Volume 6, No. 2 | March–April 2023

RAIL

The Journal of Robotics, Artificial Intelligence & Law

fastcase FULL COURT PRESS

RAIL
The Journal of Robotics, Artificial Intelligence & Law
Volume 6, No. 2 | March–April 2023

THE JOURNAL OF ROBOTICS, ARTIFICIAL INTELLIGENCE & LAW (ISSN 2575-5633 (print) /ISSN 2575-5617 (online) at $495.00 annually is published six times per year by Full Court Press, a Fastcase, Inc., imprint. For customer support, please contact Fastcase, Inc., 711 D St. NW, Suite 200, Washington, D.C. 20004, 202.999.4777 (phone), 202.521.3462 (fax), or email customer service at support@fastcase.com.

Publishing Staff
Publisher: Morgan Morrissette Wright
Production Editor: Sharon D. Ray
Cover Art Design: Juan Bustamante

Cite this publication as:

The Journal of Robotics, Artificial Intelligence & Law (Fastcase)

A Full Court Press, Fastcase, Inc., Publication

Editorial Office

711 D St. NW, Suite 200, Washington, D.C. 20004
https://www.fastcase.com/

POSTMASTER: Send address changes to THE JOURNAL OF ROBOTICS, ARTIFICIAL INTELLIGENCE & LAW, 711 D St. NW, Suite 200, Washington, D.C. 20004.

Articles and Submissions

Direct editorial inquiries and send material for publication to:

Steven A. Meyerowitz, Editor-in-Chief, Meyerowitz Communications Inc., 26910 Grand Central Parkway, #18R, Floral Park, NY 11005, smeyerowitz@meyerowitzcommunications.com, 631.291.5541.

Material for publication is welcomed—articles, decisions, or other items of interest to attorneys and law firms, in-house counsel, corporate compliance officers, government agencies and their counsel, senior business executives, scientists, engineers, and anyone interested in the law governing artificial intelligence and robotics. This publication is designed to be accurate and authoritative, but neither the publisher nor the authors are rendering legal, accounting, or other professional services in this publication. If legal or other expert advice is desired, retain the services of an appropriate professional. The articles and columns reflect only the present considerations and views of the authors and do not necessarily reflect those of the firms or organizations with which they are affiliated, any of the former or present clients of the authors or their firms or organizations, or the editors or publisher.

QUESTIONS ABOUT THIS PUBLICATION?

For questions about the Editorial Content appearing in these volumes or reprint permission, please contact:

Morgan Morrissette Wright, Publisher, Full Court Press at mwright@fastcase.com or at 202.999.4878

For questions or Sales and Customer Service:

Customer Service
Available 8 a.m.–8 p.m. Eastern Time
866.773.2782 (phone)
support@fastcase.com (email)

Sales
202.999.4777 (phone)
sales@fastcase.com (email)
ISSN 2575-5633 (print)
ISSN 2575-5617 (online)

Autonomous Vehicles: Now and In the Future, and Where Is the Legal Landscape Headed?

Elaine D. Solomon*

In this article, the author explains that, as autonomous vehicles become more and more prevalent, the current legal framework for allocating liability is going to have to adapt accordingly—along with insurance coverage for such claims. The author adds that there is also a fundamental question that we will have to address as to whether fully automated driving systems are beneficial or not to our overall vehicular transportation framework.

Autonomous vehicles are no longer just a futuristic dream; rather, automated driving technology is advancing so that such vehicles can become part of the mainstream. Automated driving technologies that everyone may be familiar with include adaptive cruise control (which automatically slows down or speeds up a vehicle to maintain a safe following distance), self-parking, automatic emergency braking (which can detect a possible collision and apply the brakes, or perhaps even steer the car, to avoid or lessen the collision), and lane centering (which automatically keeps the vehicle centered in a lane).[1]

Presently, automated driving systems do not completely automate driving. Therefore, the driver is still responsible for controlling and safely operating the vehicle.

However, in the future, automated driving technologies will take over more and more driving tasks. This trajectory could be viewed as a benefit because it will help to eliminate human error that causes crashes.

This also raises questions regarding allocation of fault and/or liability between the human driver versus the manufacturer of the autonomous vehicle/automated driving system as automation takes over the driving task.

Will (or should) the human driver be held liable in accidents involving autonomous vehicles, or the automobile manufacturer?

And how should our legal system adapt negligence and/or product liability principles for accidents involving autonomous vehicles?

Robotics, Artificial Intelligence & Law / March–April 2023, Vol. 6, No. 2, pp. 81–91.

ISSN 2575-5633 (print) /ISSN 2575-5617 (online)

The Technology

An autonomous vehicle's control system typically consists of sensors, radar, software, and on-board cameras, plus light detection and ranging systems (LIDARS) that use infrared pulses that are used by the vehicle to "see" its surroundings. The vehicle's on-board computers then communicate this data to the vehicle, which uses this data to make certain driving decisions.

There are several generally recognized levels of driving automation for autonomous vehicles. SAE International (an automotive industry group) has defined certain levels of driving automation technologies—level 0 (no driving automation) through 5 (full driving automation).

The SAE standards are voluntary, but they have been accepted by some states and the federal government. The standards set by SAE span all aspects of the "dynamic driving task"—that is, the operational and tactical requirements to operate a vehicle in traffic, which include control of lateral vehicle motion (steering), longitudinal vehicle motion (acceleration and deceleration), and object and event detection and recognition (monitoring of the driving environment, recognizing objects and events that affect the driving task, and making appropriate responses to those objects and events).

As one progresses through the five levels of automation technologies, control of the driving task is transferred from the human driver to the driving automation systems of the vehicle.

Level 0: No Driving Automation

At Level 0, the driver is responsible for all aspects of the dynamic driving task. Safety systems such as collision avoidance, lane keeping, backup collision avoidance, anti-lock braking systems, and traction control do not take a vehicle out of Level 0 because the human driver is still responsible for object and event detection and control of the vehicle.[2] Most vehicles on the road are Level 0.

Level 1: Driver Assistance

At this level, the driving automation systems start to have control over a portion of the dynamic driving task—either lateral

(steering) or longitudinal (acceleration and deceleration) vehicle motion, but not both simultaneously.[3] An example of Level 1 driving automation is an automobile with adaptive cruise control, where the system has control of longitudinal vehicle motion, but the driver is responsible for lateral vehicle motion (steering). Further, the driver must monitor the system and be ready to take full control of the vehicle.

Level 2: Partial Driving Automation

This level adds the capability for the vehicle to control both longitudinal (braking/acceleration) and lateral (steering) vehicle motion control simultaneously.[4]

However, as is true for Level 1, the driver is fully responsible for monitoring the driving automation systems and taking over the driving task if the system disengages or malfunctions, as required. An example of Level 2 would be a vehicle with both lane centering and adaptive cruise control activated at the same time. Several automobile manufacturers currently offer Level 2 driving automation, including General Motors, Tesla, and Hyundai.

Level 3: Conditional Driving Automation

At this level, when engaged, the entire dynamic driving task is performed by the automated driving system. Thus, the human driver is relieved of all driving tasks and is now a "user" rather than a "driver"—that is, the human "user" is not required to either monitor the automated driving system or perform the object and event detection and recognition task.[5]

However, the human "user" must still be ready to take control of the vehicle if the automated driving system requests user intervention, such as when the system senses failure(s). Mercedes-Benz currently is testing some Level 3 technology in Germany, within restricted parameters, including under certain conditions (i.e., speed, road, and environmental conditions) on limited access highways. This level is a large step forward toward truly automated vehicles because the driver is free to engage in other tasks while the system operates the vehicle.

Level 4: High Driving Automation

At this level, the automated driving system performs the entire driving task and takes corrective action as needed. There is no expectation that the "user" will intervene and take control of the vehicle.[6] If a risk condition is encountered, the system will cause the vehicle to come to a stop, pull off the road, or take other corrective action. Level 4 vehicles are limited to an operational design domain, which can include limits regarding geographical boundaries, road conditions, time of day, weather, speed, or a combination of factors.

Level 5: Full Driving Automation

Level 5 adds to Level 4 systems by removing any limits on the operational design domain.[7] When a Level 5 system is engaged, it does not require any human supervision or operational tasks. The human in the vehicle becomes a passenger with no responsibility other than to engage the system and input the vehicle destination.[8]

The Legal Landscape

There have not been many lawsuits involving autonomous vehicles that have progressed to substantive decisions or jury verdicts—yet. However, a few such cases may forecast what is to come.

Criminal Charges

To date, there have not been many criminal charges pursued in connection with accidents involving autonomous vehicles. However, a recent case in Los Angeles County Superior Court could foreshadow what is to come.

In *People v. Kevin George Aziz Riad*, the driver (Riad) was involved in a double fatality accident in December 2019 while operating his Tesla. Prosecutors filed felony charges (two counts of vehicular manslaughter, which carry a minimum sentence of four years in prison[9]) against Riad for operating and relying on his Tesla's autopilot system in a "grossly negligent" manner.[10] The Tesla was equipped with adaptive cruise control (to slow down or speed up the vehicle to keep pace with traffic) and "Autosteer"

(to keep the vehicle in the center of a lane). The Tesla's diagnostic data showed that when Riad reached the intersection where the accident occurred, he ran a red light traveling 74 miles per hour (in a 45 miles per hour zone) and did not apply his brakes prior to impact. At the time, Tesla had not yet released its traffic light and stop sign control feature, which enables the car to respond to traffic lights, so there was no basis for Riad to expect that the car would "respond" and/or stop at the intersection.

Riad was found guilty of manslaughter with gross negligence, with the court finding that he was responsible for controlling the vehicle when approaching the intersection instead of trusting the autopilot.

Fault or No-Fault Tort Liability

Current tort-based automobile liability frameworks vary from state to state, but can be generally categorized as fault versus no-fault. Traditionally, an automobile driver involved in an accident or other event must prove that the other party was negligent (i.e., had a duty of care that was breached), and that the negligence caused the alleged injuries and/or damages.[11] Applicable motor vehicle codes and regulations help to define the "duty" owed by the driver of the vehicle.

The alternative system is no-fault, for which there is no need to prove negligence on the part of the driver in order to recover damages. This allows for quicker, more efficient handling of claims and recovery of damages. For a lawsuit to be filed against the other driver in a no-fault scenario, certain conditions must be met, such as exceeding a monetary threshold or a severity of injuries/damages threshold.

If we add autonomous vehicles into the present fault/no-fault scheme, "driver fault" may not be relevant because the human driver becomes a "user" or "passenger" rather than the "driver." Therefore, critically important for purposes of future liability claims is the question of who is the "driver" or "operator" of an autonomous vehicle.

As an example, Nevada defines the "operator" of an autonomous vehicle (SAE J3016 Levels 3, 4, or 5) as the person who causes the automated driving system to engage. The Nevada statute further specifies that the "Driver" of a Level 3, 4, or 5 automated vehicle

is the person who caused the automated driving system to engage, and that for Levels 4 and 5, that rule only applies if the person is also the owner of the vehicle.[12]

In California, "Operator" is defined as the person in the driver's seat, or if none, the person who caused the automated driving system to engage.[13] California also requires certain minimum amounts of liability insurance for drivers or operators of autonomous vehicles (including manufacturers involved in testing autonomous vehicles on public roads), and requires that autonomous vehicles be capable of recording certain technical information regarding operation of the automated vehicle for 30 seconds prior to a collision.[14]

In Florida, "Operator" is defined to be the automated driving system, when it is engaged, regardless of whether a human person is present in the vehicle.[15] Florida also imposes certain additional minimum insurance requirements for fully autonomous vehicles.[16]

Federal Standards and the Legal Principle of Federal Preemption

As the presence of autonomous vehicles increases, federal standards could come into play with respect to liability issues. If federal standards are applicable, then they could preempt state standards. There are already federal safety standards in effect, to a certain extent, for vehicles, including those put in place pursuant to Federal Motor Vehicle Safety Standards promulgated under the authority of the National Traffic and Motor Vehicle Safety Act.[17]

The National Highway Traffic Safety Administration has already been engaged in efforts to develop safety and design standards specific to Levels 4 and 5 autonomous vehicles. If such federal standards are found to be applicable in negligence or product liability claims involving autonomous vehicles, then defendant automobile manufacturers may seek to rely on those federal standards as preempting any conflicting state law standards.

Product Liability Claims

An autonomous vehicle utilizes an automated driving control system and software to make certain driving decisions. If there are hardware or software defects in the automated driving system with respect to manufacturing, faulty design or programming,

or instructions/warnings, they could form the basis for product liability claims.

The basic starting point is that autonomous vehicles (and/or their automated driving systems) must be considered a "product" for current product liability laws to be applicable. A case instructive on this point is *Holbrook v. Prodomax Automation Ltd., et al.*,[18] in which the court held that the software at issue was subject to product liability principles because it was an "integral" and "essential" component of the injury-causing machinery.

Product liability law allows for recovery when a product is "defective" (i.e., is unreasonably dangerous to the ultimate consumer when it leaves the seller's hands). The defect may be due to a manufacturing defect, design defect, or inadequate warnings or instructions.[19]

Further, a product may be unreasonably dangerous under either a "consumer expectations test" or a "risk-utility balancing test."

Under a consumer expectations test, a product is unreasonably dangerous if the danger is beyond that which would be contemplated by the ordinary consumer with the ordinary knowledge as to its characteristics. Figuring out the standard by which to measure a consumer's common knowledge with respect to highly sophisticated automated driving systems may be very difficult.

As an example by comparison, in *Pruitt v. General Motors Corp.*,[20] the California Court of Appeal held that the consumer expectations test was inappropriate for evaluating the operation of a vehicle's airbags, because their activation is "not part of the 'everyday experience' of the consuming public" and their proper operation constitutes a "complex technical issue." This raises the question of whether the product liability consumer expectations test can or should be applied to an even more complex technical "product" such as automated driving systems.

Further, under a risk-utility standard, a product is defective when a reasonable alternative design that was available at the time of sale or distribution would, at a reasonable cost, have reduced the foreseeable risks of harm, and the omission of the design rendered the product not reasonably safe.

Again, the difficulty of establishing "reasonable alternative design" for autonomous driving systems is apparent—at least at the present time when there are few alternative designs on the market and the manufacturer could claim that its design was cutting-edge

"state of the art" (and thus the safest and most advanced technology developed and in commercial use).[21]

Case Law to Date

There have been few cases to date in which parties alleged product liability claims against the manufacturers of autonomous vehicles, and even fewer substantive court decisions.

By way of example, in 2021, there was a wrongful death and product liability case filed against Tesla in Superior Court of California, Alameda County, in which the plaintiff alleged that Tesla's autonomous system was defectively designed and manufactured because it did not timely perceive, sense, or react to changing traffic conditions, and was unable to perceive, react, and avoid commonly occurring roadway and traffic conditions.[22] Plaintiffs also asserted a negligence claim against Tesla, claiming that the automated vehicle drove itself in a negligent fashion.

Tesla moved to dismiss the negligence claim, arguing that the plaintiff was the one operating and driving the vehicle at the time of the accident, not Tesla.

The court held that a vehicle that is driving itself in autopilot mode (where the driver takes manual control of the vehicle under certain conditions) is not being driven by the manufacturer (in this case, Tesla). There is little doubt that the court's language in *Escudero* will be cited by automated vehicle manufacturers in defense of future negligence and/or product liability claims.

Another case that may shed some light on how plaintiffs will try to counter automated vehicle manufacturer's defenses that point to the driver of the vehicle is *Heather Lommatzsch v. Tesla, Inc. et al.*,[23] which involved a rear-end collision. The driver of the Tesla Model S alleged that she thought that the vehicle would stop on its own when confronted with an obstacle in its path, although the car did brake when traffic in front came to a stop.

The gravamen of the plaintiff's claim was against Tesla's sales personnel, in that she claimed that they misrepresented to her that the vehicle would stop on its own when in autonomous mode and she only needed to touch the steering wheel occasionally (which was contrary to warnings in the Tesla's operator's manual, which state that in autonomous mode the driver must keep his or her hands on the steering wheel at all times and maintain control over the vehicle).

This type of argument may form the basis for future claims against automated vehicle manufacturers for negligent or fraudulent misrepresentation, false advertising, breach of warranties, etc., which is also relevant for purposes of product liability claims that follow the consumer expectations test for product liability.[24] Although rare, automotive manufacturers such as Volvo have announced that they will accept full liability for cars operated in the future in full autonomous mode.

Regardless of the liability framework, data stored by the automated vehicle's driving system will be critical evidence with respect to establishing liability, and will no doubt be the subject of discovery by litigants and insurers. Even with fully automated vehicles, owners could be found negligent if they failed to take steps such as installing and/or updating software.

What Will Be the Effect of Such Legal Liability Uncertainty?

Stifling creativity? Uncertainty regarding insurance coverage for such risks? Perhaps passing federal legislation that would preempt often inconsistent state law standards and remedies would provide some consistency and certainty for liability issues.

One model approach could be the European Parliament's 2017 Resolution on Civil Law Rules on Robotics, which made two sets of recommendations.

First, creation of a compulsory insurance scheme, which could be supplemented by a compensation fund that would guarantee compensation for damages not covered by insurance and thus allow limited liability for those who contribute to the fund.

Second, creation of specific legal status for sophisticated autonomous robots.

The overall goal is to not limit liability or impede the ability to recover for damages because of the involvement of a non-human factor.

Liability Issues for Insurers, Drivers, and Manufacturers

Autonomous vehicles raise many issues regarding who is liable for an accident involving an autonomous vehicle: the human driver (perhaps covered under personal automobile insurance)

versus the manufacturer (perhaps covered under product liability insurance)—either as part of general liability insurance or under a separate product liability insurance policy.

Also, cyber liability insurance may also be relevant, which would expressly provide coverage to a manufacturer for third-party claims in the event that someone hacks into an automated vehicle driving system. Insurance coverage would have to be closely monitored because there may be possible exclusions under general liability insurance or other types of insurance policies may preclude coverage for autonomous vehicle liability claims.

Conclusion

As autonomous vehicles become more and more prevalent, the current legal framework for allocating liability is going to have to adapt accordingly—along with insurance coverage for such claims. There is also a fundamental question that we will have to address as to whether fully automated driving systems are beneficial or not to our overall vehicular transportation framework.

Notes

* Elaine D. Solomon, a partner in the Philadelphia office of Blank Rome LLP and a member of the Board of Editors of *The Journal of Robotics, Artificial Intelligence & Law*, is the co-chair of Blank Rome's aviation practice. Ms. Solomon concentrates her practice in the areas of aviation law and litigation, product liability, and tort litigation. She may be reached at elaine.solomon@blankrome.com.

1. *See* SAE International, Standard J3016: Taxonomy and Definitions for Terms Related to Driving Automation Systems for On-Road Motor Vehicles 8 (2021).
2. *Id.* at 4, 6, 25.
3. *Id.* at 25.
4. *Id.*
5. *Id.* at 28.
6. *Id.*
7. *Id.* at 26.
8. *Id.* at 26, 29, 30, 32.
9. *See* California Penal Code Sections 192(c)(1) and 193.
10. Grossly negligent is a legal standard that requires conscious indifference to the consequences. *See* People v. Bennett, 54 Cal.3d 1032 (1991).

11. *See* Restatement (Second) of Torts, Section 328A.
12. *See* Nev. Admin. Code Sections 482A.020 and 484A,080.
13. *See* Cal. Veh. Code Sections 38750(a)(4) and 38750(a).
14. Cal. Veh. Code Regs, Title 13, Section 228.02(a) (2022).
15. *See* Fla. Stat. Section 316.85 and 316.85(3)(a).
16. Fla. Stat. Section 627.749(2)(a) (2021).
17. National Traffic and Motor Vehicle Safety Act, 49 U.S.C. Section 30101 et seq.
18. Holbrook v. Prodomax Automation Ltd., et al., No. 1:2017-cv-00219 (W.D. Mich. 2020).
19. *See* Restatement (Second) of Torts, Section 402A, and Restatement (Third) of Torts: Product Liability, Sections 2 and 3 (American Law Institute 1998).
20. Pruitt v. General Motors Corp., 72 Cal. App. 4th 1480, 1483-84 (Cal. Ct. App. 1999).
21. Restatement (Third) of Torts, Section 2, comment d (Am. Law Inst. 1998).
22. Benjamin Maldonado Escudero et al. v. Tesla, Inc. et al., Case No. RG21090128 (Feb. 26, 2021, Superior Ct. Cal.).
23. Heather Lommatzsch v. Tesla, Inc. et al., 2:18-cv-00775 (3rd Dist. Ct. Utah, Oct. 4, 2018).
24. *See* Restatement (Second) of Torts, Section 402A.