Traffic Stops in the Age of Autonomous Vehicles

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Abstract. Autonomous vehicles have profound implications for laws governing police, searches and seizures, and privacy. Complicating matters, manufacturers are developing these vehicles at varying rates. Each level of vehicle automation, in turn, poses unique issues for law enforcement. Semi-autonomous (Levels 2 and 3) vehicles make it extremely difficult for police to distinguish between dangerous distracted driving and safe use of a vehicle's autonomous capabilities. Fully autonomous (Level 4 and 5) vehicles solve this problem but create a new one: the ability of criminals to use these vehicles to break the law with a low risk of detection. How and whether we solve these legal and law enforcement issues depends on the willingness of nations to adapt legal doctrines. This article explores the implications of autonomous vehicle stops and six possible solutions including: (1) restrictions on visibility obstructions, (2) restrictions on the use and purchase of fully autonomous vehicles, (3) laws requiring that users provide implied consent for suspicion-less traffic stops and searches, (4) creation of government checkpoints or pull-offs requiring autonomous vehicles to submit to brief stops and dog sniffs, (5) surveillance of data generated by these vehicles, and (6) opting to do nothing and allowing the coming changes to recalibrate the existing balance between law enforcement and citizens.

Keywords: Autonomous vehicles · Law & technology · Traffic stops

1 Background

Autonomous vehicles, also known as driverless cars, "are those in which at least some aspects of safety-critical control function (*e.g.*, steering, throttle, or braking) occur without direct driver input" [1]. Put more simply, autonomous vehicles take control out of the hands of human drivers and place it instead in complex onboard computer software, external sensors, and GPS. Working together, these systems allow the vehicle to change speed, direction, and route, and navigate the road environment with minimal input from their human occupants.

1.1 Autonomous Vehicle Development

The list of companies actively developing autonomous vehicles is growing, and includes both technology companies like Waymo and Lyft, and automobile manufacturers like Tesla, Ford, and Volvo. Progress, however, is coming in fits and starts, making it difficult

to predict rollout with any accuracy. Additionally, companies are approaching the development and market release of autonomous vehicles differently, meaning that industry players are at differing stages of development.

The major implication of these varying approaches to autonomous vehicle development is that, for some period of years (if not decades), vehicles with differing levels of automation will populate public roads throughout developed countries. The U.S. National Highway Traffic Safety Administration (NHTSA), in an attempt to describe the significant benchmarks in vehicle autonomy, adopted a six-level taxonomy of these levels of automation [2]. Those levels are:

- Level 0: Vehicles with no automation whatsoever. A Level 0 vehicle is a conventional automobile without cruise control.
- Level 1: Vehicles with "function-specific automation" like basic cruise control. The driver can hand over one and only one driving function (like acceleration) to the vehicle, but must maintain control over all other driving tasks. Most vehicles currently on public roads are Level 1 vehicles.
- Level 2: Vehicles with "combined functioned automation" like cruise control with lane-centering. The driver can hand over more than one driving function (like acceleration and basic steering) to the vehicle, but must continuously monitor the vehicle and be ready to retake control quickly. A Tesla with Autopilot functionality is an example of a Level 2 Car.
- Level 3: Vehicles with "limited self-driving automation." The driver can hand over all driving functions to the vehicle and need not supervise, but must be ready to resume driving on fairly short notice. As of early 2022, Level 3 vehicles are in development, but are not yet available to consumers.
- Level 4: Vehicles that can drive completely autonomously, but "only in certain environments and under certain conditions." Human drivers need not be ready to retake control, but the vehicle may not be able to be used safely under certain conditions like extreme weather. Level 4 vehicles are in development.
- Level 5: Fully autonomous vehicles that "can perform all driving tasks, under all conditions that a human driver could perform them." Human drivers need not ever supervise or retake control of these vehicles and may lack the ability to do so even if they wished. Level 5 vehicles are in development.

One of the challenges that law enforcement may face as vehicles of these varying levels appear on public roads is knowing what level of autonomous vehicle (if any) a vehicle of interest is, and whether the human occupant is currently exerting any control. If a police officer spots a human in a driver's seat, for instance, it may be unclear whether the human is actively driving (as is possible in a Level 0, 1, 2, or 3 vehicle), whether the human is merely supervising the vehicle (as may be the case in a Level 2 or Level 3 vehicle driving semi-autonomously), or whether the human is a completely passive occupant (as will likely be the case in a Level 4 or 5 vehicle). Knowing the make, model, and year of the vehicle, moreover, may not be enough to resolve any uncertainty, as manufacturers like Tesla push greater levels of autonomy to existing vehicles via over-the-air updates over time, meaning that a vehicle that was Level 2 at purchase may evolve into a Level 3 or perhaps even Level 4 vehicle at some point in the future.

Despite these complexities, autonomous vehicles are expected to have a number of major societal benefits. These benefits include "improved safety and a reduction in roadway fatalities; improved quality of life; access, and mobility for all citizens; lower energy usage; and improved supply chain management" [3]. Additionally, wide adoption of these vehicles may yield other important gains such as "increased economic productivity and efficiency, reduced commuting time, and even the potential reduction of the environmental impact of conventional surface vehicles while increasing overall system energy efficiency" [4]. However, nations may never realize these benefits if existing laws do not adapt thoughtfully and carefully to this new technology, or if courts and legislatures adopt either too lax or too draconian of a stance on its regulation. This is particularly true with respect to traffic stops of autonomous vehicles, and what rights drivers and occupants may or may not have in that context.

1.2   Likely Impacts of Autonomous Vehicles on Traffic Stops

The growing number of semi-autonomous vehicles, and the eventual arrival of fully autonomous vehicles, on public roads will have far-reaching implications for traffic stops, some positive and some negative. A brief overview of the most significant of these can provide helpful context for the legal discussion that follows.

First, fully autonomous vehicles will likely drastically decrease the number of traffic violations and thus traffic stops each year. Because manufacturers will program these vehicles to obey all traffic laws and obey them perfectly, police will be less able to establish justifications for traffic stops, whether prextextual or not. In the U.S., for instance, even just a 30% reduction in traffic stops could mean a reduction of more than 5 million traffic cases each year, significantly reducing the caseloads of misdemeanor courts (and their equivalents elsewhere) and the costs associated with them.

Second, fully autonomous vehicles will likely reduce opportunities for police to racially profile. Studies have repeatedly shown that police stop Black and Latinx drivers at significantly higher rates than White drivers [6]. Without traffic violations to rely on as pretexts for traffic stops, police officers will have less opportunity to introduce subjectivity (or outright racial animus) into their decisions about which cars to stop, reducing the burden of over-policing on minority communities and perhaps even beginning to rebuild public trust in law enforcement.

Third, traffic stops of autonomous vehicles may be safer for both police and vehicle occupants alike. In fully autonomous vehicles, occupants may lack the ability to use the car to flee, a situation dangerous to both law enforcement and nearby civilians. Similarly, if autonomous vehicles are able to connect virtually to smart infrastructure (as many industry observers predict they eventually will), police may be able to gather a significant amount of information from a distance, reducing the likelihood of unjustified police shootings of drivers and passengers and reducing the risk to police inherent in close encounters with vehicle occupants who may turn out to be dangerous.

Fourth and finally, knowing that autonomous vehicles are significantly less likely to be stopped at all, criminals may use them to transport illegal contraband, victims of human trafficking, or worse. They may be able to do so, moreover, in vehicles with no human occupants at all, nearly eliminating the risk that a member of the criminal enterprise will be detained or apprehended. Such vehicles, when filled with explosives,

could also be turned into mobile bombs that could be driven into any publicly accessible location of choice. Law enforcement is already immensely concerned about these possibilities and their ability to respond effectively.

2 The Legal Complexities of AV Traffic Stops

The major question confronting nations now is how to apply existing traffic stop, search and seizure, and privacy laws in the brave new world of autonomous vehicles, a world in which the concepts of "driver" and "passenger" may no longer mean what they used to. This challenge, moreover, is immensely complicated by the uneven pace of development and adoption of these vehicles, meaning that automobiles on public roads may vary quite significantly in their levels of automation for quite some time before fully autonomous, Level 5 vehicles attain supremacy. What this array of automation means, most importantly, is that it would be a mistake for both courts and law enforcement to adopt a single approach to traffic stops of autonomous vehicles. As one group of scholars astutely observes: "Each [configuration of autonomous vehicles] includes different conceptions of and roles for "drivers," "passengers," "users," and "occupants"; different systems for communications and control; different systems of spatial organization; different commercial and political arrangements; and different consequences for societal and human values. Each imagination of autonomous automotive transport involves an entire world of reorganization for politics and values–each presenting different challenges for regulators and the public. Reckoning with the implications of these reconfigurations means… focusing on how each autonomous transport vision, promoted by various parties, moves toward a different future with particular political and ethical implications" [7].

Courts would be wise, therefore, to approach each level of autonomous vehicles as a distinct legal category unto itself, deserving of its own tailored application of law and precedent responsive to the unique aspects and challenges of that particular level. As discussed at greater length below, moreover, industry, law enforcement, and private citizens are all important stakeholders in the development of this new line of jurisprudence, and any new legal approach that overlooks the concerns of one of them is at risk to fail.

The following subsections are an attempt to identify the most significant legal issues presented by each unique level of automation. Each discussion seeks as its ultimate goals: (1) safety of public roads (and society more generally), and (2) protection of the rights of vehicle occupants.

2.1 Level 2 (Semi-autonomous) Vehicles

Level 2 vehicles, those in which the driver can both remove their hands from the wheel and their feet from the pedals but must continuously monitor the vehicle while in semi-autonomous mode, arguably place the least amount of stress on existing traffic stop jurisprudence. If anything, in fact, these vehicles may provide police with *more* reasons to initiate traffic stops than Level 1 vehicles. Indeed, Level 2 vehicles present unique risks on public roads because their drivers often (a) don't fully understand the limitations of the semi-autonomous systems within them, and/or (b) do not take their obligation to

constantly monitor the vehicle seriously, leading them to make reckless choices danger-ous to everyone on the road [8]. This, in turn, means that police may have at least one additional reason to initiate traffic stop of these vehicles, one that did not exist before these vehicles arrived on the consumer market: failure to adequately monitor a vehicle operating at a Level 2 measure of autonomy. Alternatively, this may merely be a new version of a very old problem on public roads: distracted driving. Either way, a police officer who witnesses the driver of a Level 2 vehicle doing something other than watch-ing the road would certainly have probable cause to execute a standard traffic stop given that there are no scenarios in which distracted driving in a Level 2 vehicle would be justifiable.

Where Level 2 vehicles could theoretically complicate matters are situations in which a Level 2 system either malfunctions or otherwise responds poorly to a sudden driving condition, leaving even a very attentive driver with no time to respond. In those scenarios, a nearby police officer might witness a car swerve, depart from a lane without signaling, run off the road, or even hit another car, but lack the ability to determine whether this traffic violation was the fault of the car's semi-autonomous system or the human driver. = I would argue that, based upon what he or she has witnessed, a police officer would absolutely have probable cause to execute a traffic stop under such circumstances despite this uncertainty. Drivers in *many* scenarios may not be at fault for traffic violations (*e.g.*, when those violations are caused by sudden brake failures, tire malfunctions, etc.) or may have good reasons for violating traffic laws (*e.g.*, speeding to get a person in heavy labor to the hospital), but courts have never found that such factors, discovered after the fact, mean that police lacked justification to make a traffic stop.

2.2 Level 3 (Semi-autonomous) Vehicles

While Level 2 vehicles may not challenge policing or existing jurisprudence much, the coming arrival of Level 3 vehicles on public roads will likely mark the start of much greater uncertainty, both legally and functionally for traffic patrol officers. As discussed above, Level 3 vehicles can drive themselves in some conditions, but may require a human to retake control when signaled to do so by the vehicle itself. While drivers of Level 2 vehicles must monitor their car constantly while using its autonomous features, drivers of Level 3 vehicles have greater leeway to engage in other tasks, assuming they can do so while remaining ready to retake control of the vehicle when alerted. Thus, while distraction is never justified in a Level 2 vehicle, distraction may not only be safe in a Level 3 vehicle, it is likely to be one of the major appeals of using this kind of vehicle.

But, Level 3 vehicles will present law enforcement with the same kind of chal-lenge posed by Level 2 vehicles: not knowing whether a given car is being piloted autonomously or driven by a human driver at any given moment. The difference is that, in a Level 2 vehicle, distracted driving arguably *always* provide justification for a traf-fic stop (since it is never justified in a Level 2 vehicle), whereas in a Level 3 vehicle, distracted driving should not. The problem, of course, is that a police officer may not know what level of autonomous vehicle it is, whether the autonomous system has been activated, and whether, if activated, the driver has been signaled to retake control at that moment. In short, when Level 3 vehicles become available to consumers, coexist with

Levels 0, 1, and 2 vehicles on public roads, and an officer witnesses a distracted driver, one of four scenarios is possible:

1. The distracted driver is driving a Level 0, 1, or 2 vehicle and is thus violating existing traffic laws;
2. The distracted driver is driving a Level 3 vehicle, has not activated the autonomous system, and is violating existing traffic laws;
3. The distracted driver is using a Level 3 vehicle, *has* activated the autonomous system, and is *not* violating existing traffic laws;
4. The distracted driver is using a Level 3 vehicle, has activated the autonomous system, but has been signaled to retake control of the vehicle, not done so, and is violating existing traffic laws.

This identification problem will be compounded by the fact that, as discussed above, manufacturers are releasing different levels of autonomy in their vehicles at different rates and even pushing new levels of automation to vehicles post-purchase via over-air-updates.

One potential solution would be to rule that the burden of identifying whether a distracted driver falls into Scenario 1, 2, 3, or 4 should not fall on law enforcement, and that witnessing a distracted person in a driver's seat always provides justification to initiate a traffic stop, regardless of the level of autonomy of the driver's vehicle and whether the autonomous system has been engaged. In fact, without meaningful changes in how these cars are manufactured, police may entirely lack the ability to determine what kind of vehicle someone is driving, particularly in the quickly moving world of traffic enforcement. The problem, of course, is that this kind of blanket approach could greatly undermine what will arguably be major appeal and utility of Level 3 vehicles: being able to engage in other tasks while the car is driving itself. If using the autonomous system of a Level 3 vehicle exposes drivers to a greater threat of traffic stops, some (if not many) consumers may opt not to purchase them at all, impeding the adoption and development of this technology and the many benefits it offers to society.

Another possible solution would be to use market share of Level 3 vehicles (as measured by percentage of vehicles on public roads with this level of automation) to determine whether police have justification to make stops for distracted driving more generally. Indeed, once the market share of Level 3 vehicles is high enough, police will arguably no longer have justification cause to suspect that a distracted driver is violating the law. If 80% of the cars are the road are Level 3, chances are better than not than a distracted "driver" is not doing anything dangerous or illegal.

A third possible solution to the quandary posed by Level 3 vehicles could come from industry rather than from courts or legislatures. One legal scholar has suggested that manufacturers outfit all autonomous vehicles with exterior indicator lights which, when illuminated, would indicate to any observer that the vehicle is being driven by its autonomous system rather than by a human driver. While at least one state in the U.S. has passed a law requiring autonomous vehicles to have "a visual indicator *inside* the cabin to indicate when the autonomous technology is engaged," no jurisdiction has yet demanded that these vehicles have exterior lights indicating the same, even though such lights would be tremendously helpful to law enforcement.

2.3 Level 4 & 5 (Fully Autonomous) Vehicles

Fully autonomous vehicles will likely eliminate the problem of distracted driving—and the appearance of districted driving—entirely. Early mockups of the interiors of these vehicles often show them without a driver's seat or even a steering wheel, so police should be able to determine fairly easily via simple observation that a vehicle is fully autonomous. However, fully autonomous vehicles may pose a different—and potentially very serious—problem for law enforcement. Since manufacturers plan to program fully autonomous vehicles to drive in near perfect compliance with traffic laws, the ability of police officers to establish legal justification to initiate a traffic stop could be significantly curtailed. This limitation, in turn, could create huge incentives for criminals to use these vehicles for nefarious purposes such as transporting drugs, other forms of contraband, and even victims of human trafficking or kidnapping. In more extreme scenarios, moreover, fully autonomous vehicles could be filled with explosives or biological weapons and used as lethal weapons. These possibilities should obviously be of concern to citizens and law enforcement alike.

Additionally, while there may be many benefits to an overall reduction in traffic stops resulting from the use of fully autonomous vehicles, these benefits are likely to come at the expense of detecting and stopping crime more generally. Indeed, "[c]onducting traffic stops has been a cornerstone of policing for decades, often leading to the identification of crimes unrelated to the act of driving" [9]. Police often use their ability to initiate traffic stops to conduct broader investigations of suspicious activity as traffic stops can—for better or worse—evolve into more significant stops involving searches of the interior of the vehicle, dog sniffs of the exterior of the vehicle, and/or extensive questioning of the occupants, all of which can result in evidence of non-traffic-related crimes. Stymieing law enforcement's ability to conduct these traffic stops could thus change the nature of policing and make it more difficult for police to detect crime of all types.

The relevant question, therefore, is the extent to which existing traffic jurisprudence truly impedes the ability of police to stop a fully autonomous vehicle. Are scholars and commentators right that police will have little to no ability to stop these vehicles, eventually rendering traffic stops mostly obsolete? Or, is the vast jurisprudence around traffic stops permissive enough to provide law enforcement with more opportunities than one might initially think to develop legal justification to stop a fully autonomous vehicle? The answer is almost certainly dependent on a number of factors. The most significant factor, however, is likely to be whether the vehicle is occupied or unoccupied by passengers.

Occupied Level 4 & 5 Vehicles. With respect to fully autonomous vehicles that are occupied, police could form justification to stop the vehicle in several ways. First and foremost, police could develop reasonable suspicion based on mere observation of the occupants. The U.S. Supreme Court, for instance, has said on repeated occasions that suspicious behavior on the part of car passengers can form the basis of both reasonable suspicion and even probable cause to stop a vehicle. In *United States v. Brignoni-Ponce*, for instance, the Court said that, in establishing reasonable suspicion for a traffic stop, officers may consider the number of passengers, the behavior of those passengers (*e.g.*, are they "trying to hide"), and even their "mode of dress and haircut" [10]. There is

seemingly no reason why police could not make similar observations about the occupants of fully autonomous vehicles and then execute traffic stops accordingly. Even something as simple as occupant failure to use seatbelts would, if observed by officers, be enough to execute a traffic stop.

Second, police could develop reasonable suspicion to stop a fully autonomous vehicle based on the type of vehicle (*e.g.*, truck vs. car), its location, and whether it appears to be carrying a significant amount of weight ("riding low"). In *United States v. Cortez*, the U.S. Supreme Court held that officers had reasonable suspicion to initiate a traffic stop to investigate suspected smuggling of undocumented immigrants based upon, among other factors, the number of passengers the vehicle could hold, its location near a known area of border crossing, and the time of night it was observed [11]. Even factors like out-of-state license plates and "travel patterns" might suffice. Again, there are no reasons to think this would no longer be true in the context of fully autonomous vehicles. Third, police could form justification to stop a fully autonomous vehicle based on a credible tip from an informant.

As this discussion makes clear, while autonomous vehicles may use utilize new and novel technologies, community members will still be able to use their eyes, ears, and life experience to identify suspicious or even outright criminal behavior and notify law enforcement. A strange vehicle with strange occupants slowly casing houses in the middle of the night will seem suspicious regardless of whether the vehicle is autonomous or not. Thus, while fully autonomous vehicles are likely to drive while causing few, if any, traffic violations, they will not be unstoppable if they are occupied. Police will be able to use observations about the passengers and the vehicle itself in addition to credible tips to establish reasonable suspicion to execute a traffic stop.

Unoccupied Level 4 & 5 Vehicles. Establishing justification to stop *unoccupied* fully autonomous vehicles will undoubtedly be more difficult. Without occupants, police officers will have less to observe and fewer indicia of potential criminal activity. While police will certainly retain the ability to use tips and observable characteristics of the vehicle itself to establish reasonable suspicion, even these factors are likely to be less meaningful in the context of unoccupied autonomous vehicles. For example, as discussed above, some courts have held that police can use the location and/or route of a vehicle to establish reasonable suspicion. A car that seems out of place in a given neighborhood or to be taking an unusual route may be grounds for suspicion. However, in the context of unoccupied, fully autonomous vehicles: "Immediate observations like the route taken or even the neighborhood where the vehicle is being operated may be less indicative of criminal activity. When the AV takes control of the navigation of the vehicle and the route taken, these factors may simply be indicative of the programming of the vehicle, rather than an indication that criminal activity may be afoot. That is not to say that the location of the vehicle and route taken will become completely irrelevant, but the weight given to those factors should be reduced in many instances."

With so little to go on, moreover, even observable characteristics of the vehicle may not be enough to justify a traffic stop. For instance, if police witness an unoccupied, fully autonomous vehicle "riding low" in the back suggesting the vehicle is carrying a significant amount of weight, it is highly doubtful that factor alone, without something more, would be enough to establish justification for a traffic stop. Without any other

factors to consider, the situation could be described as something like "Schrodinger's Trunk;" police have no more reason to believe that the trunk is filled with contraband than they do to believe it is filled with lawful goods, and continued observation of the exterior of the car is unlikely to yield more clues. In a situation like that, a traffic stop would surely run afoul of established jurisprudence in many countries.

Troublingly, this analysis suggests that the concerns of industry observers are correct: criminals will be able to use unoccupied Level 4 and 5 vehicles to commit crimes successfully and with little risk of detection. If criminals take basic precautions to ensure that illegal goods (or victims) are not observable from the exterior of the car, program the vehicle to use well-traveled roads during normal hours, and otherwise make the vehicle inconspicuous, police will likely struggle mightily to establish reasonable suspicion to stop that vehicle in the absence of a credible tip. This situation begs the questions: (1) How big of a problem is this likely to become; (2) Is a solution needed?; and (3) If so, what are the potential options?

With respect to the first question—how big of a problem use of unoccupied autonomous vehicle for criminal purposes is likely to become—no data currently exists because fully autonomous vehicles are not yet available to consumers. However, we can use what we know about the risks associated with crime more generally to speculate. Currently, there are several significant risk factors associated with using occupied vehicles in the course of committing a crime:

- Human drivers frequently make mistakes and break traffic laws, making human-driven vehicles exponentially more likely than autonomous vehicles to be stopped by the police, pretextually or otherwise.
- Once a vehicle is stopped, police have a much better opportunity to see, smell, and hear the vehicle up close, increasing the risk police will develop justification to search the vehicle and find illegal contraband.
- If police find contraband or even merely have evidence that a traffic violation has occurred, they may be entitled to arrest the driver and/or the passengers of the vehicle, creating the risk that the relevant gang or criminal organization could lose a valuable member or, worse, find themselves confronted with a member who "flips" and cooperates with law enforcement.

Unoccupied fully autonomous vehicles not only have none of these risks associated with them, they are likely to be faster and more efficient than human-driven vehicles. The relevant question, therefore, is not "Will criminals use unoccupied, fully autonomous vehicles to commit crime," it is "Why would they not?"

How—or whether—we solve the problem of traffic stops and unoccupied fully autonomous vehicles is ultimately likely to turn on how politically, legally, and perhaps even culturally palatable the solutions are. Identifying those potential solutions is thus a critical component of this analysis, and the component to which we now turn.

3   Potential Solutions

Finding solutions to the challenges identified above requires a careful and nuanced balancing of the need to ensure that public roads are safe with the rights and privacy interests of vehicle occupants. The following, in order of least extreme to most extreme, are six possibilities.

First, state governments could pass restrictions on visibility obstructions in fully autonomous vehicles to give police a greater opportunity to detect contraband and perhaps even crime victims in the interiors of these vehicles. Such restrictions would almost certainly be reasonable extensions of existing window tinting laws and other such regulations although rest on a different justification: crime detection rather than driver visibility.

Second, governments could place restrictions on purchase and use of fully autonomous vehicles and prohibit their use by, for example, individuals with significant criminal histories. Such laws would be a new application of previous jurisprudence holding that operation of a motor vehicle is not a fundamental right in most countries, and, by extension, laws that permit governments to suspend or revoke driver's licenses for various driving offenses. Where such laws would be novel is in banning mere ownership of a particular category of vehicle, a restriction that arguably makes sense in the context of fully autonomous vehicles that can be dispatched by owners for nefarious purposes without any occupants.

Third, governments could require owners or users of fully autonomous vehicle to consent in advance to traffic stops and other forms of police scrutiny. While many nations already require drivers to provide implied consent to blood and breath alcohol testing as a condition of licensure, this solution would be a fairly dramatic extension of such laws since drivers would be asked to consent in advance to a wide range of potential police investigations. A better option might be to outfit fully autonomous vehicles with communication devices that would permit police officers to communicate remotely with owners.

Fourth, governments could establish checkpoints or pull-offs and require all fully autonomous vehicles to submit to brief stops and dog sniffs to determine if the vehicle is being used to carry contraband, much like cargo trucks are currently subjected to roadside weight checks in many nations. In the United States, however, The Supreme Court has indicated in multiple cases that it is likely to view such checkpoints as unconstitutional outside of very limited contexts given the extent to which such stops interfere with unfettered travel.

Fifth, governments could exploit existing AI jurisprudence to surveil data generated by autonomous vehicles. Some countries, for instance, currently hold that data shared with a third party is not entitled to privacy protection and can been used by law enforcement. Gathering this data from autonomous vehicles would greatly assist law enforcement in determining how, when, and where these vehicles are being used. However, given that such data could reveal a deep and wide variety of personal information, the privacy implications of such an approach would significant.

Finally, courts or the government could opt to do nothing about the problems created by autonomous vehicles, or even use these emerging issues as an opportunity to recalibrate both traffic stop and privacy laws. While autonomous vehicles may eliminate

(or at least drastically curtail) the use of pretextual traffic stops as a key method of law enforcement, police will still be able to use more conventional investigatory techniques to detect and stop the use of autonomous vehicles in crime. Such investigatory techniques, moreover, are less likely to result in the racial profiling and violence that have historically plagued pretextual traffic stops. Autonomous vehicles, therefore, as much as they may challenge an already fraught area of law, may create a valuable opportunity to rebalance both policing and privacy jurisprudence in greater favor of motorists who, for far too long, have seen a gradual but persistent erosion of many of their most significant rights.

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