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### Cover Page Footnote

J.D., The Catholic University of America, Columbus School of Law, 2020; B.A., Boston College, 2009. The author gives thanks to God for giving him purpose, his family and friends for their lovingkindness, Professor Kathryn Kelly for her mentorship and priceless guidance, and the Catholic University Law Review editors and staffers for their care and support in revising this Comment.

# WHERE WE'RE GOING, WE DON'T NEED DRIVERS: AUTONOMOUS VEHICLES AND AI-CHAPERONE LIABILITY

*Peter Y. Kim*<sup>+</sup>

Unwittingly, Iggy Pop's "The Passenger" prophetically envisions what a world filled with autonomous vehicles may look like:

Get into the car  
We'll be the passenger  
We'll ride through the city tonight  
See the city's ripped backsides  
We'll see the bright and hollow sky  
We'll see the stars that shine so bright  
The sky was made for us tonight[.]<sup>1</sup>

In the near future, drivers will no longer need to be *human*.<sup>2</sup> Already, "the segment of the population ages [eighteen] to [twenty-nine], the mobile, Uber-savvy generation that makes up the largest share of the workforce" is foregoing car ownership and the need to be in the driver's seat.<sup>3</sup> Reports indicate that

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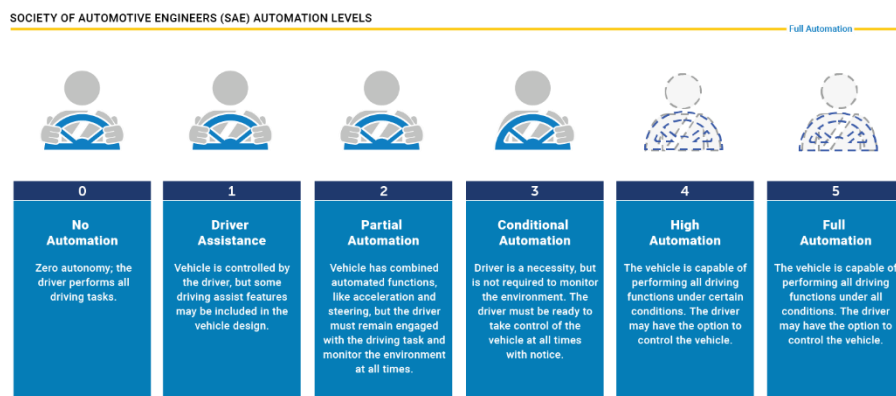
1. Iggy Pop, *The Passenger Lyrics*, LYRICS.COM, <https://www.lyrics.com/lyric/2767005/Iggy+Pop/The+Passenger> (last visited Oct. 9, 2019). Iggy Pop partially was inspired to write "The Passenger" because of his journey "around North America and Europe in David [Bowie]'s car ad infinitum[.]" when he neither owned a car nor possessed a driver's license. Kevin EG Perry, *Josh Homme on Iggy Pop: 'Lemmy Is Gone. Bowie Is Gone. He's the Last of the One-and-Only's'*, GUARDIAN (Mar. 5, 2016, 4:00 PM), <https://www.theguardian.com/music/2016/mar/05/iggy-pop-and-josh-homme-talk-about-their-post-pop-depression-album>.

2. The U.S. Department of Transportation has six principles to establish a "clear and consistent Federal approach to shaping policy for automated vehicles," including to modernize regulations by "adapt[ing] the definition of 'driver' and 'operator' to recognize that such terms do not refer exclusively to a human, but may in fact include an automated system." U.S. DEP'T OF TRANSP., PREPARING FOR THE FUTURE OF TRANSPORTATION: AUTOMATED VEHICLES 3.0 iv (2018), <https://www.transportation.gov/sites/dot.gov/files/docs/policy-initiatives/automated-vehicles/320711/preparing-future-transportation-automated-vehicle-30.pdf> [hereinafter DOT].

3. See Faiz Siddiqui, *Behind Metro's Diving Ridership: A Millennial Exodus*, WASH. POST (Sept. 15, 2018, 9:00 AM), [https://www.washingtonpost.com/transportation/2018/09/15/guess-whos-killing-metro/?noredirect=on&utm\\_term=.66cbd15c4dd7](https://www.washingtonpost.com/transportation/2018/09/15/guess-whos-killing-metro/?noredirect=on&utm_term=.66cbd15c4dd7) (noting the "decline of urban rapid transit infrastructure and the rise of alternatives such as Uber and Lyft, bike sharing and mobility trends like electric scooters"); *Self-Driving Technology May Impact Auto Injury Litigation*,

millennials are spending less time in cars with fewer of them getting driver's licenses, and they are readier than older Americans for the switch to autonomous vehicles.<sup>4</sup> As a countercultural ideal begins to take hold, America is about to be in for the ride of her life:<sup>5</sup> "Our republic of drivers is poised to become a nation of passengers."<sup>6</sup>

Alongside society's shifting relationship with the car, three types of autonomous vehicles are developing: "traditional cars with increasingly sophisticated driver assistance features; cars that have operator controls but can also be fully autonomous; and fully-autonomous vehicles with no steering wheels, accelerators or brake pedals."<sup>7</sup> The National Highway Traffic Safety Administration (NHTSA) forecasts that completely autonomous vehicles "will integrate onto U.S. roadways by progressing through six levels of driver assistance technology advancements in the coming years."<sup>8</sup> These six levels are depicted in the Society of Automotive Engineers Automation Levels diagram.<sup>9</sup>



18 CLASS ACTION REP. 1, 3 (2016) ("[V]ehicle ownership patterns are expected to change, as jitney-like services allow some households to go from owning multiple cars to owning just one.").

4. Robert Moor, *What Happens to American Myth When You Take the Driver Out of It?*, N.Y. MAG.: INTELLIGENCER (Oct. 17, 2016), <http://nymag.com/intelligencer/2016/10/is-the-self-driving-car-un-american.html> ("A recent survey found that among the kids a generation behind [the millennials], only a third believe that 'a car represents freedom,' and just [six] percent believe that a car is 'a reflection of who they are.'").

5. *See id.* ("The experience of driving a car has been the mythopoeic heart of America for half a century.").

6. *Id.*

7. *Self-Driving Technology May Impact Auto Injury Litigation*, *supra* note 3, at 3. "To date, a variety of terms (*e.g.*, self-driving, autonomous, driverless, highly automated) have been used by industry, government, and observers to describe various forms of automation in surface transportation." DOT, *supra* note 2, at vi. This Comment primarily will use "autonomous" to describe this technology.

8. *Automated Vehicles for Safety*, NAT'L HIGHWAY TRAFFIC SAFETY ADMIN., <https://www.nhtsa.gov/technology-innovation/automated-vehicles-safety> (last visited Sept. 29, 2019).

9. *Id.*

Although most vehicles on the road today are at Level Zero—No Automation,<sup>10</sup> some experts predict more than “[ninety percent] of all vehicles sold will be ‘Highly’ and ‘Fully’ autonomous” by 2040.<sup>11</sup> The U.S. Department of Transportation (DOT) has taken note. Secretary Elaine L. Chao wrote that autonomous vehicles have “the potential to improve our quality of life and enhance the mobility and independence of millions of Americans, especially older Americans and people with disabilities.”<sup>12</sup> Conferring with key transportation stakeholders (*e.g.*, automotive and technology companies), DOT plans to usher in a “policy framework” that safely integrates autonomous vehicles to America’s transportation systems.<sup>13</sup> Lawyers should take a seat at the table for this conversation because only they can develop a matching legal framework.

Inevitably, car crashes will involve autonomous vehicles, and passengers’ lawyers will need to litigate whether the “complex systems failed, and potentially bring claims related to the vehicles’ sensors, software and data inputs[.]”<sup>14</sup> Lawyers will also need to defend against such allegations when these complex systems worked perfectly and there were alternative reasons for the crash, such as human error.<sup>15</sup> Even though “automation has the potential to impact safety significantly[.]”<sup>16</sup> the technology will be challenged when courts begin to decide “who gets held liable when the tech kills” people or when it fails to save them.<sup>17</sup>

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10. Gene Munster & Austin Bohlig, *Auto Outlook 2040: The Rise of Fully Autonomous Vehicles*, LOUP VENTURES (Sept. 6, 2017), <https://loupventures.com/auto-outlook-2040-the-rise-of-fully-autonomous-vehicles/> (“Today, 99.9% of all passenger and light commercial vehicles on the road have little to no automation capabilities.”).

11. *Id.* (NHTSA classifies “Highly” and “Fully” “as Level [Four] and [Five] automation, respectively.”).

12. Elaine L. Chao, *Letter from the Secretary*, in DOT, *supra* note 2, at ii (“[A]utomation brings . . . legitimate concerns about the safety, security, and privacy of automated technology.”).

13. *Id.* at ii–iii (“Working together, we can help usher in a new era of transportation innovation and safety, and ensure that our country remains a global leader in automated technology.”).

14. *Self-Driving Technology May Impact Auto Injury Litigation*, *supra* note 3, at 1 (“Automated systems in self-driving cars will reduce vulnerability to human error, the cause of most crashes[.]”).

15. See Elie Mystal, *Self-Driving Uber Finally Kills Somebody, and I for One Welcome the Coming Test of Their Liability Shield*, ABOVE THE L. (Mar. 19, 2018, 6:35 PM), <https://abovethelaw.com/2018/03/self-driving-uber-finally-kills-somebody-and-i-for-one-welcome-the-coming-test-of-their-liability-shield/>.

16. Chao, in DOT, *supra* note 2, at ii (commenting that automation could ultimately “reduc[e] crashes caused by human error, including crashes involving impaired or distracted drivers, and sav[e] lives”).

17. Mystal, *supra* note 15.

On March 18, 2018, an autonomous vehicle owned by Uber “struck and killed” Elaine Herzberg.<sup>18</sup> Although the vehicle’s sensors detected the pedestrian “seconds before hitting her, [the vehicle] did not stop because the system used to automatically apply brakes in potentially dangerous situations had been disabled” by Uber.<sup>19</sup> The first test on liability for autonomous vehicles was extinguished within ten days when Uber provided Herzberg’s family a settlement.<sup>20</sup>

This Comment explores the untested legal question of whether an injury caused by an autonomous vehicle, powered by Artificial Intelligence (AI), should be categorized under traditional tort law. Part I examines relevant and analogous case law for intentional torts, negligence, and products liability. This Section includes a few other legal concepts that assist in understanding the current legal landscape.<sup>21</sup> Part II analyzes how an injury caused by an autonomous vehicle should be examined through the lens of traditional tort law. This Section tests the *prima facie* case for the traditional torts of battery, negligence, products liability, and vicarious liability as applied to injuries caused by autonomous vehicles. Part III both suggests that current tort law does not do a sufficient job in describing potential liability for an injury caused by autonomous vehicles and provides an alternative analytical scheme to expand existing tort law with AI-Chaperone Liability. This Section presents a *prima facie* case for AI-Chaperone Liability and offers a hypothetical situation for how it could be applied. Part IV concludes by providing several ways to introduce AI-Chaperone Liability to tort law.

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18. Tom Krisher, *Uber Self-Driving SUV Saw Pedestrian but Did Not Brake, Federal Report Finds*, CHI. TRIB. (May 24, 2018, 8:42 PM), <http://www.chicagotribune.com/business/ct-biz-uber-self-driving-uber-car-report-20180524-story.html>. Video recording from the accident “showed a distracted safety driver failing to react in time as the vehicle barreled into the pedestrian[.]” Mike Isaac et al., *Uber’s Vision of Self-Driving Cars Begins to Blur*, N.Y. TIMES (Aug. 19, 2018), <https://www.nytimes.com/2018/08/19/technology/uber-self-driving-cars.html>.

19. Krisher, *supra* note 18. “Uber [disabled] Volvo’s built-in automatic emergency braking system to avoid clashes with its own tech. This is standard practice” to avoid the vehicle having more than “one master.” Aarian Marshall & Alex Davies, *Uber’s Self-Driving Car Saw the Woman It Killed, Report Says*, WIRED (May 24, 2018, 3:38 PM), <https://www.wired.com/story/uber-self-driving-crash-arizona-ntsb-report/>.

20. Kiara Alfonseca, *Uber Reaches Settlement with Family of Woman Killed by Self-Driving Car*, NBC NEWS (Mar. 29, 2018, 11:10 AM), <https://www.nbcnews.com/news/us-news/uber-reaches-settlement-family-woman-killed-self-driving-car-n861131> (“The family of the woman killed . . . has reached a settlement with [Uber], quickly ending a potential legal battle over the first pedestrian fatality caused by an autonomous vehicle.”).

21. Out of scope for this Comment are criminal law, insurance law, as well as defenses and privileges in tort law. *See, e.g., Uber Not Criminally Liable After Self-Driving Car Killed Woman: Local Prosecutor*, ADVISEN FRONT PAGE NEWS (Mar. 7, 2019), [http://www.advisen.com/tools/fpnproc/fpns/articles\\_new\\_1/P/333123335.html?rid=333123335&list\\_id=1](http://www.advisen.com/tools/fpnproc/fpns/articles_new_1/P/333123335.html?rid=333123335&list_id=1) (“Uber will not be held criminally liable for a crash last year in which one of its self-driving cars struck and killed a pedestrian in Tempe, Arizona—the first accident of its kind.”).

### I. BACK TO BASICS: TRADITIONAL TORTS

Since Old Testament times, people have had certain obligations to each other, especially the duty to not kill each other.<sup>22</sup> In 1942, Isaac Asimov—the famed science fiction author—extended this principle to machines in the Three Laws of Robotics:

1. A robot may not injure a human being or, through inaction, allow a human being to come to harm.
2. A robot must obey the orders given to it by human beings, except where such orders would conflict with the First Law.
3. A robot must protect its own existence as long as such protection does not conflict with the First or Second Law.<sup>23</sup>

Today, civil disputes involving responsibility and compensation for an injury or death are resolved primarily through tort law.<sup>24</sup> In the United States, tort law has been created by the states' statutes and common law.<sup>25</sup> For this reason, this Comment will explore the best examples of case law without being limited to a single jurisdiction and with the understanding that tort law varies from state to state. This Comment will often cite to the Restatement (Second) of Torts and Restatement (Third) of Torts, which are drafted by the American Law Institute (ALI) and “widely relied upon and often cited by the courts,” to offer a more holistic approach based on the consensus of tort law experts.<sup>26</sup> Although “new cases may be cloaked in unfamiliar facts with the advent of artificial intelligence, old case law is applicable to give a good idea of how courts will respond to these new problems.”<sup>27</sup> As Charles Williams said, “I think in order to move forward into the future, you need to know where you’ve been.”<sup>28</sup>

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22. See *Exodus* 20:13 (King James) (“Thou shalt not kill.”).

23. *Do We Need Asimov’s Laws?*, MIT TECH. REV. (May 16, 2014), <https://www.technologyreview.com/s/527336/do-we-need-asimovs-laws/> (“Asimov’s laws of robotics have become a key part of a science fiction culture that has . . . become mainstream.”).

24. See VICTOR E. SCHWARTZ, KATHRYN KELLY & DAVID E. PARTLETT, PROSSER, WADE, AND SCHWARTZ’S TORTS: CASES AND MATERIALS 1 (Robert C. Clark et al. eds., 13th ed. 2015).

A tort is a civil wrong, other than a breach of contract, for which the law provides a remedy. This area of law imposes duties on persons to act in a manner that will not injure other persons. A person who breaches a tort duty has committed a tort and may be liable to pay damages in a lawsuit brought by a person injured because of that tort.

*Id.*

25. See RESTATEMENT (SECOND) OF TORTS § 1 cmt. c (AM. LAW INST. 1965) (“Society may regard a particular desire as improper and may, therefore, by common law or by statute impose . . . civil liability upon an effort to satisfy the desire by realizing its object.”).

26. *Restatement of the Law Second, Torts*, AM. L. INST., <https://www.ali.org/publications/show/torts/> (last visited Sept. 27, 2019).

27. Weston Kowert, *The Foreseeability of Human-Artificial Intelligence Interactions*, 96 TEX. L. REV. 181, 184 (2017).

28. Charles Williams, *Charles Williams Quotes*, BRAINYQUOTE, [https://www.brainyquote.com/quotes/charles\\_williams\\_385539](https://www.brainyquote.com/quotes/charles_williams_385539) (last visited Sept. 26, 2019). Charles Williams was a twentieth century “poet, novelist, and lay theologian,” and a cohort of C.S.

### A. *Intentional Tort: Battery*

Intentional torts committed by AI, especially those that go directly against Asimov's Second Law of Robotics and follow a human's orders to "injure a human being or, through inaction, allow a human being to come to harm[.]"<sup>29</sup> would likely be adequately covered by existing tort law. The AI machine would merely become a human's instrument for the intentional tort. Although there are several intentional torts, this Comment will only explore battery, as this tort is most related to the experience of a pedestrian being struck by a car. Section 13 of Restatement (Second) of Torts provides that:

An actor is subject to liability to another for battery if

- (a) he acts intending to cause a harmful or offensive contact with the person of the other or a third person, or an imminent apprehension of such a contact, and
- (b) a harmful contact with the person of the other directly or indirectly results.<sup>30</sup>

All intentional torts, including battery, require the claimant to demonstrate "intent" in order to recover.<sup>31</sup> Negligent or reckless behavior is insufficient to establish intent.<sup>32</sup> Finding specific intent to injure or "bring about any unauthorized or offensive contact"<sup>33</sup> is unnecessary, but only whether the human "knew with substantial certainty"<sup>34</sup> that an action could either injure a person or produce a harmful or offensive contact. The human simply "must have been capable of entertaining that same intent and must have entertained it in fact."<sup>35</sup> In the context of autonomous vehicles, the intent of both the AI-Chaperone and computer programmer will be explored in Part II.

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Lewis and J. R. R. Tolkien. *Welcome!*, THE CHARLES WILLIAMS SOC'Y, <http://www.charleswilliamssociety.org.uk/> (last visited Sept. 26, 2019).

29. *Do We Need Asimov's Laws?*, *supra* note 23.

30. RESTATEMENT (SECOND) OF TORTS § 13 (AM. LAW INST. 1965).

31. *See id.* § 16.

If an act is done with the intention of inflicting upon another an offensive but not a harmful bodily contact, or of putting another in apprehension of either a harmful or offensive bodily contact, and such act causes a bodily contact to the other, the actor is liable to the other for a battery although the act was not done with the intention of bringing about the resulting bodily harm.

*Id.*

32. *See Kawaauhau v. Geiger*, 523 U.S. 57, 60 (1998) (quoting *Geiger v. Kawaauhau* (In re *Geiger*), 113 F.3d 848, 852 (8th Cir. 1997)) (Negligent or reckless conduct does not produce "what the law has for generations called an intentional tort.").

33. *Garratt v. Dailey*, 279 P.2d 1091, 1092 (Wash. 1955).

34. *Id.* at 1095 (applying Washington law) (finding that a child could form intent for battery if "deliberately" pulling a chair from under an elderly woman).

35. *McGuire v. Almy*, 8 N.E.2d 760, 763 (Mass. 1937) ("[W]here an insane person by his act does intentional damage to the person or property of another he is liable for that damage in the same circumstances in which a normal person would be liable.").



### B. Negligence

Most litigation surrounding car accidents revolves around a driver's alleged negligence.<sup>36</sup> Section 282 of Restatement (Second) of Torts states that “negligence is conduct which falls below the standard established by law for the protection of others against unreasonable risk of harm. It does not include conduct recklessly disregardful of an interest of others.”<sup>37</sup> Thus, negligence does not require an intent element.<sup>38</sup> Instead, a cause of action for negligence needs a duty, breach of that duty, causation, and damage or actual loss.<sup>39</sup>

This Comment will focus on the element of causation, which produces tort liability when both actual cause and proximate cause are met. Actual cause is “when the harm would not have occurred absent that action.”<sup>40</sup> Proximate cause is “limited to those harms that result from the risks that made the actor's conduct tortious.”<sup>41</sup>

#### 1. Automatic Elevators

Although commonplace now, automatic elevators were not embraced by the American public in the early twentieth century—the automatic elevator “was the Google car of its era. And people hated it.”<sup>42</sup> At that time, people preferred riding in elevators with a human operator.<sup>43</sup> As automatic elevators came into the foreground, so did the negligence lawsuits that followed.<sup>44</sup>

In its 1931 decision *Lyon v. Queensboro Corporation*,<sup>45</sup> the Supreme Court of New York, Appellate Division, found “[w]here the defendant operates an automatic elevator in an apartment house for the use of its tenants, it is under the

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36. Ken LaMance, *What Is Negligence in a Car Accident Lawsuit?*, LEGALMATCH, <https://www.legalmatch.com/law-library/article/negligence-in-a-car-accident-lawsuit.html> (last modified June 7, 2018, 1:38 AM) (“Most car accident lawsuits are based on negligence, because negligence does not involve intentional acts by the defendant.”).

37. RESTATEMENT (SECOND) OF TORTS § 282 (AM. LAW INST. 1965).

38. *See id.*

39. *See* SCHWARTZ, KELLY & PARTLETT, *supra* note 24, at 140.

40. RESTATEMENT (THIRD) OF TORTS: LIABILITY FOR PHYSICAL AND EMOTIONAL HARM § 26 (AM. LAW INST. 2010). Actual cause can be found under Section 27, “[i]f multiple acts occur, each of which under § 26 alone would have been a factual cause of the physical harm at the same time in the absence of the other act(s), each act is regarded as a factual cause of the harm.” *Id.* § 27.

41. *Id.* § 29.

42. *See Remembering When Driverless Elevators Drew Skepticism*, NPR (July 31, 2015, 5:08 AM), <https://www.npr.org/2015/07/31/427990392/remembering-when-driverless-elevators-drew-skepticism> (“The automatic elevator was invented around 1900, but it took more than [fifty] years before the public became comfortable and automatic elevators became ubiquitous.”).

43. *See id.*

44. *See id.* (“But every new automatic device that enters our lives, from automatic doors to escalators, has had to face this awkward moment where people are skeptical and maybe scared.”). *See also* Digelormo v. Weil, 183 N.E. 360, 361 (N.Y. 1932); *Lyon v. Queensboro Corp.*, 248 N.Y.S. 353, 353 (N.Y. App. Div. 1931).

45. 248 N.Y.S. 353 (N.Y. App. Div. 1931).

duty of using reasonable care in the construction and maintenance of the elevator doors, gates and shaft.”<sup>46</sup> A year later in 1932, the New York Court of Appeals in *Digelormo v. Weil*<sup>47</sup> found that if there are multiple “causes of injury, for one or more of which defendant is not responsible,” the plaintiff’s recovery on a negligence claim depends on showing that the defendant was responsible fully or partially for one of the causes.<sup>48</sup> In *Digelormo*, the apartment house’s owner and the automatic elevator’s constructor were sued when a young child died, as “his head and body were crushed between the elevator and the floor of the building.”<sup>49</sup> The New York Court of Appeals found the elevator company could not “be charged with any negligence in creating this space or in permitting it to exist.”<sup>50</sup> Moreover, the plaintiff failed to prove that the owner of the apartment house was liable, since “[t]he cause of the accident [was] extremely vague and uncertain[.]”<sup>51</sup>

## 2. Pilot’s Failure to Use Autopilot System

Although autopilot systems are not without some inherent risks, their use is standard practice in aviation today.<sup>52</sup> In *Klein v. United States*,<sup>53</sup> the United States District Court for the District of Maryland, applying Maryland law, found that autopilot should have been engaged as it was “common practice and procedure” for the commercial aircraft’s approach and that the negligent pilot’s

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46. *Id.* at 353 (finding that “questions of defendant’s negligence and plaintiff’s contributory negligence were [questions] of fact for the jury” to decide).

47. 183 N.E. 360 (N.Y. 1932).

48. *Id.* at 363.

49. *Id.* at 361–62. The accident involved an electric push-button passenger elevator built and constructed by the defendant . . . the shaft in which it ran and the doors and space leading to the elevator were the work of the architect and builder. The measurements of the shafts were taken wholly from the architect’s plan. The elevator equipment included rails, car, motor, machinery and safety interlocks, excluding safety doors, saddles, jambs, etc.

*Id.* at 361.

50. *Id.* (“The general contractor, not the elevator company, constructed the space between the shaftway door and the elevator gate.”).

51. *Id.* (“[T]he plaintiff . . . failed to show how [the death] happened or that anybody’s negligence [was] responsible for it.”).

52. See Jeff Wise, *The Boeing 737 Max and the Problems Autopilot Can’t Solve*, N.Y. TIMES (Mar. 14, 2019), <https://www.nytimes.com/2019/03/14/opinion/business-economics/boeing-737-max.html>.

Automation is not without its own hazards, though. As it has become ubiquitous in cockpits, automation-related accidents have come to make up a significant proportion of all air disasters. In 2013, the Federal Aviation Administration published a study of accidents over the previous two decades and found that reports of “unexpected or unexplained” behavior of automated systems were present in [forty-six] percent of the accident reports and [sixty] percent of the major incident reports collected by the researchers.

*Id.*

53. 1975 U.S. Dist. LEXIS 15348 (D. Md. Nov. 11, 1975).

operation was “inconsistent with the approved instrument approach procedure[.]”<sup>54</sup> The court held that the pilot’s negligence<sup>55</sup> was the “sole proximate cause of the crash” and “the pilot’s . . . misapprehension taken together with the pilot’s failure to utilize his autopilot and the pilot’s operation of his aircraft below the glide slope corridor, caused the wake turbulence encounter which itself was the final cause of the accident.”<sup>56</sup> Consequently, the pilot’s inaction amounted to professional malpractice for failure to meet the standard of care.

### 3. *Distracted Driving While Using a Smart Phone*

Although the invention of the smart phone has increasingly made life easier in many ways, one externality is “distracted driving” due to talking and text messaging.<sup>57</sup> In *Meador v. Apple, Inc.*,<sup>58</sup> the plaintiff sued Apple under both negligence and strict products liability, and “alleged that the accident was caused by Apple’s failure to implement the patent on the iPhone 5 and by Apple’s failure to warn iPhone 5 users about the risks of distracted driving.”<sup>59</sup> Here, the Fifth Circuit applied Texas law and affirmed that “a driver’s neurobiological response to a smartphone notification” was not “a cause in fact of a car crash” since that “would entail an impermissible innovation or extension of state law[.]”<sup>60</sup> In 2013, a distracted driver looked down to read “a text message on her iPhone 5” and returned her attention “too late to avoid colliding with a vehicle carrying two adults and a child. The adults died, while the child survived but was rendered paraplegic.”<sup>61</sup> The court noted that “cause in fact and foreseeability” are required to find proximate cause, which must be a “substantial factor.”<sup>62</sup> Ultimately, the court declined to “say that Texas law would regard a smartphone’s effect on a user as a substantial factor in the user’s

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54. *Id.* at \*3, \*16–17 (applying Maryland law).

55. *Id.* at \*13 (The pilot’s negligence stemmed from his “fail[ure] to operate his aircraft in a safe manner consistent with good operating practices and procedures.”).

56. *Id.*

57. *Distracted Driving*, NAT’L HIGHWAY TRAFFIC SAFETY ADMIN., <https://www.nhtsa.gov/risky-driving/distracted-driving> (last visited Sept. 27, 2019).

Distracted driving is any activity that diverts attention from driving, including talking or texting on your phone . . . . Texting is the most alarming distraction. Sending or reading a text takes your eyes off the road for [five] seconds. At [fifty-five] mph, that’s like driving the length of an entire football field with your eyes closed.

*Id.*

58. 911 F.3d 260 (5th Cir. 2018).

59. *Id.* at 263.

60. *Id.* The court concluded, “[b]ecause we decline to consider ‘neurobiological compulsion’ a substantial factor under Texas law, we conclude that the iPhone 5 could not be a cause in fact of the injuries in this case.” *Id.* at 267.

61. *Id.* at 263.

62. *Id.* at 264 (quoting *Union Pump Co. v. Allbritton*, 898 S.W.2d 773, 775 (Tex. 1995)) (“Cause in fact means that the defendant’s act or omission was a substantial factor in bringing about the injury which would not otherwise have occurred.”).

tortious acts. To say otherwise would be an innovation of state law that *Erie* does not permit [the court] to make.”<sup>63</sup>

In *Modisette v. Apple, Inc.*,<sup>64</sup> a driver on the highway used “the FaceTime application on his Apple iPhone 6 Plus” and crashed into a stationary car causing “severe physical and emotional injuries” to a couple and killing their five-year-old daughter.<sup>65</sup> The Court of Appeals of California held that the injured couple could not “establish that Apple’s design of the iPhone constituted a proximate cause of the injuries they suffered, a necessary element of their remaining claims.”<sup>66</sup> The court barred a proximate cause finding because of a “tenuous connection between the [family’s] injuries and Apple’s design of the iPhone 6 Plus without lockout technology and . . . the burden to Apple and corresponding consequences to the community that would flow from such a duty.”<sup>67</sup>

#### 4. *Res Ipsa Loquitur* for Car Accidents

The doctrine of *res ipsa loquitur* allows a plaintiff to get past a directed verdict and to the jury even though the plaintiff has not proved any specific act of negligence.<sup>68</sup> The Restatement (Second) of Torts provides that *res ipsa loquitur* applies under the following conditions:

- (1) It may be inferred that harm suffered by the plaintiff is caused by negligence of the defendant when
  - (a) the event is of a kind which ordinarily does not occur in the absence of negligence;
  - (b) other responsible causes, including the conduct of the plaintiff and third persons, are sufficiently eliminated by the evidence; and
  - (c) the indicated negligence is within the scope of the defendant’s duty to the plaintiff.<sup>69</sup>

Additionally, the court “determine[s] whether the inference may *reasonably* be drawn by the jury, or whether it must *necessarily* be drawn[,]” while the jury “determine[s] whether the inference is to be drawn in any case where different

63. *Id.* at 267. In terms of liability, it neither mattered that Apple “secured a patent” for locking handheld computing devices while a user was driving in 2008, nor that “Apple did not implement any version of a ‘lock-out mechanism’ on the iPhone 5.” *Id.* at 263.

64. 241 Cal. Rptr. 3d 209 (Cal. Ct. App. 2018).

65. *Id.* at 213.

66. *Id.*

67. *Id.* at 215. The court found “that the gap between Apple’s design of the iPhone and the [family’s] injuries [was] too great for the tort system to hold Apple responsible.” *Id.* at 226.

68. See RESTATEMENT (SECOND) OF TORTS § 328D cmt. b (AM. LAW INST. 1965) (“A *res ipsa loquitur* case is ordinarily merely one kind of case of circumstantial evidence, in which the jury may reasonably infer both negligence and causation from the mere occurrence of the event and the defendant’s relation to it.”). In Latin, *res ipsa loquitur* means “the thing speaks for itself[.]” *Id.* § 328D cmt. a.

69. *Id.* § 328D(1)(a)–(c).

conclusions may reasonably be reached.”<sup>70</sup> *Res ipsa loquitur* can be applied against a driver who crashes into a stationary object as, “[i]n the ordinary experience of mankind[,] a moving vehicle does not without negligence of those responsible for it come into collision with a stationary object of the size of an excavator.”<sup>71</sup> But *res ipsa loquitur* cannot be applied when two cars collide with each other.<sup>72</sup> This is also true for a collision involving a driver of a vehicle who injures “a passenger or a bystander on the sidewalk” and who would not have a *res ipsa loquitur* claim against the driver.<sup>73</sup> Under the *res ipsa loquitur* principle, circumstantial evidence permits the jury to infer negligence, e.g., “when a driver runs down a visible pedestrian, that he has failed to keep a proper lookout.”<sup>74</sup>

### C. Products Liability

Both negligence and products liability claims “require proof of causation.”<sup>75</sup> Thus, if causation is not met under negligence, then it similarly would fail under products liability.<sup>76</sup> A cause of action for products liability arises when “[o]ne engaged in the business of selling or otherwise distributing products who sells or distributes a defective product is subject to liability for harm to persons or property caused by the defect.”<sup>77</sup> In most jurisdictions, strict liability is available in cases involving injury for the use of products.<sup>78</sup> More specifically, strict liability may attach “even if the manufacturer’s quality control in producing the defective product was reasonable. A plaintiff was not required to be in direct privity with the defendant seller to bring an action.”<sup>79</sup> Furthermore, the Restatement (Third) of Torts: Products Liability provides that

[t]he concept of strict liability, which focuses on the product rather than the conduct of the manufacturer, may help make the point that a defendant is held to the expert standard of knowledge available to the relevant manufacturing community at the time the product was

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70. *Id.* § 328D(2)–(3) (emphasis added).

71. *Bryne v. Great Atl. & Pac. Tea Co.*, 168 N.E. 540, 540 (Mass. 1929).

72. Hugh R. O’Connell, *Torts—Application of Res Ipsa Loquitur to Automobiles*, 35 MARQ. L. REV. 36, 37 (1951) (“The possible causative factors involved in a collision between two moving vehicles are so numerous that it is virtually impossible to show the defendant’s exclusive control over the factors producing the accident necessary to the application of *res ipsa loquitur*.”).

73. SCHWARTZ, KELLY & PARTLETT, *supra* note 24, at 264.

74. RESTATEMENT (SECOND) OF TORTS § 328D cmt. b.

75. *Meador v. Apple, Inc.*, 911 F.3d 260, 264 (5th Cir. 2018).

76. *See id.*

77. RESTATEMENT (THIRD) OF TORTS: PRODUCTS LIABILITY § 1 (AM. LAW INST. 1998). “[S]trict products liability’ is a term of art that reflects the judgment that products liability is a discrete area of tort law which borrows from both negligence and warranty. It is not fully congruent with classical tort or contract law.” *Id.* cmt. a.

78. *See id.* § 1 (“In the early 1960s, American courts began to recognize that a commercial seller of any product having a manufacturing defect should be liable in tort for harm caused by the defect regardless of the plaintiff’s ability to maintain a traditional negligence or warranty action.”).

79. *Id.*

manufactured. Finally, the liability of nonmanufacturing sellers in the distributive chain [also] is strict [in most, but not all, jurisdictions]. It is no defense that they acted reasonably and did not discover a defect in the product, be it from manufacturing, design, or failure to warn.<sup>80</sup>

In *Winter v. G.P. Putnam's Sons*,<sup>81</sup> the Ninth Circuit, applying California law, hinted that “highly technical tools[,]” including “[c]omputer software that fails to yield the result for which it was designed,” potentially could be “products’ for the purpose of products liability law.”<sup>82</sup> And in *Ferguson v. Bombardier Services Corporation*,<sup>83</sup> the Eleventh Circuit, applying applicable state law, held that a military aircraft manufacturer that installed an autopilot system solely was liable for a manufacturing defect.<sup>84</sup> On the other hand, the manufacturer of the autopilot system was not liable for “the crash of a military aircraft . . . [that was] transporting Virginia Air National Guard personnel from Florida to Virginia, killing eighteen passengers and three crew members.”<sup>85</sup> Even if the autopilot system manufacturer “shipped an improperly assembled” autopilot system to the military aircraft manufacturer who then “installed the autopilot system using the same configuration[,]” the autopilot system manufacturer would not be liable.<sup>86</sup> The court held that liability for the manufacturing defect stemmed from whoever “assembled the autopilot system” on the aircraft.<sup>87</sup>

#### D. Vicarious Liability

Virtually trans-substantive across all legal areas, vicarious liability “hold[s] one individual accountable for the actions of another.”<sup>88</sup> Although not a tort in and of itself, vicarious liability is important to consider because, if applied, a person can be responsible for the tortious actions of another. Generally, one does not face vicarious liability for the actions of another, unless falling under

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80. *Id.* But see SCHWARTZ, KELLY & PARTLETT, *supra* note 24, at 661 (“About [twenty-four] states have [innocent seller immunity] statutes that allow a nonmanufacturer seller to be dismissed from a products liability lawsuit if the seller identifies the product manufacturer, the manufacturer is subject to the court’s jurisdiction, and the manufacturer is able to satisfy any judgment.”).

81. 938 F.2d 1033 (9th Cir. 1991).

82. *Id.* at 1034 n.1, 1035–36 (applying California law).

83. 244 F. App’x 944 (11th Cir. 2007).

84. *Id.* at 951 (applying applicable state law).

85. *Id.* at 947.

86. *Id.* at 951.

The critical issue in the case is the precise cause of the accident. The [decedents’ estates] allege[d] that two design defects and a manufacturing defect, all in the autopilot system, conspired to cause the aircraft to crash following the gust of wind . . . . The [manufacturers] argue[d] the aircraft was improperly loaded, such that the center of gravity was beyond the limit allowed for the safe operation of the aircraft.

*Id.* at 947. Turbulence was ruled out as a “primary cause” by both parties. *Id.*

87. *Id.* at 951–52.

88. *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417, 435 (1984).

an exception.<sup>89</sup> When applicable, vicarious liability holds “the employer liable for the negligence [or other fault] of the independent contractor, irrespective of whether the employer has himself been at fault.”<sup>90</sup> This liability is based on policy decisions disallowing the employer “to shift the responsibility for the proper conduct of the work to the contractor.”<sup>91</sup>

One exception to the general rule of no vicarious liability is nondelegable duties, in which an owner or employer’s obligations cannot be passed onto an independent contractor.<sup>92</sup> Nondelegable duties are neither a “substitute for liability based on negligence[.]” nor strict liability, “but [rather] to assure that when a negligently caused harm occurs, the injured party will be compensated by the person whose activity caused the harm and who may therefore properly be held liable for the negligence of his agent, whether his agent was an employee or an independent contractor.”<sup>93</sup>

In *Maloney v. Rath*,<sup>94</sup> the Supreme Court of California held that a car accident was caused by an owner’s failure to maintain her “brakes that resulted from her independent contractor’s negligence in overhauling or in thereafter inspecting the brakes.”<sup>95</sup> Both the mechanic and the owner had a duty:

The responsibility for minimizing that risk or compensating for the failure to do so properly rests with the person who owns and operates the vehicle. [She] is the party primarily to be benefited by its use; [s]he selects the contractor and is free to insist upon one who is financially responsible and to demand indemnity from [her]; the cost of [her] liability insurance that distributes the risk is properly attributable to [her] activities; and the discharge of the duty to exercise reasonable care in the maintenance of [her] vehicle is of the utmost importance to the public.<sup>96</sup>

On the other hand, in *Dubret v. Holland America Line Westours, Inc.*,<sup>97</sup> the United States District Court for the Western District of Washington, applying Washington law, held that a cruise company was not liable on a theory of

89. For example, states have automobile consent “statutes that make the owner of an automobile vicariously liable for injury caused by the negligent operation of the vehicle as long as it is being used with the owner’s consent.” SCHWARTZ, KELLY & PARTLETT, *supra* note 24, at 726.

90. RESTATEMENT (SECOND) OF TORTS ch.15, topic 2, intro. note (AM. LAW INST. 1965).

91. *Id.*

92. *See id.* (“Such a ‘non-delegable duty’ requires the person upon whom it is imposed to answer for it that care is exercised by anyone, even though he be an independent contractor, to whom the performance of the duty is entrusted.”).

93. *Maloney v. Rath*, 445 P.2d 513, 515 (Cal. 1968).

94. 445 P.2d 513 (Cal. 1968).

95. *Id.* at 516–17 (“Since her duty to maintain her brakes in compliance with the provisions of the Vehicle Code is nondelegable, the fact that the brake failure was the result of her independent contractor’s negligence is no defense.”).

96. *Id.* at 516.

97. 25 F. Supp. 2d 1151 (W.D. Wash. 1998).

*respondeat superior* for the actions of an independent contractor bus company that “transported [passengers] . . . to the airport . . . [when] their bus collided with a garbage truck and they were injured.”<sup>98</sup> The cruise company avoided liability since “[b]oth the brochure advertising the Panama cruise and the contract governing the cruise state plainly that on-shore services, including bus transportation, would be provided by independent contractors, and that [the cruise company] would assume no liability for the negligence of these providers.”<sup>99</sup> Ultimately, it did not matter that one “chaperone [allegedly] noticed that the driver was being reckless, but, instead of acting to correct the situation, moved to the back of the bus where he was less likely to be injured.”<sup>100</sup>

## II. SEARCHING FOR THE ANSWER: AI REMAINING AN OPEN QUESTION IN TORT LIABILITY

In February 2016, Ben Guarino, a science journalist at *Inverse*,<sup>101</sup> noted that autonomous vehicles “may very well be much safer than human drivers. They will still kill someone because machines, like humans, are fallible.”<sup>102</sup> Two years later, his prediction came true when an autonomous Uber SUV struck a woman dead.<sup>103</sup> This led to legal scholars examining the risks and rewards of AI through the example of the self-driving car.<sup>104</sup> For example, *Above the Law*, a legal news website, published the following hypothetical in a survey:

A passenger hires a self-driving car, through a service like Uber or Lyft, that is programmed by artificial intelligence, from a company like IBM or Google. Because of bad weather,<sup>105</sup> this autonomous

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98. *Id.* at 1152–53 (“The [passengers] claim that the chaperones identified themselves as ‘representatives’ of [the cruise company] amounts to an allegation of apparent agency, as opposed to true employment.”).

99. *Id.* at 1153 (“Such disclaimers are enforceable, and have been found to serve as a legal bar to claims of apparent agency in cases with facts analogous to this one.”).

100. *Id.* (“The [passengers] admit that the chaperones, when questioned after the accident, identified themselves as [tour company] employees, not employees of [the cruise company].”).

101. Since August 2015, the online website *Inverse* has taken “a scientific approach to analyzing culture and a cultural approach to talking about science.” Hannah Margaret Allen, *The Genesis of Inverse*, INVERSE (Oct. 27, 2015), <https://www.inverse.com/article/5640-the-genesis-of-inverse>.

102. Ben Guarino, *Google Claims Some Responsibility for Its Driverless Car Crashing*, INVERSE (Feb. 29, 2016), <https://www.inverse.com/article/12181-google-claims-some-responsibility-for-its-driverless-car-crashing> (“The Lexus busted a fender and a sensor. No one was hurt. But don’t expect that to last.”).

103. See Krisher, *supra* note 18.

104. David Lat, *The Ethical Implications of Artificial Intelligence*, ABOVE THE L., <https://abovethelaw.com/law2020/the-ethical-implications-of-artificial-intelligence/> (last visited Sept. 28, 2019) (“Perhaps the most widely discussed example of balancing the risks and rewards of artificial intelligence is the self-driving car.”).

105. For the purposes of this question in order to hold a party liable for the accident, it is presumed that the “bad weather” described does not amount to an “*act of God*.” See, e.g., *Golden v. Amory*, 109 N.E.2d 131, 133 (Mass. 1952) (emphasis added) (The defendants were not “liable



vehicle injures a pedestrian. As a very general matter, who should bear the losses from this accident, and in what rough percentages?<sup>106</sup> Unfortunately, the *Above the Law* survey does not expand upon the legal theories and provide any analysis, but this Comment will accept the challenge.

#### A. Part Deux: Intentional Torts: Battery

Under Section 13 of Restatement (Second) of Torts, an AI-powered autonomous vehicle involved in a traffic accident certainly would produce a “harmful contact” to any respective parties (*e.g.*, passengers of affected autonomous vehicles, pedestrian, and human driver of another car (if not fully autonomous)).<sup>107</sup> Here, the battery element in dispute would be intent. A few issues immediately arise when attempting to apply the intentional tort of battery to the context of autonomous vehicles. Without question, a pedestrian who is injured by an autonomous vehicle would experience harmful contact.<sup>108</sup> However, two questions remain: who is the actor subject to liability, and what is the actor’s intent?

Likely, a court would need to examine either the intent of the AI-Chaperone<sup>109</sup> (*e.g.*, the company who sold or manufactured the autonomous vehicle, or possibly the person who now owns it) or computer programmer, with the AI-powered autonomous vehicle acting as the instrument of the battery. Even after figuring out who the actor is, simply getting into an autonomous vehicle to go from points A to B without more is unlikely to merit the intent that rises to a battery cause of action.

As David Lat notes, “programming an autonomous vehicle involves difficult choices that will generate extensive ethical and legal debate in the years ahead. In fact, these debates are already taking place, in the legislatures of the [forty]-plus states that have passed, or have considered passing, laws to govern self-driving cars.”<sup>110</sup> But if the computer programmer followed Isaac Asimov’s Three Laws of Robotics in creating the AI algorithm, then there could be no “intent.”<sup>111</sup> Rather, the autonomous vehicle would be designed to protect human life. Similarly, this would be true for the seller or manufacturer of the

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for injury caused by the flood waters” as it “was plainly beyond the capacity of any one to anticipate, and was clearly an act of God.”).

106. *Who is Responsible When a Self-Driving Car Crashes?*, ABOVE THE L., <https://abovethelaw.com/law2020/the-ethical-implications-of-artificial-intelligence/poll-liability-in-self-driving-cars/> (last visited Oct. 23, 2019). Nearly eighty percent of survey participants found both the pedestrian and passenger who hired the car at zero percent liability, and the majority of participants find some percentage of liability for the car manufacturer, car service, and car programmer. *See id.*

107. RESTATEMENT (SECOND) OF TORTS § 13 (AM. LAW INST. 1965).

108. *See id.* § 15 (“Bodily harm is any physical impairment of the condition of another’s body, or physical pain or illness.”).

109. *See infra* Part III.

110. Lat, *supra* note 104.

111. *Do We Need Asimov’s Laws?*, *supra* note 23.

autonomous vehicle, and ultimately for the owner of the vehicle. The only issue would be whether the algorithm protects the passenger over the pedestrian.

The Restatement (Second) of Torts provides that intent need not require actual harmful bodily contact, and

[i]f an act is done with the intention of inflicting upon another an offensive but not a harmful bodily contact . . . and such act causes a bodily contact to the other, the actor is liable to the other for a battery although the act was not done with the intention of bringing about the resulting bodily harm.<sup>112</sup>

In *Garratt v. Dailey*,<sup>113</sup> regardless of his young age, a boy's intent could be found if he "knew with substantial certainty" that his actions could hurt another without actual intent to do so.<sup>114</sup> In *McGuire v. Almy*,<sup>115</sup> a mentally ill patient would not be treated any differently for liability purposes when hitting a nurse, if "capable of entertaining" intent and having "entertained it in fact."<sup>116</sup> At this time, it seems unlikely that a plaintiff could produce sufficient evidence to persuade the fact-finder that a computer programmer of an autonomous vehicle's AI software "knew with substantial certainty"<sup>117</sup> or had "entertained [the intent to injure the pedestrian] in fact" when there is machine learning.<sup>118</sup>

"Machine learning departs from software coding in the conventional sense and begins to look more like coaching than it does programming[,]"<sup>119</sup> as the AI software eventually makes independent decisions. Consequently, determining the intent of a human becomes more abstract as machine learning allows an autonomous vehicle to "'learn' to classify and respond to situations based on datasets of images and behaviors. The software is shown thousands of images of a cyclist, or a skateboarder, or an ambulance, until it learns to identify those things on its own."<sup>120</sup> Although initially a computer programmer provides stimuli to the system, machine learning allows for evolution based on the software's exposure to the outside world and determination of "which of its actions create the most successful results. It then incorporates its most successful actions into future behavior."<sup>121</sup>

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112. RESTATEMENT (SECOND) OF TORTS § 16(1). Intent cannot be formed by software, but only by a human being, such as a computer programmer or the car manufacturer using the computer software. *See id.*

113. 279 P.2d 1091 (Wash. 1955).

114. *Id.* at 1095.

115. 8 N.E.2d 760 (Mass. 1937).

116. *Id.* at 763.

117. *Garratt*, 279 P.2d at 1095.

118. *Almy*, 8 N.E.2d at 763.

119. Kowert, *supra* note 27, at 183.

120. Marshall & Davies, *supra* note 19.

121. Kowert, *supra* note 27, at 183 ("Many forms of artificial intelligence, including autonomous vehicles, employ machine learning."); Lat, *supra* note 104 ("Machine learning is based on algorithms that can learn from data without relying on rules-based programming.").

Since 2014, MIT Media Lab has run an experiment called “Moral Machine” that “crowdsourc[e] people’s decisions on how self-driving cars should prioritize lives in different variations of the ‘trolley problem.’”<sup>122</sup> In an emergency, autonomous vehicles might be programmed to choose between moving in a direction that would either “kill three elderly pedestrians” or “kill three youthful passengers.”<sup>123</sup> Moreover, “consumers would more readily enter a car that protected themselves over pedestrians.”<sup>124</sup>

Additionally, a 2019 Georgia Tech study<sup>125</sup> found that an autonomous vehicle is five percent worse at detecting pedestrians with darker skin tones than those with lighter skin tones.<sup>126</sup> This study indicates that “algorithmic bias”<sup>127</sup> may occur for two reasons: “First, the object-detection models had mostly been trained on examples of light-skinned pedestrians. Second, the models didn’t place enough weight on learning from the few examples of dark-skinned people that they did have.”<sup>128</sup> Simply uploading people’s age and racial preferences into a machine will likely not suffice as intent if done unconsciously. Even though algorithms are programmed by humans, there may be no “substantial certainty” because the AI software potentially can be overcome by the machine learning software itself. Because even a five percent difference between life and death based on skin color is unacceptable, the onus is on the corporations and their computer programmers to counteract any algorithmic bias.

A company using this technology should consider best practices, such as having a more representative dataset testing sample, a more diverse group of programmers, and mandatory fairness testing that checks for different biases.<sup>129</sup> Such methods are beginning to gain support amongst the AI community in light of the unjustifiable deaths of countless African Americans, including the recent

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122. Karen Hao, *Should a Self-Driving Car Kill the Baby or the Grandma? Depends on Where You’re From*, MIT TECH. REV. (Oct. 24, 2018), <https://www.technologyreview.com/s/612341/a-global-ethics-study-aims-to-help-ai-solve-the-self-driving-trolley-problem/>.

The classic trolley problem goes like this: You see a runaway trolley speeding down the tracks, about to hit and kill five people. You have access to a lever that could switch the trolley to a different track, where a different person would meet an untimely demise. Should you pull the lever and end one life to spare five?

*Id.*

123. *Id.*

124. *Id.* (“The study has interesting implications for countries currently testing self-driving cars, since these preferences could play a role in shaping the design and regulation of such vehicles.”).

125. BENJAMIN WILSON ET AL., PREDICTIVE INEQUITY IN OBJECT DETECTION 1 n.1, <https://arxiv.org/pdf/1902.11097.pdf> (last visited Sept. 27, 2019).

126. Sigal Samuel, *A New Study Finds a Potential Risk with Self-Driving Cars: Failure to Detect Dark-Skinned Pedestrians*, VOX (Mar. 6, 2019, 10:50 AM), <https://www.vox.com/future-perfect/2019/3/5/18251924/self-driving-car-racial-bias-study-autonomous-vehicle-dark-skin>.

127. *Id.* (Algorithmic bias is “how human bias seeps into our automated decision-making systems.”).

128. *Id.*

129. *Id.*

deaths of George Floyd, Ahmaud Arbery, and Breonna Taylor<sup>130</sup> that have ignited a worldwide movement<sup>131</sup> towards anti-racism.<sup>132</sup> The AI community recognizes its lack of diversity as a facial problem that “risks replicating or perpetuating historical biases and power imbalances[.]”<sup>133</sup> For example, in June 2020, Amazon, IBM, and Microsoft froze sales of “facial recognition tech” to law enforcement that AI experts and civil rights organizations claim “disproportionately affects people of color[.]”<sup>134</sup> More specifically, AI facial recognition software may be abused “like any policing tool operating by systemically racist societies or institutions . . . to target people of color more often.”<sup>135</sup> The crux of the problem lies in “the datasets used to train facial recognition algorithms [that] are often *predominantly made up of pictures of white men*.”<sup>136</sup> Because machine learning is not infallible, these datasets “used to build facial recognition software ingrain[] it with racial bias which makes it more likely to misidentify women and people of color, which would in turn lead to more wrongful arrests.”<sup>137</sup> From this cautionary tale, carmakers and tech companies developing autonomous vehicles should use diverse datasets to avoid the future fact-finder from concluding that they *knew with substantial certainty* that a person of color was more likely to be injured or the machine learning software *entertained* such harm.

### B. Part Deux: Negligence

With negligence, the element that fails on autonomous vehicles is causation. Legal scholars have noted that the novel phenomenon of unrestricted, computer-directed movement “is likely to challenge certain basic assumptions embedded in our existing legal structure. For instance, tort law (and other areas of law concerned with accidental harm) operates within an overall framework that implicitly presumes that the movements of others will be broadly

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130. See Kyle Wiggers, *The AI Community Says Black Lives Matter, but More Work Needs to be Done*, VENTUREBEAT (June 5, 2020, 1:28 PM), <https://venturebeat.com/2020/06/05/diversity-in-ai-black-lives-matter/>.

131. See Gregory Warner, *The Global Legacy of George Floyd*, NPR: ROUGH TRANSLATION (June 10, 2020, 1:53 PM), <https://www.npr.org/2020/06/10/874270664/the-global-legacy-of-george-floyd>.

132. See *Being Antiracist*, SMITHSONIAN INST., <https://nmaahc.si.edu/learn/talking-about-race/topics/being-antiracist> (last visited June 16, 2020) (“To create an equal society, we must commit to making unbiased choices and being antiracist in all aspects of our lives.”).

133. See Wiggers, *supra* note 130.

134. Isobel Asher Hamilton, *Outrage Over Police Brutality has Finally Convinced Amazon, Microsoft, and IBM to Rule Out Selling Facial Recognition Tech to Law Enforcement. Here's What's Going On.*, BUS. INSIDER (June 13, 2020, 5:01 AM), <https://www.businessinsider.com/amazon-microsoft-ibm-halt-selling-facial-recognition-to-police-2020-6>.

135. *Id.*

136. *Id.* (emphasis added).

137. *Id.*

predictable.”<sup>138</sup> No matter how many algorithms can be performed through machine learning, at a human level, an autonomous vehicle will be unpredictable.<sup>139</sup>

On February 14, 2016, Google’s autonomous vehicle “stopped in the right lane and [] attempt[ed] to get around sandbags surrounding a storm drain blocking its path. The bus driver, operating in the middle lane, thought the Lexus would stay put, while Google’s program thought the bus would slow down, leading to false assumptions on both parties[,]” and a low-speed crash.<sup>140</sup> Google, in a February 2016 monthly report, wrote this off as “a classic example of the negotiation that’s a normal part of driving . . . [in] trying to predict each other’s movements.”<sup>141</sup> In other words, an autonomous vehicle makes similar assessments as a human driver. Because autonomous vehicles cannot use body language, “[s]tartup Drive.ai . . . uses LED signs that use text and pictures to communicate” with pedestrians.<sup>142</sup>

Although Google bore “some responsibility, because if [its] car hadn’t moved there wouldn’t have been a collision[,]” Google also stated its “test driver believed the bus was going to slow or stop to allow [the car] to merge into the traffic, and that there would be sufficient space to do that.”<sup>143</sup> Like the building owner who was responsible for the elevator in *Lyon*, Google’s autonomous vehicle should drive with “the duty of using reasonable care[.]”<sup>144</sup> Like the “owner of an apartment house and the constructor of an elevator” in *Digelormo*, Google could even argue “[t]he cause of the accident [was] extremely vague and

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138. Harry Surden & Mary-Anne Williams, *Technological Opacity, Predictability, and Self-Driving Cars*, 38 CARDOZO L. REV. 121, 130 (2016). It should be considered that “[n]otions of predictability embedded in tort law may be challenged when activities are made by self-directed moving autonomous systems whose computer controlled actions may be difficult for ordinary people to anticipate.” *Id.* at 164.

139. *Id.* at 145–46.

140. William Hoffman, *Watch Google’s Self-Driving Lexus Crash Into a California Bus*, INVERSE (Mar. 10, 2016), <https://www.inverse.com/article/12681-watch-google-s-self-driving-lexus-crash-into-a-california-bus>.

141. Alyssa Newcomb, *Google’s Self-Driving Car Hits a Public Bus in California*, ABC NEWS (Feb. 29, 2016, 2:57 PM), <https://abcnews.go.com/Technology/googles-driving-car-hits-public-bus-california/story?id=37288589>; *Scenes from the Streets*, WAYMO (Dec. 13, 2016), <https://blog.waymo.com/2019/09/scenes-from-streets.html> (republishing the original February 2016 report).

142. Megan Rose Dickey, *Here’s How Lyft Envisions Self-Driving Cars Communicating with Pedestrians*, TECHCRUNCH (Dec. 11, 2018, 3:49 PM), <https://techcrunch.com/2018/12/11/lyft-self-driving-car-communication-patent/> (“Drivers and pedestrians are accustomed to interacting in particular ways, removing a driver from some vehicles can lead to uncertainty and miscommunication.”). Autonomous vehicles will provide their human counterparts some form of communication to alert their next plan of action, the same way human drivers use hand gestures or facial cues when driving. *See id.* (Ford “want[s] everyone to trust self-driving vehicles—no matter if they are riders in these vehicles themselves or pedestrians, cyclists, scooter users or other drivers sharing the road.”).

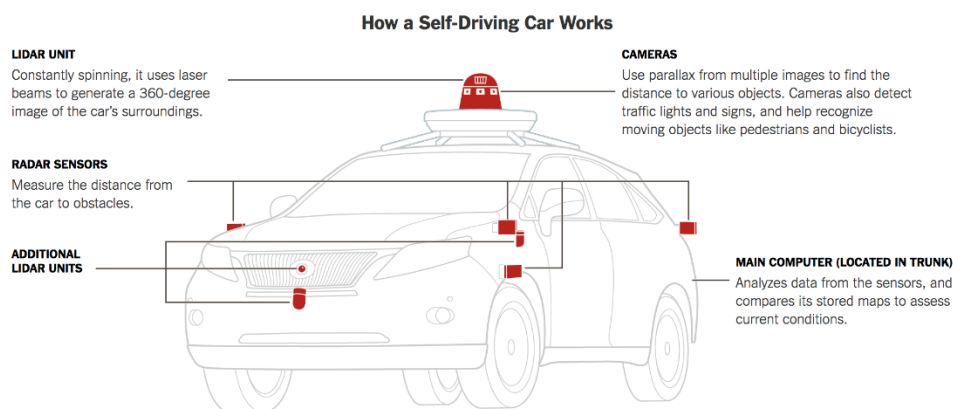
143. *Scenes from the Street*, *supra* note 141.

144. *Lyon v. Queensboro Corp.*, 248 N.Y.S. 353, 353 (N.Y. App. Div. 1931).

uncertain[.]”<sup>145</sup> Unlike the pilot in *Klein* who failed to engage autopilot, Google’s driving operator did use autopilot.<sup>146</sup> Unlike the applications used by the distracted drivers in both *Meador* and *Modisette* that did not lead to causation, Google’s autonomous vehicle took control, not its driving operator. Finally, with *res ipsa loquitur*, Google would have no issue here, as neither the bus driver nor Google’s driving operator could use it against the other. For liability purposes under current tort law, negligence may capture the actions or inactions of the autonomous vehicle’s driving operator, but the AI software itself likely would need to fall under products liability.

### C. Part Deux: Products Liability

An autonomous vehicle is more than the sum of its parts, but if one of them causes the accident, there is a products liability question. Significant components<sup>147</sup> are:



By Guilbert Gates | Source: Google | Note: Car is a Lexus model modified by Google. Uber's sensing system uses similar technology.

The laundry list of autonomous vehicle technology includes “radar, RaCam, Mobileye, vision-based systems (cameras and software), LIDAR, localization systems, intelligent software algorithms, a suite of advanced driver assistance systems, power electronics, battery systems, ADAS sensors, control platforms, high voltage wiring and connection systems, charge couplers, chip set platforms, robotics, and active safety products[.]”<sup>148</sup>

145. *Digelormo v. Weil*, 183 N.E. 360, 361 (N.Y. 1932).

146. *Klein v. United States*, 1975 U.S. Dist. LEXIS 15348, at \*13 (D. Md. Nov. 11, 1975) (applying Maryland law).

147. Troy Griggs & Daisuke Wakabayashi, *How a Self-Driving Uber Killed a Pedestrian in Arizona*, N.Y. TIMES (Mar. 21, 2018), <https://www.nytimes.com/interactive/2018/03/20/us/self-driving-uber-pedestrian-killed.html>.

148. *Delphi Auto. PLC v. Absmeier*, No. 15-cv-13966, 2016 U.S. Dist. LEXIS 38212, at \*16–17 (E.D. Mich. Mar. 24, 2016). “Laser Imaging Detection and Ranging or ‘[LIDAR]’ is a technology that uses a pulse of light to measure distance.” *Quanergy Sys. v. Velodyne Lidar, Inc.*, No. 16-cv-05251-EJD, 2017 U.S. Dist. LEXIS 164916, at \*2 (N.D. Cal. Oct. 4, 2017).

For the March 2018 Uber accident mentioned above:

The car’s radar and [LIDAR] sensors detected [the woman] about six seconds before the crash—first identifying her as an unknown object, then as a vehicle, and then as a bicycle, each time adjusting its expectations for her path of travel. About a second before impact, the report says “the self-driving system determined that an emergency braking maneuver was needed to mitigate a collision.”<sup>149</sup>

Uber disengaged “Volvo’s built-in automatic emergency braking system[.]”<sup>150</sup> Volvo would not be liable like the autopilot system manufacturer in *Ferguson*, because neither was the cause of its respective accident.<sup>151</sup> Moreover, if a company, such as Google or Uber, only develops the autonomous vehicle’s software, then the “product” would be the software. On the other hand, the “product” could encompass the whole car if the company developed everything, including the software.

The “software that fails to yield the result for which it was designed” could lead to a products liability suit, but Uber’s software worked.<sup>152</sup> Although currently humans outperform autonomous vehicles in discerning “continual judgments about other humans on the road[,]” the machine learning capabilities of AI will need further development.<sup>153</sup>

#### D. Part Deux: Vicarious Liability

Less autonomous versions of self-driving technology already have been permitted legally in some jurisdictions (*e.g.*, “Cadillac Super Cruise, Nissan ProPilot Assist, and Tesla Autopilot”) and “keep [the] car in [its] lane and a safe distance from other cars, allowing the [humans] behind the wheel to take their hands off the wheel . . . [provided they] keep paying attention to the road and remain ready to take control if needed.”<sup>154</sup> One popular guide to self-driving cars noted that “these systems are not especially capable: They can’t see things

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149. Marshall & Davies, *supra* note 19 (“The report says that the Uber vehicle, a modified Volvo XC90 SUV, had been in autonomous mode for [nineteen] minutes and was driving at about [forty] mph when it hit [forty-nine]-year-old Elaine Herzberg as she was walking her bike across the street.”).

150. *Id.*

151. *Ferguson v. Bombardier Servs. Corp.*, 244 F. App’x 944, 951 (11th Cir. 2007) (applying applicable state law).

152. *Winter v. G.P. Putnam’s Sons*, 938 F.2d 1033, 1035–36 (9th Cir. 1991) (applying California law).

153. Adele Peters, *Autonomous Cars Need to Think More Like Humans, Less Like Machines*, FAST CO. (Sept. 11, 2018), <https://www.fastcompany.com/90231475/perceptive-automata-helps-self-driving-cars-think-like-humans> (“About 250 milliseconds after seeing someone, you’ve made all of these inferences about their state of mind, their intention, their awareness . . . . Those inferences are something that humans are incredibly good at, and self-driving cars to this point have had zero ability to do.”).

154. Alex Davies, *The Wired Guide to Self-Driving Cars*, WIRED (Dec. 13, 2018, 6:00 AM), <https://www.wired.com/story/guide-self-driving-cars/>.

like traffic lights or stopped firetrucks. The problem is that humans are not especially well suited for serving as backups.”<sup>155</sup>

Uber’s human operator is responsible for keeping an eye on the road and taking control when necessary.<sup>156</sup> Uber disallows “its system to make emergency braking maneuvers on its own. Rather than risk ‘erratic vehicle behavior’—like slamming on the brakes or swerving to avoid a plastic bag[.]”<sup>157</sup> In fact, Uber has fired drivers who viewed “their phones while on the job—and that shouldn’t surprise anybody.”<sup>158</sup> Under vicarious liability, the employer assumes responsibility for any independent contractor. For example, when Uber’s “backup ‘safety driver’ . . . was streaming the popular television show ‘The Voice’ on her mobile phone in the moments before” the autonomous vehicle killed a pedestrian, Uber was liable for the backup safety driver’s negligent conduct because she was acting within the scope of her employment.<sup>159</sup> Uber would have a nondelegable duty and be responsible for the negligent failure of its independent contractor, the backup safety driver.<sup>160</sup>

### III. DISCOVERING A POTENTIAL SOLUTION: THE BEGINNING OF AI-CHAPERONE LIABILITY

The government, companies, and citizens are in the Wild West of both understanding the technology of autonomous vehicles and the legal structure around it. We are in the midst of a “[twenty-first]-century gold rush . . . when many companies can ill afford to pause on autonomous technology given stiff competition from carmakers and other tech companies.”<sup>161</sup> Research predicts that in the next few decades “driverless tech will add \$7 trillion to the global economy and save hundreds of thousands of lives in the next few decades.”<sup>162</sup> Google’s Waymo was the first to begin testing.<sup>163</sup> Other competitors followed,

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155. *Id.* (“At least two Tesla drivers in the [United States] have died using the system (one hit a truck in 2016, another hit a highway barrier this year), and the National Transportation Safety Board has criticized Tesla for making a system that’s too easy to abuse.”).

156. Marshall & Davies, *supra* note 19.

157. *Id.*

158. *Id.*

159. Mehr Nadeem & Emily McCormick, *Uber Operator Was Watching ‘The Voice’ Before Self-Driving Crash*, BLOOMBERG (June 22, 2018, 1:22 PM), <https://www.bloomberg.com/news/articles/2018-06-22/uber-operator-was-watching-the-voice-before-self-driving-crash>.

160. Under a jurisdiction with an automobile consent statute, Uber as the owner of the autonomous vehicle would remain at fault for any negligent behavior by a backup safety driver.

161. Davies, *supra* note 154; Isaac et al., *supra* note 18. Waymo’s “pilot program with Walmart” assisting customers in picking up groceries “arrive[s] as leading technology companies and automakers, including GM and Tesla, are racing to develop the market for fully autonomous cars.” Hamza Shaban, *Waymo Partners with Walmart to Shuttle Customers in Self-Driving Cars*, WASH. POST (July 25, 2018, 9:24 AM), <https://www.washingtonpost.com/technology/2018/07/25/waymo-partners-with-walmart-shuttle-customers-self-driving-cars/>.

162. Davies, *supra* note 154.

163. *See generally Journey*, WAYMO, <https://waymo.com/journey/> (last visited Sept. 27, 2019) (explaining that Waymo has been working towards safety and consumer ease since the start);



including Uber,<sup>164</sup> “[b]ut the crash in March [2018]—the first known fatality involving a pedestrian and an autonomous car—altered everything. Since then, Uber steadily has narrowed the scope of its autonomous vehicle operations.”<sup>165</sup> Consequently, clarity around the law is necessary to protect the growth of autonomous vehicle technology, which will benefit the public.<sup>166</sup> The developing gap in tort liability for autonomous vehicles can be addressed by a brand-new tort: AI-Chaperone Liability. But before this Comment presents this new tort, it will explore the technological wave with respective legal issues on the horizon for autonomous vehicles.

#### A. *Autonomous Vehicles and the Need for a New Type of Strict Liability*

In 2018, Secretary Chao stated that “after several widely publicized crashes—tragic incidences—nearly three-quarters of American drivers report that they’re afraid, they’re anxious to ride in a fully self-driving vehicle[.]”<sup>167</sup> As motivational speaker Denis Waitley would say: “Life is inherently risky. There is only one big risk you should avoid at all costs, and that is the risk of doing nothing.”<sup>168</sup> This especially holds true for the future of autonomous vehicles as “[w]aiting for the cars to perform flawlessly is a clear example of the perfect

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*Google at 20: From Search Engine to Self-Driving Cars: How Google Became a Pop Culture Phenomenon*, MONEYCONTROL (Sept. 27, 2018, 6:39 PM), <https://www.moneycontrol.com/news/world/google-at-20-from-search-engine-to-self-driving-cars-how-google-became-a-pop-culture-phenomenon-2992171-3.html> (Waymo’s objective “is to fully integrate artificial intelligence with terrestrial transport, making the roads a safer place.”).

164. See Isaac et al., *supra* note 18.

[Uber] started testing its autonomous vehicles in San Francisco in 2016, without a permit from California’s Division of Motor Vehicles. The state agency ordered Uber to apply for a permit, but the company refused, saying permits were not necessary since safety drivers were monitoring the cars. The D.M.V. ultimately revoked the registrations for the [sixteen] self-driving cars that Uber was testing in the city.

*Id.*

165. *Id.* (“In May [2018], Uber announced that it was shutting its driverless testing hub in Arizona and laying off 300 employees. A day later, preliminary findings from federal regulators investigating the crash confirmed . . . Uber’s self-driving car should have detected a pedestrian with enough time to stop[.]”).

166. *Delphi Auto. PLC v. Absmeier*, No. 15-cv-13966, 2016 U.S. Dist. LEXIS 38212, at \*10 (E.D. Mich. Mar. 24, 2016).

167. James Doubek, *Transportation Department Looks to Clear the Road for Cars Without Steering Wheels*, NPR (Oct. 5, 2018, 7:46 AM), <https://www.npr.org/2018/10/05/654690893/transportation-department-looks-to-clear-the-road-for-cars-without-steering-whee>.

168. Denis Waitley, *Denis Waitley Quotes*, GOODREADS, [https://www.goodreads.com/author/quotes/5108.Denis\\_Waitley](https://www.goodreads.com/author/quotes/5108.Denis_Waitley) (last visited Sept. 24, 2019); Denis Waitley, *The Psychology of Winning: Ten Qualities of a Total Winner*, AMAZON, [https://www.amazon.com/Denis-E-Waitley/e/B001IU0USS/ref=dp\\_byline\\_cont\\_all\\_1](https://www.amazon.com/Denis-E-Waitley/e/B001IU0USS/ref=dp_byline_cont_all_1) (last visited Oct. 10, 2019) (“Best-selling author and speaker, Denis Waitley has painted word pictures of optimism, core values, motivation and resiliency that have become indelible and legendary in their positive impact on society.”).

being the enemy of the good,” especially since it could lead to a safer world and Americans are already risking their lives by driving themselves.<sup>169</sup>

In a 2015 survey, “Carnegie Mellon University found that . . . roughly [seventy] percent of drivers admitted to using their phones to text, read emails, and check social media while driving.”<sup>170</sup> In 2017, approximately “37,133 people were killed in car crashes on U.S. roads . . . . A computer-driven car would ostensibly be safer—without drunk, tired or distracted drivers.”<sup>171</sup>

A 2017 RAND study “using computer modeling . . . compared three scenarios: one where driverless cars were just [ten percent] safer than human drivers, one where they were [seventy-five percent] better and one where they were ‘nearly perfect,’ or [ninety percent] better.”<sup>172</sup> The conclusion was that in no “scenario [does] it makes sense to wait until the vehicles are perfect,” rather early adoption of the autonomous vehicles will save lives.<sup>173</sup> Researchers found that in both short- and long-term scenarios (fifteen and thirty years, respectively), “more lives were saved by quickly adopting the driverless cars that were just [ten percent] better . . . . The difference was ‘significant,’ ranging from tens of thousands to hundreds of thousands of saved lives[.]”<sup>174</sup>

There is a possibility that autonomous vehicles will be more law-abiding than human drivers, who can neglect to follow traffic laws and social mores of the road.<sup>175</sup> In late 2018, news coverage included stories of at least five children who died while at bus stops because they were hit by drivers and “[a]t least seven other children were hurt in bus stop incidents.”<sup>176</sup> Before the coronavirus

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169. See Melissa Bauman, *Why Waiting for Perfect Autonomous Vehicles May Cost Lives*, RAND CORP. (Nov. 7, 2017), <https://www.rand.org/blog/articles/2017/11/why-waiting-for-perfect-autonomous-vehicles-may-cost-lives.html> (“[M]ore than [ninety] percent of crashes are caused by human error,” e.g., “speeding, miscalculating other drivers’ behaviors, or driving impaired.”).

170. Moor, *supra* note 4 (“Carnegie Mellon University found that passengers say they would spend most of their time in a driverless car looking at their mobile devices.”).

171. Doubek, *supra* note 167; but see Leslie Albrecht, *How Driverless Cars Could Save Lives Even Sooner Than We Think*, MARKETWATCH (Mar. 21, 2018, 3:34 PM), <https://www.marketwatch.com/story/how-driverless-cars-could-save-lives-even-sooner-than-we-think-2017-11-07> (“Self-driving cars will . . . have their own set of problems, such as attacks by hackers or hardware or software snafus[.]”).

172. Albrecht, *supra* note 171.

173. *Id.*

174. *Id.* (“In one model, autonomous vehicles that were [ten percent] safer were introduced to the marketplace in 2035 and saved 600,000 lives over the following [thirty-five] years. By 2070, there would be 1.5 million car crash fatalities if the driverless cars were on the road, compared with 2.1 million fatalities” without them.).

175. Autonomous vehicle developers do not require immunity, as they already have the incentive to develop this technology quickly, and the risk of liability encourages better design. Surden & Williams, *supra* note 138, at 178.

176. Emanuella Grinberg, *Getting to and from a Bus Stop May Be More Dangerous Than the Actual Ride to School. Here’s Why*, CNN: HEALTH (Nov. 2, 2018, 12:08 PM), <https://www.cnn.com/2018/11/02/health/school-bus-stop-safety/index.html> (“Charlie Hood, executive director of the National Association of State Directors of Pupil Transportation Services,

pandemic that stopped children from going to school,<sup>177</sup> “[o]n a single school day . . . [twenty percent] of bus drivers reported that nearly 84,000 vehicles passed their buses illegally[.]”<sup>178</sup> Data indicates that “[t]he number of pedestrian fatalities increased [twenty-seven] percent from 2007 to 2016, while at the same time, all other traffic deaths decreased by [fourteen] percent.”<sup>179</sup> Although right now people are encouraged to practice social distancing and stay inside, the world outside is already reopening;<sup>180</sup> thus, children and pedestrians at large must continue to be protected from human drivers.

In fact, it is more essential than ever to start creating a plan of action for tort liability from autonomous vehicles as “pedestrians remain just as susceptible to sustaining serious or fatal injuries when struck by a motor vehicle.”<sup>181</sup> This growing danger has led to increased worries of tort liability, and the fear of “liability in accident scenarios resulting from unpredictability and lack of communication—such as those described—might be incentive enough to induce those firms that are developing autonomous vehicles to focus on the issue of unpredictability with more intent.”<sup>182</sup>

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or NASDPTS[.]” said, “[c]hildren ‘are most vulnerable when they are pedestrians[.]’”). Although these specific occurrences tend to be criminal instead of civil, they demonstrate the dangers of having a human driver behind the wheel. See Madeline Holcombe, *5 Children Have Been Killed in 3 Days Waiting for School Buses*, CNN (Nov. 2, 2018, 3:21 PM), <https://www.cnn.com/2018/11/02/us/school-bus-accident-5-times-3-days/index.html>.

177. Henry Dodd, *I Can’t Believe I am Going to Say this, but I Would Rather Be at School*, N.Y. TIMES (Apr. 14, 2020), <https://www.nytimes.com/2020/04/14/us/school-at-home-students-coronavirus.html>.

178. Grinberg, *supra* note 176 (“Results of the NASDPTS’ annual survey have fluctuated between 75,000 and 85,000 errant vehicles since 2011 in what Hood called an ‘unfortunately consistent’ pattern to a seemingly ‘intractable’ problem.”). Unfortunately, drivers seem to simply disregard basic rules of the road, as:

In most states, drivers are required to stop and wait for a stopped school bus with flashing lights and a raised stop arm, except where provisions for multilane highways apply. In at least two incidents this week—in Indiana, where three siblings were killed, and in Tallahassee, where a kindergartner reportedly was hurt—police said the bus’s stop arm was raised when drivers struck the children.

*Id.*

179. RICHARD RETTING & SAM SCHWARTZ CONSULTING, PEDESTRIAN TRAFFIC FATALITIES BY STATE: 2017 PRELIMINARY DATA 3 (Feb. 2018), [https://www.ghsa.org/sites/default/files/2018-03/pedestrians\\_18.pdf](https://www.ghsa.org/sites/default/files/2018-03/pedestrians_18.pdf) (“Pedestrian deaths as a proportion of total motor vehicle crash deaths increased steadily, from [eleven] percent in 2007 to [sixteen] percent in 2016.”).

180. Isaac Chotiner, *How to Maintain Social Distance as the U.S. Reopens*, NEW YORKER (May 25, 2020), <https://www.newyorker.com/news/q-and-a/how-to-social-distance-as-america-opens-back-up>.

181. RETTING ET AL., *supra* note 179, at 6.

182. Surden & Williams, *supra* note 138, at 179.

### B. AI-Chaperone Liability

AI-Chaperone Liability will in some ways allow what works best in traditional tort law to be applied to a new context. Every so often tort law expands, and this generation requires a strict liability tort for the act of AI-chaperoning.<sup>183</sup>

AI-Chaperone Liability occurs when

- (1) One who acts as a chaperone for AI that is performing a traditionally human task “is subject to liability for physical harm thereby caused”<sup>184</sup> to another or another’s property, if
  - (a) the chaperone has either supervisory authority over or may override the AI device/system, and
  - (b) the one harmed is responsible for any part of the harm experienced, then damages may be reduced.
- (2) “The rule stated in Subsection (1)”<sup>185</sup> uses the following definitions:
  - (a) “artificial intelligence” is “the capability of a machine to imitate intelligent human behavior”;<sup>186</sup>
  - (b) “chaperone” is any entity “who accompanies and looks after”<sup>187</sup> the AI device/system; and

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183. See, e.g., *State Rubbish Collectors Ass’n v. Siliznoff*, 240 P.2d 282, 284–85 (Cal. 1952) (finding a new intentional tort for intentional infliction of emotional distress).

184. RESTATEMENT (SECOND) OF TORTS § 402A (AM. LAW INST. 1965).

185. *Id.*

186. *Artificial Intelligence*, MERRIAM-WEBSTER, <https://www.merriam-webster.com/dictionary/artificial%20intelligence> (last visited Sept. 27, 2019). In Section 238(g) of the John S. McCain National Defense Authorization Act for Fiscal Year 2019, Congress defined “artificial intelligence” as:

- (1) Any artificial system that performs tasks under varying and unpredictable circumstances without significant human oversight, or that can learn from experience and improve performance when exposed to data sets.
- (2) An artificial system developed in computer software, physical hardware, or other context that solves tasks requiring human-like perception, cognition, planning, learning, communication, or physical action.
- (3) An artificial system designed to think or act like a human, including cognitive architectures and neural networks.
- (4) A set of techniques, including machine learning, that is designed to approximate a cognitive task.
- (5) An artificial system designed to act rationally, including an intelligent software agent or embodied robot that achieves goals using perception, planning, reasoning, learning, communicating, decision making, and acting.

H.R. Con. Res. 5515, 115th Cong. (2018) § 238(g)(1)–(g)(5) (enacted), <https://www.congress.gov/bill/115th-congress/house-bill/5515/text>.

187. *Chaperone*, ENGLISH OXFORD LIVING DICTIONARIES, <https://en.oxforddictionaries.com/definition/chaperone> (last visited Sept. 27, 2019).

- (c) “traditionally human task” is any behavior that was performed by a human before the automation of the function.

Under AI-Chaperone Liability, an entity who has clear authority over a device/system operating AI (*e.g.*, an autonomous vehicle, a drone, *etc.*) may be a person, corporation, or similar. This chaperone likely will have the option to override the AI and take back control, if necessary, *at least* until the technology is nearly flawless. (On the other hand, an override feature may become a permanent fixture in AI due to humans’ distrust over technology and loss of agency.) Additionally, the AI must perform a traditionally human function such as driving a vehicle or delivering packages door-to-door. In other words, the AI assumes the job typically done by a human; these jobs have familiar names such as “driver” or “delivery person.” If this feels uncomfortable, it should not. After all, computers used to be people.<sup>188</sup> Moreover, the AI must injure another (*i.e.*, a person) or the instrument belonging to another in a way similar to “bodily harm” in a battery claim or “breach” in a negligence claim. But if that other individual was responsible for the experienced injury, then liability may be reduced, if the compensatory system is similar to that for comparative negligence.

AI-Chaperone Liability combines the best elements of the traditional torts and fills in the gap in liability left by them. Unlike the intentional tort of battery, there is no “intent” requirement here. Unlike negligence, AI-Chaperone Liability has no causal link necessary. But even if there is no defect in the product (*i.e.*, AI software) as required by products liability, under AI-Chaperone Liability, a person may still be held liable in a similar fashion as found when applying *res ipsa loquitur*. As vicarious liability does not work easily with the human-machine relationship (*e.g.*, a driver cannot delegate his or her duty to the autonomous vehicle’s AI software), AI-Chaperone Liability places the responsibility on a person who *acts* as a chaperone over AI. AI-Chaperone Liability adapts strict liability and applies it to the expanding future of AI.

AI-Chaperone Liability would apply to the March 2018 Uber accident because:

- The *chaperone* is both Uber and its respective test driver.
- The *AI device/system* is the autonomous vehicle.
- The *traditionally human task* is driving.
- The *physical harm caused to another* is the contact with the pedestrian.
- Uber and its respective test driver have *supervisory authority over or may override the AI device/system*.

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188. See Ashley Hamer, *The First Computers Were People*, CURIOSITY (Dec. 17, 2016), <https://curiosity.com/topics/the-first-computers-were-people-curiosity/> (“Before the advent of modern computers, the math behind some of science’s greatest achievements had to be done by hand. This laborious work wasn’t done by the scientists themselves—it was done by human computers, who were often women.”).

- The woman who died after walking across the highway and who did not use the cross walk was *responsible for part of the harm experienced, so damages may be reduced*.

In this scenario, Uber may not be the only one responsible for the result of the accident. The pedestrian acted irresponsibly. Of course, AI-Chaperone Liability requires a mechanism for how liability would be shared among multiple plaintiffs or defendants with a joint tortfeasor liability system, but that could be as easy as copying a contributory negligence or comparative negligence regime.

### C. Making AI-Chaperone Liability the Law of the Land

Conflicting state and local laws and regulations around automated vehicles introduce their own obstacles to this regime: they “create confusion, introduce barriers and present compliance challenges.”<sup>189</sup> If the federal government waits for state statutes and state common law to figure out how to deal with artificial intelligence torts, the American public could suffer due to a patchwork of laws.<sup>190</sup> What happens when one state has a law, yet another does not? After all, “the form of state law development contemplated by *Erie*, under which ‘the voice adopted by the State as its own (whether it be of its Legislature or of its Supreme Court) should utter the last word’ on state law” becomes a very gray area.<sup>191</sup> Courts may decide parties are not liable, simply because the law is silent.<sup>192</sup> A federal statute could preempt all individual state laws on this topic, and the consistency of a single law would allow companies designing autonomous vehicles a more predictable regime of liability to follow.<sup>193</sup>

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189. DOT, *supra* note 2, at v.

190. For example, the coronavirus pandemic has been stifled by a patchwork response. A patchwork was inevitable, especially when a pandemic unfolds over a nation as large as the U.S. But the White House has intensified it by devolving responsibility to the states . . . . But in a pandemic, the actions of [fifty] uncoordinated states will be less than the sum of their parts. Only the federal government has pockets deep enough to fund the extraordinary public-health effort now needed. Only it can coordinate the production of medical supplies to avoid local supply-chain choke points, and then ensure that said supplies are distributed according to need, rather than influence.

Ed Yong, *America’s Patchwork Pandemic is Fraying Even Further*, ATLANTIC DAILY (May 20, 2020), <https://www.theatlantic.com/health/archive/2020/05/patchwork-pandemic-states-reopening-inequalities/611866/>.

191. *Meador v. Apple, Inc.*, 911 F.3d 260, 267 (5th Cir. 2018) (quoting *Erie R.R. v. Tompkins*, 304 U.S. 64, 79 (1938)).

192. *Id.* (There was no liability as Texas law has not spoken directly about “a smartphone’s effect on a user as a substantial factor in the user’s tortious acts.”).

193. See DOT, *supra* note 2, at 6.

Compliance with the Federal safety standard does not automatically exempt any person from liability at common law, including tort liability for harm caused by negligent conduct, except where preemption may apply. The Federal standard would supersede if the effect of a State law tort claim would be to impose a performance standard on a motor vehicle or equipment manufacturer that is inconsistent with the Federal standard.

*Id.*

Alternatively, it might be best to allow each state to determine the novel question of AI tort law through its legislature via statute or its highest court via common law. This may allow the future state of tort law to have several different petri dishes to experiment on, with the control being our current state of tort law.<sup>194</sup>

Another path forward might be to lobby for the addition of AI-Chaperone Liability to the Restatements (Third) of Torts, which is currently being drafted piecemeal by ALI.<sup>195</sup> This is especially important, as “ALI drafts, discusses, revises, and publishes Restatements of the Law . . . that are enormously influential in the courts and legislatures, as well as in legal scholarship and education.”<sup>196</sup> Finally, it may be possible to provide guidance to DOT, with its rulemaking authority and public comments process to create regulations that have the authority of law.<sup>197</sup> After all, the administrative process can be the fastest way to get safer autonomous vehicles that are less likely to engage in tortious conduct.

#### IV. CONCLUSION

Despite the safety advantages of AI, “[t]he car won’t get it right every time, especially not in these early days.”<sup>198</sup> Uber’s March 2018 crash sheds light on “at least two serious flaws in Uber’s self-driving system: software that’s not yet ready to replace humans, and humans that are ill-equipped to keep their would-be replacements from doing harm.”<sup>199</sup> It is only a matter of time though, and the autonomous vehicle will get it right sooner if the tort system keeps developers and the industry accountable. The United States must be prepared and ready

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194. This option allows for the states to act as fifty laboratories of democracy to discover the best AI tort.

To stay experimentation in things social and economic is a grave responsibility. Denial of the right to experiment may be fraught with serious consequences to the Nation. It is one of the happy incidents of the federal system that a single courageous State may, if its citizens choose, serve as a laboratory; and try novel social and economic experiments without risk to the rest of the country. This Court has the power to prevent an experiment. We may strike down the statute which embodies it on the ground that, in our opinion, the measure is arbitrary, capricious or unreasonable.

*New State Ice Co. v. Liebmann*, 285 U.S. 262, 311 (1932) (Brandeis, J., dissenting).

195. See *About ALI*, ALI, <https://www.ali.org/about-ali/> (last visited Sept. 29, 2019) (“The American Law Institute is the leading independent organization in the United States producing scholarly work to clarify, modernize, and otherwise improve the law.”); RESTATEMENT (SECOND) OF TORTS § 1 cmt. c (AM. LAW INST. 1965) (“Portions of this work are superseded by the Restatement Third of Torts: *Liability for Physical and Emotional Harm* (2010/2012), *Apportionment of Liability* (2000), and *Products Liability* (1998).”).

196. *About ALI*, *supra* note 195.

197. See *Rulemaking Process*, U.S. DEP’T OF TRANSP., <https://www.transportation.gov/regulations/rulemaking-process> (last updated May 15, 2019) (“Rulemaking is a process for developing and issuing rules (rules are also referred to as ‘regulations.’). The process can lead to the issuance of a new rule, an amendment to an existing rule, or the repeal of an existing rule.”).

198. Marshall & Davies, *supra* note 19.

199. *Id.*

with a tort system that covers artificial intelligence torts. AI-Chaperone Liability certainly will fit the bill and bring strict liability into the twenty-first century.