self-driving vehicle, their criminal liability can be decided accordingly and there is no need to create new offences.

### KEYWORDS

mens rea, intent, negligence, artificial intelligence, AI, self-driving, autonomous vehicle, traffic offences

## SŁOWA KLUCZOWE

mens rea, zamiar, zaniedbanie, sztuczna inteligencja, AI, samosterujący, autonomiczny pojazd, przestępstwa drogowe

## THE SELF-DRIVING TECHNOLOGY

Rudolf Diesel received the patent for the diesel motor in 1893. The first motorised vehicle available to the larger market, the Ford Model T was released in 1908. 109 years later, the same company commissioned the head of the department for autonomous vehicles as an executive officer to stay in competition against Tesla and similar companies<sup>1</sup>.

According to László Viski's 1974 monograph, "[assuming] both the full exploitation of the technical possibilities realistically conceivable today and the flawless work of the authorities, it is beyond doubt that the personal performance of the driver will remain the basis of accident-free and orderly, disciplined traffic for generations to come"<sup>2</sup>.

One of the main topics in the current industrial revolution is the increasing automation of our daily tasks, including driving. However, as the technology reaches new and new heights, questions have to be asked – what if something goes wrong? Who can bear the liability? If the future case-law (especially the criminal practice) cannot reach some kind of conclusion when these issues inevitably arise, it can easily lead to a 'liability vacuum' which may decrease the support of the public opinion and the legislator for this otherwise meaningful technology.

Before approaching the issue in the aspect of criminal law, a few basics have to be established regarding self-driving technology itself. Although many categorizations exist, the most widespread is the 5+1 partition created by SAE International<sup>3</sup>. The categories are the following:

0. zero automation. Most vehicles in the 20th century;
1. a single automated system assists the driver, i.e. a parking assistant;
2. automation of more driving tasks to aid the driver with constant monitoring of the driver;
3. AI can perform most driving tasks with detection capabilities of the outside world while the constant presence of a natural person is required;

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<sup>1</sup> R. Davies, *Ford Names Jim Hackett as New CEO in Push to Build Self-Driving Cars*, The Guardian, 22.05.2017, <https://www.theguardian.com/technology/2017/may/22/ford-sack-ceo-senior-bosses-push-build-self-driving-cars> (accessed 10.01.2020).

<sup>2</sup> L. Viski, *Közlekedési büntetőjog*, Budapest 1974, p. 69.

<sup>3</sup> J. Shuttleworth, *SAE J3016 Levels of Driving Automation*, SEA, 07.01.2019, <https://www.sae.org/news/2019/01/sae-updates-j3016-automated-driving-graphic> (accessed 20.02.2020).

4. complete automation under specific circumstances without constant human monitoring;
5. complete automation.

The commonly used term ‘self-driving’ starts at the third category while categories 3-5 are referred to as HAV (highly automated vehicle). According to a common prediction, the fourth category will be available to consumers in a few years; Elon Musk was the most optimistic and in 2013 said he believed it a real possibility for a car to travel from New York to Los Angeles without human intervention in 2017<sup>4</sup>, but this turned out to be an over-ambitious prediction.

## ADVANTAGES OF SELF-DRIVING VEHICLES

Although several advantages can be listed starting from the optimization of our daily lives and traffic through self-driving and car-sharing, I will emphasize the aspect of decreasing the number of various road accidents.

According, to WHO 1.3 million people die each year in traffic accidents<sup>5</sup>. In Hungary, 15,291 accidents resulting in injuries happened in 2019<sup>6</sup>. Out of this, 14,279 (93.38%!) can be attributed to driver error; 30 were caused by passengers, 760 by pedestrians, 49 were due to technical issues and 173 happened due to ‘other causes’ (e.g. road quality)<sup>7</sup>.

A research study conducted in the USA in 2008 by the National Highway Traffic Safety Administration examined further the causes of accidents. If an AI replaces the driver, the number of accidents can (and will) decrease significantly – an AI does not become inattentive (3.2%), does not drive aggressively (1.5%) or try to overcompensate (4.9%)<sup>8</sup>.

If we subtract accidents caused by drivers in the Hungarian example, we cannot expect 93.38% fewer accidents – as more and more tasks are given to the AI,

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<sup>4</sup> P. Eisenstein, *A Driverless Tesla Will Travel From L.A. to NYC by 2017, Says Musk*, nbc-news, 20.10.2006, <https://www.nbcnews.com/business/autos/driverless-tesla-will-travel-l-nyc-2017-says-musk-n670206> (accessed 10.06.2019).

<sup>5</sup> WHO, *Road Traffic Injuries*, WHO, 20.06.2022, <https://www.who.int/news-room/fact-sheets/detail/road-traffic-injuries> (accessed 10.02.2023).

<sup>6</sup> I choose to include the data from 2019 as the 2020 information was heavily affected by the COVID-19 lockdown.

<sup>7</sup> Hungarian Central Statistical Office (KSH): *2.4.3. Személy sérüléssel közúti közlekedési balesetek az előző okok szerint*, KSH, 05.03.2021, [https://www.ksh.hu/stadat\\_evkozi\\_2\\_4](https://www.ksh.hu/stadat_evkozi_2_4) (accessed 10.03.2023).

<sup>8</sup> National Highway Traffic Safety Administration, *Federal Automated Vehicles Policy – Accelerating the Next Revolution In Roadway Safety*, U.S. Department of Federal Transportation, 2016, <https://www.transportation.gov/AV/federal-automated-vehicles-policy-september-2016> (accessed 23.02.2020).

the accidents attributed to the issues with the AI will increase. However, this increase will still be significantly fewer than the current number of accidents. Only from this aspect, the self-driving technology is a worth pursuing as it is beneficial and we have not even taken the other advantages into consideration.

### CAN WE BLAME THE AI?

Although this essay emphasizes criminal liability of natural persons involved, we cannot skip the question that is pretty evident – can we blame AI?<sup>9</sup> Although defining AI itself may lead to further issues (and is avoided due to the limitations of this essay), this topic only considers the AI in the forthcoming decade and not the far future filled with androids and other visions similar to those propose by sci-fi authors such as Philip K. Dick.

The short answer is no. From the perspective of continental law, the base of a criminal offence is the voluntary (intentional or negligent, but voluntary) act of a natural person<sup>10</sup>. However, a research paper written by American and German scholars examined the issue from several viewpoints<sup>11</sup>.

To summarize the opinion of this research group, the answer is still no. Artificial intelligence does not understand the general prevention aim of the punishment – for instance, AI does not have personal liberty or property (or if the law allowed the latter, AI would not understand such concept) hence imprisonment or a fine would not reach its goals. Switching AI off as a sort of ‘capital punishment’ may only reach its goal if we first gave the AI a ‘will to live’<sup>12</sup> (I believe it would paint a rather negative picture about humankind to provide such a concept to anything for the sole purpose to threaten them by taking it away).

Furthermore, AI does not make decisions based on a choice between morally good or bad. It acts as it has been programmed to do so. Even if the acts are seemingly performed on their own, these are results of pre-determined patterns and courses<sup>13</sup>.

<sup>9</sup> For AI-related issues in general criminal law see I. Ambrus, *A mesterséges intelligencia és a büntetőjog*, ‘Állam- és Jogtudomány’ 2020, No. 4, pp. 4–23. For more detail on self-driving cars see I. Ambrus, *Az autonóm járművek és a büntetőjogi felelősségre vonás akadályai*, (in:) K. Mezei (ed.), *A büntetőjogi tudományok és az informatika*, Budapest–Pécs 2019, pp. 9–25 and I. Ambrus, *A közlekedési büntetőjog új kihívása a 21. században: az önzetű járművek*, (in:) M. Hollán, K. Mezei (eds), *A büntetőjog hazai rendszere megújításának koncepcionális céljai és hatásai*, Budapest 2020, pp. 121–132.

<sup>10</sup> B. Gellér, I. Ambrus, *A magyar büntetőjog általános tanai I.*, Budapest 2019, p. 180.

<sup>11</sup> S. Gless, E. Silverman, T. Weigend, *If Robots Cause Harm, Who is to Blame? Self-Driving Cars and Criminal Liability*, ‘New Criminal Law Review’ 2016, No. 3, pp. 412–436.

<sup>12</sup> *Ibidem*, pp. 423–424.

<sup>13</sup> *Ibidem*, p. 11.

Therefore, liability of natural persons related to technology has to be researched with utmost importance. If we can answer the complex issues by determining only the liability of natural persons, a solution available to every national criminal law can be established – if we have to take into consideration criminal liability of legal persons (i.e. a company behind an AI), the answer may be used by legal systems which acknowledge such responsibility, however, this concept conflicts with the criminal law of the majority of continental states.

## CRIMINAL LIABILITY ON THE ROAD

Before addressing the issues of accidents caused by self-driving vehicles, we will take a look at the basic context of offences against traffic regulations. Although the examples are going to be provided by the Hungarian Criminal Code (Act C of 2012), the basic principles are not unique.

The majority of offences against traffic regulations (and every one of them inspected in this essay) produce a result such an injury or death. To establish criminal liability, the prosecution has to provide evidence on the rules that the offender had violated before the accident – for instance, not yielding the right of way. However, a result and a violation of traffic regulation does not necessarily mean criminal liability – these two elements have to be connected. The textbook example is paradoxically an *argumentum a contrario*. In a hypothetical case, if the violation of the said regulation was that the defendant did not have the driver's license at the time of the accident (for instance, the defendant had left it at home) and hit a cyclist while abiding by every other regulation, his criminal liability for the injury of the cyclist cannot be established. As the defendant would have hit the cyclist even with the license, there is no relation between the harm and the violation of a regulation<sup>14</sup>. Naturally, consequences could be established even in this case for the missing license; these would be less severe, and in most states, not even regulated by criminal (or regulatory offences) law.

Although in the Hungarian criminal law traffic offences are regulated in a different chapter (Chapter XXII, where only the driver of a vehicle can be an offender), other jurisdictions do not use similar distinctions and would categorize an accident as negligent homicide or manslaughter. Nonetheless, this difference leads to interesting questions from the dogmatic standpoint. Since the aim of this essay is to try to establish a framework for accidents caused by self-driving vehicles, the further questions about the causes and effects of those distinctions have to be examined through other essays.

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<sup>14</sup> L. Viski, 1974, *op. cit.*, p. 373.

Although the intention here is to approach the issue from a wider standpoint than the national law, I choose to include two offences from the Hungarian Criminal Code so the various examples can be examined from a strictly continental standpoint. The two offences are called ‘dangerous driving’ (Section 234) and ‘causing a road accident’ (Section 235).

Dangerous driving refers to causing direct endangerment to the life or physical integrity of another person or persons by the violation of traffic regulations on a public road or a publicly accessible private road. Therefore, the result of dangerous driving is the direct endangerment where the offender (the driver) has to act with a present intent. However, it has to be emphasized that the intent can only extend to the endangerment and not to any harm caused. To give an example, if someone commits an intentional ‘hit and run’ with my car, the offence will be an offence against life or health (such as homicide). If the result is more serious than the direct danger, the perpetrator can only be negligent towards said result (thus committing an aggravating circumstance of dangerous driving). To give an example, if a hypothetical offender sees his rival neighbor cycling down the road and drives dangerously close to his adversary to frighten him but miscalculates the distance and hits the neighbor breaking his leg, the offender commits an aggravated act of dangerous driving.

However, if the offender causes an accident by only negligence, the offence committed will be ‘causing a road accident’, meaning he caused grievous bodily injury to another person or persons by violating traffic regulations through negligence. It has to be noted that the violation of the traffic regulation can be intentional, but the intent cannot extend to bodily harm or not even to direct danger. To give an example, if an offender drives over the speed limit intentionally, but causes a grievous bodily injury what could have been avoided by driving within the limit, the offence will be classified as causing a road accident although driving over the speed limit was intentional.

The above summary of the Hungarian rules provides a clear view for the continental rules on traffic offences – the relevant factors when deciding between the offences are the result and the intent or negligence towards it.

There is one final differentiating factor under Hungarian law: only the driver can commit the above-mentioned traffic offences – every other person would commit a similar offence (Section 240(2), usually an offence against life or health). For instance, where a passenger reaches for the steering wheel unexpectedly, and thus causes the car to hit a pedestrian, the passenger cannot be sentenced as a driver, therefore the driver’s liability can only be established for traffic offences and the passenger will be liable for an offence against life or health (for instance, manslaughter).

Finally, another issue needs addressing: how to define AI or similar technology in a criminal code? It is supposed to be an achievable goal for the legislator for the near future, which clearly goes beyond the scope of this essay. Therefore,

I choose a simplified yet practical approach: to slightly alter the questions asked. Instead of looking at the case of a computer hijacking vehicles commanded by artificial intelligence, I will be examining the issue of overtaking any vehicle using an electronic system. It is safe to assume that the higher the level of self-driving is, the more advanced the information system is. Nevertheless, the framework detailed below does not depend on the level of automation, but the actions of the perpetrator. However, this needs another definition that would address the soft- and hardware of vehicles on the road. To be consistent with the examples given, I am referring to the definition provided by the Hungarian Criminal Code as the said term provides a broad picture for such systems: “information system” shall mean equipment intended for the automatic processing, handling, storage and transmission of data or a collection of such devices that are interfaced<sup>15</sup>.

As regards criminal liability for accidents caused by self-driving vehicles, Ambrus stresses that the most appropriate approach would be to create a *sui generis offence*<sup>16</sup>; he also points out that, given the *ultima ratio* nature of criminal law, decriminalisation could also be a possible solution<sup>17</sup>. In the context of decriminalisation, the proposition resonates with Gless and her co-authors<sup>18</sup>. I believe this approach is not yet applicable in the near future, where at most weak AI is expected to spread. I consider it more appropriate in this context to analyse the fulfilment of the conditions for permissible risk-taking, as described above, and to dispense with criminal liability on the basis of the teleological interpretation of the law by prosecutors and judges, rather than going the statutory route<sup>19</sup>.

In my view, Ambrus’s proposal for a *sui generis* definition is fully logical and well-supported, and I believe we can also achieve appropriate sanctioning of accidents caused by self-driving vehicles by amending the rules on the use of the framework displacement in traffic. For this purpose, the obligations of persons in the vehicle or other persons somehow involved with vehicle need to be properly regulated in the amendment of the Highway Code (or other legislation), and thus their liability can be examined within the framework of the current traffic offences of the Criminal Code. Also the applicability of the driver/external person differentiation within the Criminal Code may need to be clarified only in relation to Article 240, but I do not consider this to be indispensable either. It is also important to note that certain concepts and rules relating to self-driving vehicles have already appeared in domestic legislation: Annex 18 to Decree 6/1990

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<sup>15</sup> Section 459(1)(15). It has to be noted that “an interface“ does not refer to a screen or a similar input device but a connection between the functionalities mentioned in the definition.

<sup>16</sup> Ambrus I., *Digitalizáció és büntetőjog*, Budapest 2021, p. 196.

<sup>17</sup> *Ibidem*, p. 197.

<sup>18</sup> Relying on these theories, it might be argued that robots are part of the “normal” risks of life, comparable to lightning or falling trees, see S. Gless et al., 2016, *op. cit.*, p. 433.

<sup>19</sup> The teleological interpretation of law is emphasised by B. Gellér, I. Ambrus, 2019, *op. cit.*, pp. 139–140.

(IV.12.) of the Ministry of Transport, Building and Urban Affairs contains the frequently cited 5+1 division for the definition of technology<sup>20</sup>.

I am of the opinion that the traffic offences of the current Criminal Code, in particular the offences of road endangerment under Section 234(1) and road traffic accidents under Section 235, constitute an adequate basis for determining liability, and that at most Section 240(2), which defines intraneus-extraneus persons, may be necessary. E.g. the essence of SAE 3 is that the driver should take control only when so ordered, so it is not inconceivable that in the absence of such a command he could engage in a completely different activity which makes it inherently more difficult for him to monitor the road (e.g. reading). Since the driving is controlled by the technology itself, I think it is unnecessary (even counterproductive) for the driver to have an additional strict control loop. I would also consider it unnecessarily complicated to define detailed, taxative control obligations (e.g. the driver is obliged to check the correct choice of speed, following distance, etc. even in the absence of a warning), and instead I think a more general formulation would be more appropriate (e.g. the driver is obliged to ensure safe participation in traffic even in the absence of a warning); however, in this case the driver is not the only one who is monitoring the driving tasks, and is essentially expected to detect obvious errors by relying on the machine, so I would suggest that it will be up to the practice to tighten the control obligation more lightly. To give an exact example, there is a speed limit of 60 km/h before a slight bend on a main road. If a driver crosses it at 70 km/h and causes an accident as a result, he will be held liable for non-compliance, causality and the relevance of the two. In contrast, a different result can be reached if we take into account the confidence in the correct speed choice of the self-driving technology. For there is no significant difference between 60 and 70 km/h “by feel” (based on the lateral acceleration forces acting on the human body), the driver who has reasons to believe that the vehicle is travelling at the correct speed will not be held liable for lack of illegality. Conversely, if the driver senses an incorrect choice of speed on a bend, he will be under an obligation to intervene<sup>21</sup>.

On self-driving vehicles, I would also refer back to the objective reasonably raised by Ambrus, which is well understood in the case of this type of AI<sup>22</sup>. I maintain that, in criminal law terms, the liability of the natural person who is in the vehicle (or who drives the vehicle) would be alien to a domestic doctrine, and that objectification could be reflected in administrative sanctions. In the case of

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<sup>20</sup> SAE International, *SAE International Releases Updated Visual Chart for Its “Levels of Driving Automation” Standard for Self-Driving Vehicles*, SAE, 11.12.2018, <https://www.sae.org/news/3544/> (accessed 10.02.2020).

<sup>21</sup> 1.5-1.8 m/s<sup>2</sup> lateral acceleration is already noticeable but not/always unpleasant, while a more significant acceleration (2.5-5 m/s<sup>2</sup>) is.

<sup>22</sup> See I. Ambrus, *Az önvezető járművek várható hatása a közlekedési bűncselekményekre*, ‘Ügyészek Lapja’ 2018, No. 6, pp. 5–14.

traffic offences, in a number of situations, it is the perpetrator's knowledge and the result that distinguishes one offence from another (e.g. an intentional direct danger constitutes the offence of endangering the road, while a negligent one constitutes the offence of disturbing traffic). Since the Misdemeanor Act refers to the concepts of the Criminal Code in its liability rules in Article 2(1), the rules set out above can also be applied to offences committed with self-driving cars<sup>23</sup>.

For instance, there is a case where the driver of the first collision resulting in the death of a person outside of the vehicle is currently on trial for negligent homicide; she was indicted on September 2020 and after pleading not guilty, her trial was delayed in May 2021. The accident happened on the 18 March 2018 in Tempe, Arizona when the defendant working for Uber was using a Volvo XC90 which was in full automation mode. The car misidentified the victim, a pedestrian, who was crossing the road at night-time and collided with her resulting in her death. Although this essay examines the liability strictly from the standpoint of the natural persons, it has to be noted that the prosecution determined that Uber as a company did not commit any crime<sup>24</sup>. In 2023 the human operator in the vehicle was sentenced to supervised probation. Finally, according to the report, prosecutor Tiffany Brady told the judge that the defendant had one job and one job only. And that was to keep her eyes on the road<sup>25</sup>.

## CIVIL LIABILITY

Of course, the “acts” of self-driving vehicles give rise not only to criminal but also to civil liability. Thus, I would like to draw attention to a few more important points. I will return to the example of self-driving vehicles in relation to the rules of civil law, as Eszteri considers the rules of dangerous operational liability described below to be applicable to all activities of artificial intelligence<sup>26</sup>. A typical consequence of traffic accidents is material damage, for which the Civil Code

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<sup>23</sup> However, offences under the Rules Act should not be confused with traffic offences subject to administrative fines, which are defined in Government Decree 410/2007 (29.12.2007). This includes a number of infringements that are commonly known as traffic offences, but the essential difference is that in these cases the penalty is imposed on the operator of the vehicle – the wording of the Regulation does not allow for discretion, so that liability is objective.

<sup>24</sup> D. Shepardson, H. Somerville, *Uber not Criminally Liable in Fatal 2018 Arizona Self-Driving Crash: Prosecutors*, Reuters, 5.03.2019, <https://www.reuters.com/article/us-uber-crash-autonomous-idUSKCN1QM2O8> (accessed 20.02.2020).

<sup>25</sup> *Backup Driver for Self-Driving Uber that Killed Arizona Pedestrian Pleads Guilty*, The Guardian, 01.08.2023, <https://www.theguardian.com/technology/2023/aug/01/uber-self-driving-arizona-deadly-crash> (accessed 01.08.2023).

<sup>26</sup> D. Eszteri, *A mesterséges intelligencia fejlesztésének és üzemeltetésének egyes felelősségi kérdései*, 'Infokommunikáció és Jog' 2015, Nos 2–3, p. 16.

provides for liability for non-contractual damages, including the rules of dangerous operational liability. This kind of liability is stricter and objective, as opposed to subjective liability. Pursuant to Section 6:535 of the Hungarian Civil Code, “[a]ny person who carries out an activity involving an increased risk is liable to pay compensation for the damage resulting therefrom”, and transport involves an increased risk, since even small movements can cause serious damage. According to the case law, motor vehicles typically fall into this category (as do all other mechanically powered devices), so that, as robotisation progresses, the application of hazardous industrial liability becomes more widespread. To qualify for exemption, it must be proved that the damage was induced by an unavoidable cause outside the scope of the activity involving a high risk (an important conceptual element is that force majeure can only be an external cause, e.g. a driver’s heart attack does not establish exemption). The operator, in whose interest the dangerous establishment is operated, is liable for the damage pursuant to Section 6:53(1). It is considerably more difficult to resolve a case in the event of an encounter between self-driving cars (dangerous operations). Pursuant to Section 6:539(1) of the Civil Code, it is the proportion of fault that needs to be examined, which can be traced back to the question of liability. However, given that civil liability – as opposed to criminal liability – can be established for legal persons, the reduced concept of the act and the liability of the natural person as an intrinsic criterion does not make it difficult to assess the issue.

## WHAT (WHO) SHOULD THE ALGORITHM CHOOSE?

Finally, it is worth noting that with the advent of self-driving technology, programmers also need to decide on the question of applied ethics, in which the involvement of modern philosophy, psychology and sociology of law is essential.

A relevant question has been posed in many forms, one of the most succinctly formulated by Noah Goodall, clarified by Patrick Lin. The question in brief reads: “A self-driving car is about to face an inevitable collision. It can change its course in two directions, one to hit a helmet-wearing rider and one to hit a rider without a helmet. Which is the right way?”<sup>27</sup>. But the question can be escalated further. A fully self-driving car carrying one person senses that it could either drive straight into a school bus carrying 28 children, risking everyone’s lives, or change direction and drive into a ravine, which would result in the certain death of the person in the vehicle. If all persons have the same chance of survival in a collision, the question is how should AI be designed; should it always take the risk,

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<sup>27</sup> L. Patrick, K. Abney, R. Jenkins (eds.), *Robot Ethics 2.0: From Autonomous Cars to Artificial Intelligence*, Oxford 2017, p. 21.

or should it not take the risk and drive into the ravine, or should it make a quick calculation and only drive into the ravine if there is a chance greater than 1 in 30 of someone being fatally injured in the collision?

There is no clear, universally acceptable answer to this question, but one can argue for the correctness of each answer, given that the problem is not a new one. One starting point for ethical questions is the oft-repeated railway dilemma in the scenario where there are five unsuspecting people on one track (in some versions, five careless workers) and one person on another. A train speeds unstopably towards the five and the track manager can decide – should he divert the track (almost certainly) killing the worker who stands alone if it saves the other five on the original track? The hypothesis is that social morals can be deduced from the answers to these questions, and thus translated into practice. However, it seems unnatural that we expect a self-driving vehicle to solve ethical dilemmas on the level of a university professor.

In this context, I would also recommend visiting the most widely used test, the so-called “moral machine” website, created with the support of the Max Planck Society, the Massachusetts Institute of Technology and other renowned institutions, which, if completed, can be part of a sample of tens of millions of people<sup>28</sup>.

## CONCLUSION

As examined above, the concern of cybersecurity is not unique to self-driving technology, however, as autonomous vehicles become more and more prevalent in our daily lives, these issues have to be approached with paramount importance.

This essay tried to examine the issues of criminal liability from a non-country-specific standpoint and to provide basic thoughts of a framework where criminal liability of natural persons can be established. This short essay argues that significant (or any) amendments or changes to criminal offences are unnecessary and would even be detrimental. Creating a new offence called “hijacking a self-driving vehicle” would be confusing in the sentencing practice if we tried to incorporate it with the existing offences.

The well-grounded definitions of intent and negligence can be used in whole in this technology-dependent topic which has several beneficial aspects from the standpoint of the continental doctrine: the criminal liability of legal persons does not have to be incorporated and the cases can be solved based on existing laws and practices.

Although it is safe to assume that the first serious accidents related to autonomous vehicles in Europe will generate a predicament irrespective of the national

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<sup>28</sup> Moral Machine, <https://www.moralmachine.net> (accessed 05.03.2023).

rules, I believe the current disciples of criminal law can provide firm answers after the initial dilemmas.

Nonetheless, this does not mean that any steps by the legislations are unnecessary as certain definitions and questions need settling. For instance, can a natural person travelling in a self-driving vehicle be considered as a driver and, if yes, what obligations will they have? However, these are concerns of administrative law. The criminal law as an instrument of the most severe sanctioning requires no substantial amendments to prepare for the upcoming changes.

As Uj Péter, a Hungarian journalist, puts it, the discussions regarding the issues of liability lengthen the process of releasing self-driving vehicles for the wide public (which may lead to a decrease in the number of accidents) and show a seemingly weird choice of values regarding saving humans and the need to establish liability: “What is the problem with self-driving cars? The fact is that they cause far fewer accidents than human drivers in any situation, the only problem is that there is no one to hold accountable. So that’s where we are in the moral problem; there is more value in holding people accountable than in an intrinsic emotional need for people’s lives. So that’s where we are at the fundamental problem, isn’t it? The reason why they don’t allow self-driving cars is because there has to be someone responsible so that if you hit someone, you can end up being put in jail”<sup>29</sup>.

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