

ARTICLE

GETTING INSIDE THE EMPLOYEE'S HEAD: NEUROSCIENCE, NEGLIGENT EMPLOYMENT LIABILITY, AND THE PUSH AND PULL FOR NEW TECHNOLOGY

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I. INTRODUCTION

Two months ago, Jack was hired by ThreeSheets Brewery, Inc. as a driver. His job was to load, transport, and unload beer from a central production and distribution center to numerous restaurants, convenience stores, and bars within a 200-mile area—a job where he would be constantly exposed to alcohol and often encouraged to try new flavors. He had a current commercial driver's license and in his interview said nothing that would indicate he would be unreliable. One early evening Jack was delivering beer to a convenience store when he misjudged his truck's speed and the distance from the loading area to the store. He drove the truck through the front glass windows of the store, destroying thousands of dollars' worth of merchandise, causing thousands of dollars in damage to the building, and lacerating and breaking the cashier's arm. It was later discovered that Jack was drunk and had a history of DUIs, having been arrested at least three times before for driving drunk—including one time for another driving job. ThreeSheets had not performed a background check for DUI arrests although constant exposure to alcohol was an element of this job. When this was discovered, the cashier and the convenience store owner sued ThreeSheets.

This is a standard case of a negligent hiring tort. The assumption behind such torts is that employers have a responsibility to screen job applicants (and continue to monitor them) for evidence of behavioral and character traits that would

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indicate they could pose a threat of harm to others in the course of their work.⁴ If an employer knows that an employee poses such a risk—and more importantly if an employer *should have known* that an employee poses such a risk—they may be held liable for that employee’s actions.⁵ Though this kind of tort could be applied to almost any employer, it is particularly applicable for those whose employees interact with the public regularly, such as real estate workers, delivery drivers, healthcare workers, and construction personnel.⁶ Employers typically try to manage their liability with background checks, drug testing, performance exams, and various monitoring programs.⁷ This may be perceived as treading on the privacy of job applicants and employees, but note that applicants and employees are only checked if they voluntarily apply to an employer that requires these investigations as a condition of employment.⁸

Now consider another case:

Two months ago, ThreeSheets Brewery, Inc. hired Daniel as a driver. Daniel’s job was to load, transport, and unload beer from a central production and distribution center to numerous restaurants, convenience stores, and bars within a 200-mile area—a job where he would be constantly exposed to alcohol and often encouraged to try new flavors. He had a current commercial driver’s license and in his interview said nothing that would indicate he would be unreliable. One early evening Daniel was delivering beer to a convenience store when he misjudged his truck’s speed and the distance from the loading area to the store. He drove the truck through the front glass windows of the store, destroying thousands of dollars’ worth of merchandise, causing thousands of dollars in damage to the building, and lacerating and breaking the cashier’s arm. It was later discovered that Daniel was drunk, although he had no history of DUIs or drunkenness before. However, while searching the internet for legal information

⁴ See generally Phoebe Carter, Annotation, *Employer’s Liability for Assault, Theft, or Similar Intentional Wrong Committed by Employee at Home or Business of Customer*, 13 A.L.R.5th 217 (1993).

⁵ *Id.*

⁶ *Id.*

⁷ *Id.*; see also G. J. C., Annotation, *Employment of Incompetent, Inexperienced, or Negligent Employee as Independent Ground of Negligence Toward One Other Than an Employee*, 8 A.L.R. 574 (1920).

⁸ See, e.g., *Employment Background Checks: A Jobseekers’ Guide*, PRIVACY RIGHTS CLEARINGHOUSE (Sep. 23, 2016), <https://www.privacyrights.org/employment-background-checks-jobseekers-guide> [<https://perma.cc/GS8R-JCCK>]; *Employment Screening Services That Work*, GOOD HIRE, https://www.goodhire.com/employment-screening?_act=paid&cam=7199&sems=google&sem_net=s&sem_key=+employer%20+check&sem_mat=b&sem_dev=c&sem_mod=&sem_cre=61492524043&sem_pla=&sem_ran=7388846184617739721&sem_tar=&sem_adp=1t2&sem_ace=&q=+employer%20+check&gclid=CKPDzK_pyM4CFQYvaQodOWILNA [<https://perma.cc/5STT-DJP6>] (last visited August 17, 2016).

on lawsuits, the owner of the convenience store happened to see an advertisement for a company that offers fMRI brain scans to test for impulsivity, substance abuse relapse, and predilection to substance abuse. The advertisement refers to numerous scientific studies that show such scans are 85% accurate in predicting substance abuse behavior—a figure far higher than prediction using questionnaires, personal history, and interviews. *ThreeSheets* had performed a background check for DUI arrests, but had not performed a brain scan for susceptibility to alcohol abuse although constant exposure to alcohol was an element of this job. When this was discovered, the cashier and the convenience store owner sued *ThreeSheets*.

Is this also a reasonable negligent hiring case?

At the moment there is no affordable and commercially available fMRI test for alcohol abuse susceptibility. However, this is primarily a function of economics and markets. Studies have shown numerous ways in which brain scans and other biomarkers can be used to predict binge drinking,⁹ criminal recidivism,¹⁰ drug abuse,¹¹ and alcoholism.¹² There is strong motivation to develop predictive scanning and the mere existence of the knowledge that it seems to work better than other currently predictive methods (at least in some cases) is itself further incentive for development. When such scans do become available, will using them be expected, just as a DUI background check is expected?

In Jack's case, it may strike people as obvious that *ThreeSheets* should have run a simple background check. Notice, however, that the obviousness of running a check is itself a result of technological change over time. Before the advent of easily searchable databases for criminal behavior, it would have made no sense that an employer should have known about a job applicant's history of alcohol abuse without word of mouth or references.¹³ Unless a job applicant showed up to the interview drunk, or word of mouth had it that he was an alcoholic, or a recommendation was negative, there would be little expectation that

⁹ See *infra* notes 26-29 and accompanying text, for a short discussion on the changing of standards as technology increases. See generally Karen Peterson, *Biomarkers for Alcohol Use and Abuse: A Summary*, 28 ALCOHOL RES. & HEALTH 30 (2004/2005).

¹⁰ See Eyal Aharoni et al., *Neuroprediction of Future Rearrest*, 110 PROC. NAT'L ACAD. SCI. OF THE U.S.A. 6223 (2013); Regina Nuzzo, *Brain Scans Predict Which Criminals Are More Likely to Reoffend—Neuroimaging 'Biomarker' Linked to Rearrest After Incarceration*, NATURE (March 25, 2013), <http://www.nature.com/news/brain-scans-predict-which-criminals-are-more-likely-to-reoffend-1.12672> [<https://perma.cc/44VD-5R5Y>].

¹¹ See generally Kathleen A. Garrison & Marc N. Potenza, *Neuroimaging and Biomarkers in Addiction Treatment*, 16 CURR. PSYCHIATRY REP. 513 (2014).

¹² See Peterson, *supra* note 9.

¹³ This particular example considers alcohol abuse, but anything related to potential harm could be open for checking from a history of bad behavior such as theft, fraud, and sexual assault, to a physical or cognitive predisposition to failure of senses, strength, or memory, to a questionable moral character.

an employer should have known the applicant was likely to get drunk on the job and harm someone as a result. It would have been considered outrageous to expect an employer to directly contact all court systems in the US to determine if the applicant had an alcohol-related criminal past.¹⁴ It is only the technologically-mediated ease with which a DUI history can be found that makes it seem an employer is negligent for not looking into it. If brain scans become as affordable and fast, would history not repeat itself?

Notice also that even the older low-tech standards of paying attention to a job applicant showing up drunk, or finding an employee drunk on the job, or getting a recommendation warning of alcohol abuse, and the current standards of running a criminal check all assume that past behavioral patterns are good predictors of future behavior. We know past behavior is not foolproof for prediction, but it has long and commonly been considered a strong enough predictor that knowledge of it makes the employer liable and that the employer should try to find out about it.¹⁵ This only helps for job applicants and employees that have relevant behavioral histories. For those who do not, there is little way to predict future tortious behavior. If it turns out that brain scans (or other biotesting or cognitive testing) are demonstrably more accurate in predicting first offenses and repeat offenses than the recommendations, behavioral histories, and “gut feelings” on which interviewers currently rely, then might such methods actually supplant old methods?

In this article, we examine the relationship between new technologies and the practices of negligent employment liability. We look at the legal, technical, and ethical issues generated by the interaction of the liability system and the new science and offer some direction on how to manage these issues.

First, we explain the background of employee selection, testing, and monitoring. Second, we address how negligent employment law works. We examine established liability standards, and how they have changed over time. Third, we discuss the neuroscientific and biotechnological developments increasingly available to employers and employees and how they may affect negligent employment law. Fourth, we analyze how the social-psychological structure of the

¹⁴ Consider that through the 1970s, employee background checks were relatively rare. See SEARCH, THE NATIONAL CONSORTIUM FOR JUSTICE INFORMATION AND STATISTICS, REPORT OF THE NATIONAL TASK FORCE ON THE COMMERCIAL SALE OF CRIMINAL JUSTICE RECORD INFORMATION 19 (2005). By 2004, more than 80% of US employers ran criminal background checks for applicants, a jump from 51% in 1996. See *id.*; SEARCH, THE NATIONAL CONSORTIUM FOR JUSTICE INFORMATION AND STATISTICS, REPORT OF THE NATIONAL TASK FORCE ON THE CRIMINAL BACKGROUNDING OF AMERICA 1 (2005).

¹⁵ For a discussion of the validity of behavior prediction See generally Karen Franklin, “The Best Predictor of Future Behavior is . . . Past Behavior,” *Does the Popular Maxim Hold Water?*, PSYCHOL. TODAY (January 3, 2013), <https://www.psychologytoday.com/blog/wit-ness/201301/the-best-predictor-future-behavior-is-past-behavior> [https://perma.cc/9HSY-D6RE].

negligent employment system pushes employers to develop and use more and more technology, not as a result of increasing top-down social control, but often as a response to a bottom-up tort system that is structured in such a way as to constantly motivate the expansion of liability. We conclude with a stark description of what society's options are regarding the conflicts between safety and privacy arising from this situation.

II. EMPLOYEE SELECTION, TESTING, AND MONITORING

Hiring, training, and monitoring employees are some of the more difficult parts of running any business. Testing and multi-layered interviews attempt to weed out unfit or less than ideal candidates.¹⁶ Unfortunately, unfit employees occasionally make it through all of the filtering that a company has in place. It is estimated that mistakes or oversights in the hiring process are responsible for the biggest part of employee turnover, poor performance, and related costs.¹⁷ Even if the hiring goes well, more testing and assessment will go on. Employees are monitored for performance and the desire to improve efficiency and satisfaction has spawned a huge industry of management consulting, costing companies major resources in money and time.

But there is another element in all of this too—liability. The possibility of being sued generates even more motivation for companies to screen and monitor for behavior, moral character, cognitive competence, and physical ability. There is then strong motivation to make sure job candidates are qualified, have the right skills, are a cultural match for the company, and possess all the moral, physical, cognitive, and emotional traits that maximize performance while minimizing liability risks. This inevitably produces pressure for more testing, more prediction, and more monitoring.

So what if there were a better way to select and hire the best employees—a way to look into their minds to determine if they are a perfect fit for the job the company is filling? A better way to predict how they will perform and react? A better way to monitor them after being hired to determine their job performance adequacy and to prevent mistakes before or as they are developing? New discoveries and applications in neuroscience, biological testing, and computer technologies offer a potential new set of tools.

¹⁶ See, e.g., Dori Meinert, *Seeing Behind the Mask*, H.R. MAGAZINE, SOC'Y FOR HUM. RESOURCES MGMT. (Feb. 1, 2011).

¹⁷ Susan J. Stabile, *The Use of Personality Tests as a Hiring Tool: Is the Benefit Worth the Cost?*, 4 U. PA. J. LAB. & EMP. L. 281-85 (2002); Ava Collins, *The Cost of a Bad Hire and How to Avoid One*, DIGITALIST MAG. (January 27, 2015), <http://www.digitalistmag.com/future-of-work/2015/01/27/the-cost-of-a-bad-hire-and-how-to-avoid-one-02110549> [<https://perma.cc/6PLT-F8G5>]; Fred Yager, *The Cost of Bad Hiring Decisions Runs High*, DICE, <http://insights.dice.com/report/the-cost-of-bad-hiring-decisions/> [<https://perma.cc/Q2T8-SA33>] (last visited August 27, 2016).

These potential new tools face several problems: What kinds of tests are accurate? How much will they cost? What kinds of tests are too invasive to be morally acceptable? How does the presence of technology shape and change expectations both legal and cultural? The history of employment testing and labor law has dealt with these issues before, though we may be moving into a more technologically complex realm than previously handled.

A. A Brief History of Employee Testing

Employment testing and screening is nothing new. Presumably as long as there have been jobs, the people paying salaries have wanted certain traits in those that they pay and tried to identify those traits. For example, Sears, Roebuck, and Company started medical testing as early as 1908, particularly screening for tuberculosis.¹⁸ Formal social and moral assessment was in play early on as well. By 1914, Henry Ford created a “Sociological Department” in his company, tasked with making certain that only men of integrity would be hired for the unusually high wage of five dollars a day.¹⁹ Investigators went to Ford employee homes to find out “whether they gambled, drank excessively, had a dirty home, ate an unwholesome diet, sent money to foreign relatives, or engaged in other unacceptable behavior” and also asked questions concerning “each worker’s health, medical care, and recreational activities.”²⁰

In addition to medical, moral, and social screenings, employers have also used psychological testing to select employees. Adopted by the armed forces during World War I and widely adopted by private employers in the 1930’s, IQ and various job aptitudes were being measured.²¹ By 2000, 39% of surveyed firms had adopted and expanded psychological testing to assess cognitive ability, interest inventories, managerial assessments, personality measurements and job task simulations.²² Testing is also used for honesty, tastes, and habits.²³ The EEOC has determined that this kind of testing does not count as medical and that it “therefore can be administered at any stage of the employment process, including prior to the candidate’s receipt of a job offer.”²⁴

Reviewing applications for employment has changed significantly over time as the set of traits employers are interested in expands, and as new technologies

¹⁸ Sharona Hoffman, *Preplacement Examinations and Job-Relatedness: How to Enhance Privacy and Diminish Discrimination in the Workplace*, 49 U. KAN. L. REV. 517, 531 (2001).

¹⁹ Hoffman, *supra* note 18 at 530.

²⁰ *Id.* at 531(citations omitted).

²¹ See generally *id.* at 540; Anna S. Rominger & Pamela Sandoval, *Employee Testing: Reconciling the Twin Goals of Productivity and Fairness*, 10 DEPAUL BUS. L. J. 299 (1998).

²² Hoffman, *supra* note 18, at 540.

²³ *Id.*

²⁴ *Id.* at 540-41 (citations omitted).

and techniques emerge that allow for more quantified and reliable results.²⁵ For example, as drug testing has gotten cheaper and faster, it has become far more prevalent, both as part of, and independent of, medical exams.²⁶ As other technology arises and becomes more user friendly, employers will use those for employment decisions as well. The use of social media, for instance, has become a popular addition to performing background checks.²⁷ Credit checks and criminal background checks are sometimes considered, with some companies even assessing Facebook friends as part of assigning a credit score.²⁸

Some technology has become so cheap, and the fear of its potential perceived abuse so acute, that laws have been passed to limit use. The low cost and fear of genetic testing led Congress to enact the Genetic Information Nondisclosure Act (GINA), intended to prevent employers from basing decisions on genetic information they may receive.²⁹

B. Categories of Workplace Skills

Diverse employers are looking for a diverse array of skill sets. The skills needed by the employer in part dictate the type of testing or monitoring the employer must undertake. For example, an employer may be looking for physical

²⁵ Kashmir Hill, *Facebook Can Tell You If a Person is Worth Hiring*, FORBES (Mar. 5, 2012, 9:50 AM), <http://www.forbes.com/sites/kashmirhill/2012/03/05/facebook-can-tell-you-if-a-person-is-worth-hiring/#7690ca386236> [<https://perma.cc/Z6BR-DNFS>].

²⁶ Hoffman, *supra* note 18, at 542 (“In 2000, approximately sixty percent of employers tested applicants for the use of illegal substances. According to one source, ‘almost ninety percent of Fortune 500 companies . . . require submission to a drug test.’” (citations omitted)).

²⁷ See Trina Fairley-Barlow, *The Changing Employment Legal Climate: More Obligations and Liability for Employers*, in THE IMPACT OF RECENT REGULATORY DEVELOPMENTS IN EMPLOYMENT LAW: LEADING LAWYERS ON UNDERSTANDING RECENT LEGISLATION, IMPLEMENTING EFFECTIVE WORKPLACE POLICIES, AND COOPERATING WITH ENFORCEMENT AUTHORITIES *1, *3 (2012), 2012 WL 191185; Jacob Davidson, *The 7 Social Media Mistakes Most Likely to Cost You a Job*, TIME: MONEY (Oct. 16, 2014), <http://time.com/money/3510967/jobvite-social-media-profiles-job-applicants/> [<https://perma.cc/B9W9-XQHJ>]; Hill, *supra* note 25.

²⁸ See generally Fairley-Barlow, *supra* note 27; Katie Lobosco, *Facebook Friends Could Change Your Credit Score*, CNN: MONEY (Aug. 27, 2013, 11:24 AM ET), <http://money.cnn.com/2013/08/26/technology/social/facebook-credit-score/> [<https://perma.cc/683Z-KE4X>].

²⁹ Genetic Information Nondiscrimination Act of 2008, Pub. L. No. 110-233, 122 Stat. 881 (2008) (codified as amended in scattered sections of 42 U.S.C.); Patrick D. Hopkins & Harvey L. Fiser, “*This Position Requires Some Alteration of Your Brain*”: *On the Moral and Legal Issues of Using Neurotechnology to Modify Employees*, J. BUS. ETHICS (2016), <http://link.springer.com/article/10.1007%2Fs10551-016-3182-y> [<https://perma.cc/F8Y4-FEF6>].

skills, such as the ability to lift 200 lbs. or the ability to see with 20/20 vision.³⁰ They may be looking for intellectual skills, including spatial reasoning, understanding systems, and problem solving.³¹ An employer may desire social skills such as the ability to work in a team, interact with others, respectfulness, or passiveness.³² Communication skills may be important in many jobs, both internally and in dealing with the public.³³ Moral character and moral decision-making can be crucial, even so far as requiring formal affidavits of good moral character³⁴ (although for some jobs the desirable moral character may be one typically thought of as negative—for example, cold-heartedness for a loan officer position). Finally, cognitive skills, including “alertness, attentiveness, recall speed, executive functioning, perception accuracy, fine motor control, special processing and emotional self-regulation” are often requisite qualities.³⁵ Employers have a responsibility to investigate upon hiring, train when needed, and monitor while employed each of the important skills needed for a position.

C. Assessing and Managing Skills

Just as employers are searching for a wide array of skills and traits in employees, the methods and techniques for testing and even the training and manipulation of employees also vary. When people first hear about “testing” they may often tend to think of specific task-oriented assessments (break down and rebuild this engine, diagnose the condition from these symptoms), physical tests (lift this weight, run this distance), knowledge tests (the fraction $5/8$ is equal to which of the following decimal expressions?), personality tests (would you prefer to do a job quickly or perfectly?, are you more of a follower or a leader?), or cognitive ability tasks (remember these words then read this paragraph). Testing is far broader, however, and in general, we can usefully divide the skills assessment/management tasks into three categories:

1. Prediction

Employers want to know how an applicant or employee will act. Most of the tests mentioned above try to predict that. However, a tremendous amount of “testing” is simply the observation of prior behavior with the assumption that prior behavior is a powerful indicator of future behavior. Good grades, con-

³⁰ Hopkins & Fiser, *supra* note 29.

³¹ *Id.*

³² *Id.*

³³ *Id.*

³⁴ See, e.g., Background Screening Forms, FLORIDA DEPARTMENT OF CHILDREN AND FAMILIES, <http://www.dcf.state.fl.us/programs/backgroundscreening/forms.shtml> [https://perma.cc/4NKX-BCEC] (last visited Dec. 4, 2016).

³⁵ Hopkins & Fiser, *supra* note 29.

sistent work history, the presence or absence of a criminal record or sexual harassment charges, instances cited in recommendation letters, degrees and certificates, personality profiling, performance evaluations on the job, sales volume, pleasantness during an interview—these are all used by employers to anticipate future performance.³⁶

However, although the psychological truism that “past behavior is the best predictor of future behavior” is well known, the word “best” is important. Prior behavior is not a foolproof guide. For one thing, we inevitably have to do new things for the first time and so no prior behavior may be available and/or informative. For another, people do change for better and worse. For yet another, contextual triggers can make all the difference (is never having embezzled the result of moral character or lack of opportunity? Is having embezzled once an anomalous result of acute financial pressure?).

If there were more accurate ways to predict future behavior using neurotechnology or other biotechnology, the practice of employee testing—for both job efficiency and liability—would likely expand or refine to satisfy the various pressures for prediction.

2. Monitoring

Monitoring an employee involves the follow up of their performance. This may involve post-employment tests to determine effectiveness of training or learning. It may also include continuing drug tests, tests for exposure to industrial substances (such as asbestos or radiation), psychological testing, or continuing education. Monitoring techniques can run from the simple, like time sheets and direct observation, to the more technical, like swipe access cards, RFID tags, video surveillance, and biomonitoring devices such as the Apple Watch or Polo stress shirts.³⁷

3. Modification

Prediction is about *hoping* an employee will act a certain way. Monitoring is about *determining* whether an employee is acting a certain way—with the sometimes additional motivation that employees who know they are being monitored may perform better. In both cases the goal is a certain level or type of performance. Another way to try to ensure that employees act (or do not act) a certain way would be to more directly control or restrict behavior, making it much harder for employees to fail. Given enough success in modifying the employee and their behavior, much of applicant and employee “testing” might be abandoned for “controlling.”

³⁶ See *infra* notes 88-104 and accompanying text, for a discussion of prediction using existing technologies.

³⁷ Hopkins & Fiser, *supra* note 29.

Low levels of external modification have existed for a long time. For example, requiring workers to wear hardhats, gloves, safety glasses, or hazmat suits is a more direct way to avoid injury than simply admonishing people to be careful or attend safety training programs.³⁸ Not just clothing, but substances may be required—such as insect repellent or sunscreen.³⁹ Some modification technologies do not just protect but enhance. Requiring workers to use magnifying lenses, surgical loupes, night vision goggles, back braces, forklifts, and before long probably loader-exoskeletons⁴⁰ increases an employee's ability to do something that ordinary sense and strength could not accomplish. Supplying workers caffeine in the break room is a fairly effective cognitive enhancement that increases alertness and productivity. Other pharmacological agents are increasingly popular in the work force and educational institutions.⁴¹

More technologically complex modifications are also available and even more are on the way. Ingestible drug monitors and delivery devices for constant assessment and adjustment of chemical levels,⁴² transcranial magnetic stimulation (TMS) and transcranial direct current stimulation (tDCS) for altering mood, dexterity, moral judgment, memory, and marksmanship,⁴³ implantable chips that could improve memory, regulate impulsivity, and connect directly to computer networks⁴⁴ could be used to affect activities that we can currently only predict

³⁸ See 29 C.F.R. § 1910.132 (2011).

³⁹ OSHA has released its guidelines on the recommendations for insect repellent for Zika virus prevention for employers. Occupational Safety and Health Admin. & Nat'l Inst. for Occupational Safety and Health, *Interim Guidance for Protecting Workers from Occupational Exposure to Zika Virus* (Apr. 10, 2016), <https://www.osha.gov/Publications/OSHA3855.pdf> [<https://perma.cc/7ZGK-XYA9>].

⁴⁰ Mary-Ann Russon, *Panasonic to Mass Produce Alien Style Robot Exoskeleton Suit to Help Workers With Heavy Lifting*, INT'L BUS. TIMES (July 6, 2015, 18:56 BST), <http://www.ibtimes.co.uk/panasonic-mass-produce-alien-style-robot-exoskeleton-suit-help-workers-heavy-lifting-1509593> [<https://perma.cc/DDP5-CT8E>].

⁴¹ Brendan Maher, *Poll Results: Look Who's Doping*, NATURE, Apr. 10, 2008, at 674 (20% of respondents "had used drugs for non-medical reasons to stimulate their focus, concentration or memory"); Melinda W. Moyer, *A Safe Drug to Boost Brainpower*, SCI. AM. MIND, March/April 2016, at 16; Margaret Talbot, *BRAIN GAIN: The Underground World of "Neuroenhancing" Drugs*, THE NEW YORKER, Apr. 27, 2009, at 32; Jadon R. Webb, et al., *Prevalence of stimulant use in a sample of US medical students*, 25 ANNALS OF CLINICAL PSYCHIATRY 27, 27 (2013), <http://spotidoc.com/doc/270850/prevalence-of-stimulant-use-in-a-sample-of-us-medical-stu.?mode=scroll> [<https://perma.cc/226G-CPKE>] (finding that as many as 15% of medical students were currently using performance enhancing stimulants, 83% of whom used them specifically for cognitive performance enhancement).

⁴² Peter J. van der Schaar, et al., *A Novel Ingestible Electronic Drug Delivery and Monitoring Device*, 78 GASTROINTESTINAL ENDOSCOPY 520, 520-26 (2013).

⁴³ Hopkins & Fiser, *supra* note 29.

⁴⁴ Jon Cohen, *Memory Implants, A Maverick Neuroscientist Believes He Has Deciphered the Code by Which the Brain Forms Long-Term Memories*, MIT TECH. REV.,

and monitor.

III. THE DOCTRINES OF NEGLIGENT EMPLOYMENT

A world with brain scans, implantable devices, and cognitive enhancement drugs may strike some as a dystopian vision in which tyrannical corporations try to control too much in the pursuit of profit and power. However, the extensiveness of testing, monitoring, and modification will not be shaped solely by employer concerns with work and efficiency. It will be shaped by liability. This is a different kind of thing with a different motivational source. One can perceive increasing surveillance and control over employees out of a desire for profit as an act motivated by greed, but to do the same thing out of a need to protect oneself from lawsuits and damage penalties is another motivation that one can easily perceive as self-defense.

The likely technological expansion will not simply be a normal case of new technology better addressing old needs, nor a normal case of something completely new arising as a result of a new technology. Instead, it will be a complex situation of recursion, in which the liability standards by which we judge employers will be produced by the technological abilities we have, which themselves are advanced by a desire to better meet these standards, which in turn pushes us to develop even more technology.

The reason for all this lies in the nature of a general, vague, and shifting standard present in a number of legal doctrines—the idea of “reasonable care” (and the related ideas of “due diligence” and “reasonable foreseeability”). The cluster of liability domains we analyze here—negligent hiring, negligent retention, negligent supervision, negligent training, and certain instances of negligent entrustment—use these standards.⁴⁵ For simplicity’s sake we will often collapse all the relevant portions of those domains under the general term “negligent employment.”

A. *Negligent Employment vs. Respondeat Superior*

Negligence in employment consists of various types of responsibility for the employer. These cases can range from torts committed by employees during their work, hiring bad employees who commit negligent or even intentional acts,

<https://www.technologyreview.com/s/513681/memory-implants/> [https://perma.cc/QK85-JAQ4] (last visited Aug. 28, 2016); Gary Marcus & Christof Kock, *The Future of Brain Implants*, WALL ST. J. (Mar. 14, 2014, 7:30 PM ET), <http://www.wsj.com/articles/SB10001424052702304914904579435592981780528> [https://perma.cc/8X3W-S98U].

⁴⁵ See G. J. C., *supra* note 7, at 575, 577. For a discussion of these standards, see *infra* sections A. Negligent Employment vs. Respondeat Superior and B. “Knew or Should Have Known” and “Reasonable Care”

retaining employees who should not be retained, or the faulty training of employees.⁴⁶ The employer's liability is grounded in several principles. *Respondeat superior* is one of the more common of these principles.⁴⁷ When an employee, acting under the direction or control of their employer, during the course and scope of employment, commits a tort, the employer is liable for that action.⁴⁸ This shifting of liability is based, in part, on the idea that the employer is in the position to direct the actions of an employee and to profit from those actions—making the employee their agent. The employer, therefore, should be liable for the actions of that employee vicariously.⁴⁹

But vicarious liability based on a notion of agency is not the only way in which an employer can be liable for the results of an employee's actions. Even when an employee is not acting within the scope of his or her employment or serving as an agent of the employer, simply having been placed in a situation with the opportunity and capacity to harm a third party can generate liability.

An independent basis on which to hold an employer liable for the acts of his employee may be where the employer is negligent in hiring or retaining an employee who is incompetent or unfit. Such negligence usually consists of hiring, supervising, retaining, or assigning the employee with the knowledge of his unfitness, or failing to use reasonable care to discover the unfitness, and is based upon the negligence of the employer to a third person entirely independent of the liability of the employer under the doctrine of respondeat superior.⁵⁰

The idea behind this type of liability is that it is the employer's conduct that created a foreseeable danger to a third party, irrespective of vicarious agency.⁵¹

To impose liability, these cases typically require direct negligence by the employer. That is, liability will be imposed on the employer if they are reckless or negligent “‘in the employment of improper persons or instrumentalities in work involving risk of harm to others.’ Liability may be imposed ‘either on the basis of . . . action—for example, the negligent hiring of an agent—or . . . inaction—for example, the failure to provide adequate supervision of the agent’s work.’”⁵²

⁴⁶ W. PAGE KEETON ET AL., PROSSER AND KEETON ON THE LAW OF TORTS 501-503 (W. Page Keeton ed., 5th ed. 1984).

⁴⁷ *Id.* at 500.

⁴⁸ *Id.* at 501-502.

⁴⁹ *Id.* at 499-500.

⁵⁰ Carter, *supra* note 4 (citations omitted).

⁵¹ Mark Minuti, *Employer Liability Under the Doctrine of Negligent Hiring: Suggested Methods for Avoiding the Hiring of Dangerous Employees*, 13 DEL. J. CORP. L. 501, 502 (1988) (citing *Fleming v. Bronfin*, 80 A.2d 915, 917 (D.C. 1951); *DiCosala v. Kay*, 450 A.2d 508, 515 (1982)).

⁵² *Doe v. Uber Tech., Inc.*, No. 15-CV-04670-SI, 2016 WL 2348296, at *9 (N.D. Cal. May 4, 2016) (quoting *Restatement (Second) of Agency* § 213) (citing *Far West Financial Corp. v. D. & S Co.*, 760 P.2d 399 (1988)).

The key to this type of tort (particularly with negligent hiring) is the oft-stated doctrine that employers are liable for the harms their employee causes if the employer *knew* or *should have known* about some characteristic of the employee that made it reasonably foreseeable that the employee would harm someone.⁵³ Importantly here, the standard generates liability not only for knowledge an employer possessed (“known”) but for knowledge they did not possess but are thought not to have possessed out of negligence (“should have known”). In this situation, not only is ignorance not bliss, ignorance is itself a type of wrongdoing.

This means that employers are responsible for acquiring information that could be used to predict employee behavior. How much information do they need? What kind of information? From what source? The only limit and guide (besides not violating other laws)⁵⁴ is that the employer exercise “reasonable care”—that notoriously vague and relative standard.

B. “*Knew or Should Have Known*” and “*Reasonable Care*”

Consequently, employers are potentially responsible for information about the employee that they know or that they could reasonably acquire, which could lead the employer to reasonably foresee the employee harming someone. Unsurprisingly, negligent employment cases have varied widely. Courts have held

⁵³ *Id.* See also Minuti, *supra* note 51, at 502-504, 514.

⁵⁴ The acquisition of information must not be from a method that violates some other law (e.g., of privacy, ADA, discrimination, etc.) Navigating the legal issues involved in using background information can be difficult for employers. For example, the EEOC has cautioned that employers must be wary of using arrest records for applications for employment. First, these records do not equate to a conviction. Second, there is a risk of disparate impact discrimination as “African American and Hispanics are arrested in numbers disproportionate to their representation in the general population.” U.S. EQUAL EMP’T OPPORTUNITY COMM’N, CONSIDERATION OF ARREST AND CONVICTION RECORDS IN EMPLOYMENT DECISION UNDER TITLE VII OF THE CIVIL RIGHTS ACT OF 1964 (2012). Yet, the employers could be liable for knowing this information. The result is a Kafkaesque situation. For a discussion of this dilemma, see Eniola O. Akinrinade, *Caught Between a Rock, Negligence, Racism, and a Hard Place: Exploring the Balance Between the EEOC’s Arrest and Conviction Investigation Guidelines and Society’s Best Interest*, 2 TEX. A&M L. REV. 135, 141-42, 152, 154 (2014-2015); Kenneth I. Sondik, *Ban the Box Leaves Employers Liable for Negligent-Hiring Lawsuits*, N.Y. TIMES (Apr. 13, 2016, 3:21 AM), <http://www.nytimes.com/roomfordebate/2016/04/13/should-a-jail-record-be-an-employers-first-impression/ban-the-box-leaves-employers-liable-for-negligent-hiring-lawsuits> [<https://perma.cc/3LVE-FTSN>]. Note that at least one state, Tennessee, has passed a law creating a “certificate of employability” which may be granted to a person who has a prior felony conviction and who establishes they have a character of “honesty, respectability, and veracity.” TENN. CODE ANN. § 40-29-107(i)(1) (2015). The law purports to partially immunize employers against negligent hiring lawsuits for employment of certifiably rehabilitated felons. *Id.* at § 40-29-107(n).

companies and organizations responsible for employees' actions including assaults of customers in their homes,⁵⁵ sexual assault by clergy⁵⁶ and teachers,⁵⁷ injurious counseling,⁵⁸ property theft,⁵⁹ automobile⁶⁰ and trucking accidents,⁶¹ fraud,⁶² and medical malpractice.⁶³ For the most part, there is no limit to what the cause of a lawsuit could be (one woman sued Hyatt Regency Hotels for negligent hiring for the emotional distress she suffered by seeing a cross-dressing employee wearing her clothes).⁶⁴ Whatever the situation, the case must relate to the hiring, training, or retention of employees and there must be a causal connection between hiring, retaining, or training someone who is incompetent or dangerous and placing them in such a position that they cause harm.⁶⁵

All such cases are based in principles of general negligence.⁶⁶ To find a defendant liable, the plaintiff must prove that a legal duty was owed to the plaintiff,

⁵⁵ *Williams v. Feather Sound, Inc.*, 368 So. 2d 1238-41 (Fla. Dist. Ct. App. 1980); *Smith v. Orkin Exterminating Co.* 540 So. 2d 363, 365-68 (La. Ct. App. 1989); *Weiss v. Furniture in the Raw*, 306 N.Y.S.2d 253-55 (N.Y. Civ. Ct. 1969).

⁵⁶ *Mark K. v. Roman Catholic Archbishop*, 79 Cal. Rptr. 2d 73, 75-79 (Cal. Ct. App. 1998); *Moses v. Diocese of Colo.*, 863 P.2d 310, 331 (Colo. 1993).

⁵⁷ *Doe v. Durtschi*, 716 P.2d 1238, 1241-45 (Idaho 1986); *Harrington v. La. State Bd. Of Elementary and Secondary Educ.*, 714 So. 2d 845, 847-52 (La. Ct. App. 1998).

⁵⁸ *Zeranti v. United States*, 167 F. Supp. 3d 465, 467-72 (W.D.N.Y. 2016).

⁵⁹ *Weiss*, 306 N.Y.S.2d at 254 (finding that employer was liable for negligently hiring a teenager "off the street," without asking for the identity of the teen).

⁶⁰ *See Raleigh v. Performance Plumbing and Heating, Inc.*, 109 P.3d 978, 981 (Colo. App. 2004) *aff'd*, 130 P.3d 1011 (Colo. 2006).

⁶¹ *L.B. Foster Co. v. Hurnblad*, 418 F.2d 727, 727 (9th Cir. 1969) (finding that employer who negligently hires an independent contractor may be liable).

⁶² *Pruitt v. Pavelin*, 685 P.2d 1347, 1348 (Ariz. Ct. App. 1984) (finding that employer was liable on a theory of negligent hiring).

⁶³ *Joiner v. Mitchell County Hosp. Auth.*, 186 S.E.2d 307, 307 (Ga. Ct. App. 1971).

⁶⁴ *Woman Sues Hyatt After Finding Male Hotel Worker Wearing Her Clothes*, AOL (Oct. 7, 2010, 10:18 AM), <http://www.aol.com/article/2010/10/07/woman-sues-hyatt-after-finding-male-hotel-worker-wearing-her-clo/19664839> [<https://perma.cc/H6PR-HL4Y>].

⁶⁵ *See Minuti*, *supra* note 51, at 522.

⁶⁶ *Flaherty v. Royal Caribbean Cruises, Ltd.*, 172 F. Supp. 3d 1348, 1351 (S.D. Fla. 2016) ("A principal may be subject to liability 'for physical harm to third persons caused by [its] failure to exercise reasonable care to employ a competent and careful employee/agent/contractor to: (a) do work which will involve a risk of physical harm unless it is carefully and skillfully done, or (b) perform any duty which the employer owes to third persons" (quoting *Smolnikar v. Royal Caribbean Cruises Ltd.*, 787 F. Supp. 2d 1308, 1318 (S.D. Fla 2011))); *see also Doe v. Medeiros*, 168 F. Supp. 3d 347, 353 (D. Mass. 2016) (noting that employers have a duty of reasonable care when hiring employees); *Franklin v. Turner*, No. 2014-CA-01006-COA, 2016 WL 1203838, at *3 (Miss. Ct. App. Mar. 29 2016) (noting that an employer can be held liable for negligently hiring an unfit employee). Some states have separate theories

the defendant breached that duty, and the damages were caused by that breach.⁶⁷ In a negligent hiring or retention case, a plaintiff must prove that “(1) the agent/employee/contractor was incompetent or unfit to perform the work; (2) the employer *knew or reasonably should have known* of the particular incompetence or unfitness; and (3) the incompetence or unfitness was a proximate cause of the plaintiff’s injury.”⁶⁸

More specifically as related to a negligent training case, the evidence typically must show:

that (1) the employer owed the plaintiff a legal duty to train competent employees, (2) the employer breached that duty, and (3) the breach proximately caused the plaintiff’s injury. . . . A plaintiff must prove that a reasonably prudent employer would have provided training beyond that which was given and that failure to do so proximately caused his injuries.⁶⁹

C. Sample Cases

For a better understanding of the “reasonable care” an employer must undertake, how selection and training matters, and the liability for the failure to properly manage employees, we must look at the variety of claims made in these types of cases. For example, there have been numerous cases regarding assault within the home by employees hired to perform services or sales calls.⁷⁰ In those cases, it would be incumbent on the employer to make all reasonable background checks on the employee prior to lending its good name in gaining access to someone’s home. In *Abbott v. Payne*,⁷¹ a case involving a physical assault on a homeowner by a pest control representative, the court noted that the employer was obligated to make reasonable inquiry into an employee’s past, particularly

for negligent supervision and negligent hiring and retention. *See, e.g.*, *Forbes v. Kinder Morgan, Inc.*, 172 F. Supp. 3d 1182, 1201 (D. Kan. 2016); *McLaurin v. Waffle House, Inc.*, No. H-14-0740, 2016 WL 1464623 (S.D. Tex. Apr. 13, 2016) at *19; *Perry v. Asphalt & Concrete Servs, Inc.*, 133 A.3d 1143, 1155 (Md. 2016) (“Generally, an employer has a duty ‘to use reasonable care to select employees competent and fit for the work assigned to them and to refrain from retaining the services of an unfit employee’ regardless of whether one engages an agent or independent contractor.” (emphasis added) (citation omitted)).

⁶⁷ *See* cases cited *supra* note 66.

⁶⁸ *Flaherty*, 172 F. Supp. 3d at 1351 (emphasis added) (citation omitted). *See also Franklin*, 2016 WL 1203838, at *3; *Medeiros*, 168 F. Supp. 3d at 353. Some states have separate theories for negligent supervision and negligent hiring and retention. *Forbes*, 172 F. Supp. 3d, at 1182.

⁶⁹ *Waffle House*, 2016 WL 1464623, at *19 (citation omitted).

⁷⁰ *See* cases cited *supra* note 66.

⁷¹ *Abbott v. Payne*, 457 So. 2d 1156, 1156 (Fla. Dist. Ct. App. 1984).

when he is given free access to a client's home with an assurance of trustworthiness and honesty—"reasonable care" implies making "reasonable inquiry."⁷²

In a more recent decision, the Northern District Court of California refused to dismiss a case on summary judgment against Uber Technologies for negligent hiring, supervision, and retention.⁷³ The plaintiffs had been assaulted by drivers working under the Uber Technologies name. The direct allegations against Uber were that their background check was inadequate and failed to reveal one of the driver's prior arrests for domestic violence and assault, since the outsourced commercial service Uber Technologies used for background checks only went back seven years and the driver's disorderly conduct offense was twelve years old.⁷⁴ The Court refused to dismiss the case finding that Uber could potentially be liable for at least one direct negligent hiring and supervision claim because plaintiffs had sufficiently alleged that Uber should have known about the twelve year old offense in spite of the fact that the background checking service did not go back that far.⁷⁵

The Federal District Court of the Western District of New York found that a claim against the United States for negligent supervision and/or retention could be maintained in a suit involving a Veterans Administration (VA) clinical psychologist who became physically intimate with the patient suffering from dysthymia and anxiety disorder.⁷⁶ When the therapist abruptly ended the relationship, the patient claimed to suffer "significant emotional and psychological injuries, including serious exacerbation of his preexisting dysthymia and generalized anxiety disorder."⁷⁷ The court ruled the matter could proceed to trial as the plaintiff had alleged sufficient facts to show that the therapist's "supervisors, professional colleagues, or other VA personnel knew or should have known of [the therapist's] intimate relationship with the Plaintiff, and yet they took no steps to intervene."⁷⁸ Interestingly, in this case the court referred to New York statutes regarding negligent supervision that go beyond the demand that an employer should supervise an employee well enough to know if they are engaging in wrongdoing. The law states that a successful plaintiff in a negligent supervi-

⁷² *Id.* at 1157.

⁷³ *Doe v. Uber Technologies, Inc.*, No. 15-cv-04670-SI, 2016 WL 2348296, at *12 (N.D. Cal. May 4, 2016).

⁷⁴ *Id.* at *10.

⁷⁵ *Id.* at *10, *12. Similarly, courts have refused to dismiss cases against the Catholic Church for their alleged failure to take appropriate action to prevent sexual assaults by clergy in their employ. *Smith v. O'Connell*, 986 F. Supp. 73, 73 (D.R.I. 1997).

⁷⁶ *Zeranti v. United States*, 167 F. Supp. 3d 465, 467 (W.D.N.Y. 2016).

⁷⁷ *Id.*

⁷⁸ *Id.* at 472.

sion claim needs to prove that the employer “should have known of the employee’s propensity for the tortious conduct.”⁷⁹ An employer may be liable for knowing about a *propensity* to behave in a certain way—not just behaving in a certain way and not just having already behaved in a certain way (the court in this case refused to dismiss merely because the psychologist had no history of unprofessional sexual impropriety before).

D. Changing Technology, Changing Standards of Reasonableness

In the cases mentioned above—and numerous others—there are repeated layers of “reasonableness.” Reasonable care is defined in part by making reasonable inquiries. What makes an inquiry reasonable depends on what technology allows, not merely what is currently or historically done. Inquiries can include not just background checks but assessments of propensities to behave in certain ways (even there is no past behavior to indicate that propensity).

It is not difficult to see a trajectory here.

You are liable for your employees’ conduct. To protect yourself you must make reasonable inquiries into your employee’s past. Sixty years ago running an electronic background check would have been impossible. However, in 2016, examining seven years of the past for Uber may not be reasonable enough. So how long is enough? At least twelve years in some cases, but maybe more.⁸⁰ Perhaps their entire past? After all, is it not just as easy to check the entire contents of a database as seven years’ worth? You should also know about propensities to engage in tortious conduct even when no past behavior indicates that. How do you do this? More technology.

In fact, Uber has just implemented “an extensive test of new software that aims to increase safety by analyzing data from individual drivers and sending them daily reports about things like sudden acceleration, braking and whether

⁷⁹ *Id.* at 471; *see also* *Papelino v. Albany Coll. of Pharmacy of Union Univ.*, 633 F.3d 81, 94 (2d Cir. 2011). (“Under New York law, a plaintiff asserting a claim for negligent supervision must prove: (1) the tortfeasor and defendant were in an employee-employer relationship; (2) the employer knew or should have known of the employee’s propensity for the tortious conduct; and (3) the tort was committed on the employer’s premises or with the employer’s chattels.”).

⁸⁰ But states have enacted restrictions themselves. For example, Massachusetts enacted regulations requiring Uber drivers to have proof of insurance, be subject to national background checks, and would be barred from driving if they had convictions for certain crimes or major traffic violations over the past 10 years. This statute effectively raised the standard of reasonableness in employment of Uber drivers to at least a national background check for the past 10 years. *See Nicole Dungca, State Issues Initial Regulations for Ride-Sharing Operations*, BOSTON GLOBE (Jan. 3, 2015), <https://www.bostonglobe.com/metro/2015/01/03/state-takes-major-step-regulating-ride-share-companies-such-uber-lyft/eQKKXBZaW9km1MIRa09inN/story.html> [https://perma.cc/X545-88EQ].

there're holding their phones when they drive.”⁸¹ The program incorporates the already existing motion sensors in cell phones used for gaming and GPS to watch the behavior of drivers and report on their behaviors.⁸² While the software does not intervene in real-time to warn a driver or the company of potentially dangerous driving, it does send daily summaries to drivers indicating their driving habits⁸³ and potentially information for the company to discipline or intervene in the event of repeated violations. But more to the point, the response from Uber demonstrates that it does have the monitoring technology and can implement it. Thus it inadvertently also gives any potential plaintiff ammunition for a negligent retention or supervision case because now what an employer *can* know about their drivers has just changed, and so what they *should know* has changed as well. In fact, given the relative simplicity of the technology, this may have changed the standard for what *any* company should know about any driver—not just Uber. Perpetual monitoring could have just become the new standard.

Another good example of shifting standards of reasonableness is in the standard of care expected of physicians. In medicine, new technologies directly affect how standards of care are defined at any particular time. There have been notable cases, in fact, where physicians have been held liable for malpractice because they did not make use of new technologies—even though those technologies had not yet become commonplace and industry standard.⁸⁴ The existence, availability, and knowledge of the new technologies was enough to engender responsibility. Medical practitioners in some cases have explicitly been said to have a “duty to stay abreast,” meaning they are obligated to know about changing medical practice, science, and techniques.⁸⁵ This means in effect that the standard of care is not “customary practice” but “the practice of physicians who keep abreast of advances in medical knowledge.”⁸⁶ This illustrates how a standard can be altered for everyone by knowledge and technology that an early adopter uses.

In short, new technology changes the landscape of employment, the burdens of liability, and the standard of reasonableness for checking the background, psychological propensities, and active current behavior of employees. The “reasonableness” on which liability is dependent is what technology allows us to do,

⁸¹ Brandon Bailey, *Uber Software Tracks Drivers for High Speed, Sudden Stops*, THE GLOBE AND MAIL (June 30, 2016, 6:35 AM EDT), <http://www.theglobeandmail.com/report-on-business/international-business/us-business/uber-software-tracks-drivers-for-high-speed-sudden-stops/article30672152> [<https://perma.cc/G5Z7-EYXW>].

⁸² *Id.*

⁸³ *Id.*

⁸⁴ Harvey L. Fiser, *The Treatment for Malpractice – Physician, Enhance Thyself The Impact of Neuroenhancements for Medical Malpractice*, 36 PACE L. REV. 438, 448 (2016) [hereinafter *The Treatment for Malpractice*].

⁸⁵ *Id.*

⁸⁶ *Id.*

how cheaply we can do it, and how quickly we can do it.

IV. HOW NEW TECHNOLOGY MAY IMPACT NEGLIGENT EMPLOYMENT TORTS

In other articles we have examined at length the legal, moral, and social issues of using technology to modify and measure employees, how employers might be motivated to use technology for certain reasons, and how employees might be motivated to use technology for their own reasons.⁸⁷ In this article we are looking at a different kind of vector through which neurotechnology, biotechnology, and other types of technology will enter the employment world—the specific vector of negligent employment torts. To give more breadth and depth to the claim that negligent employment law is ripe for serving as a tech vector, in this section we give two examples for each of the major skill assessment/management tasks described in section I: prediction, monitoring, and modification. The first example for each will look at *existing* technology—something that could appear today in a negligent hiring suit provided the situation arose in just the right way. The second example for each will look at *potential* technology—something that is not developed enough yet to make an immediate impact but that is realistic and could appear in the near future. While these examples cannot cover every aspect of the issues we introduce here, we hope they will provide a sense of how far-reaching and varied the impact of the negligent employment/technology interaction could be.

A. Prediction:

1. Existing Technology: Predictive Analytics

Employers have long sought private information about applicants to determine their fit for a position and, as we have seen, increasingly to protect themselves from liability. Employers historically have used letters of recommendation, interviews, psychological tests, and background checks. As technology advances, however, we now have more available and useable data to better predict how potential employees will fit into the organization—and not just *more* information, but better techniques of analyzing the information, better than either the employer or the employee could predict alone.⁸⁸ Predictive analytics is a set of statistical techniques using big data to predict unknown events from known events.⁸⁹ Though it can be used to retrodict unknown past events, typically it is used to predict what will happen in the future. As more and more data

⁸⁷ Hopkins & Fiser, *supra* note 29; *The Treatment for Malpractice*, *supra* note 84.

⁸⁸ See, e.g., Stuart Wolpert, *Neuroscientists Can Predict Your Behavior Better Than You Can*, SCIENCE DAILY (June 23, 2010), www.sciencedaily.com/releases/2010/06/100623110114.htm [<https://perma.cc/FX53-LCVA>].

⁸⁹ Thomas H. Davenport, *A Predictive Analytics Primer*, HARV. BUS. REV. (Sep. 2, 2014), <https://hbr.org/2014/09/a-predictive-analytics-primer> [<https://perma.cc/N6V8-4CCF>].

is gathered, more and more patterns can be detected, and the better we—or our models and programs—are at predicting.

Given enough information about a specific person (or even more likely, enough information to produce an evidence-based typology of persons), we could become far better at predicting their future behavior, including likelihood of stealing, lying, purchasing, assaulting, being aggressive, or acting in risky ways. While the very notion of being able to peg, categorize, and classify people into types likely to do this-or-that may not sit well with the cultural belief in individualism and the uniqueness of personalities prominent in the U.S., marketers and epidemiologists have known for a long time that people are much more predictable than they like to think.⁹⁰ Behavior patterns—including those we ourselves are not even aware of—can reveal probabilities of purchasing particular products,⁹¹ predict customer demand for products,⁹² be used to generate

⁹⁰ One only needs to notice advertisements on the side of their internet browser guiding us to just the kinds of clothes, books, and music we would be most likely to listen to—even though the sites we were looking at require no information, no registration, no logging in. Our IP addresses and online viewing history is simply enough for Amazon to determine our interests—and they are often correct.

⁹¹ For example, in a marketing situation, “[a]n analyst hypothesizes that a set of independent variables (say, gender, income, visits to a website) are statistically correlated with the purchase of a product for a sample of customers. The analyst performs a regression analysis to see just how correlated each variable is; this usually requires some iteration to find the right combination of variables and the best model. Let’s say that the analyst succeeds and finds that each variable in the model is important in explaining the product purchase, and together the variables explain a lot of variation in the product’s sales. Using that regression equation, the analyst can then use the regression coefficients—the degree to which each variable affects the purchase behavior—to create a score predicting the likelihood of the purchase.” *Davenport, supra* note 89.

⁹² See Charles Duhigg, *How Companies Learn Your Secrets*, N.Y. TIMES MAG. (Feb. 16, 2012), http://www.nytimes.com/2012/02/19/magazine/shopping-habits.html?_r=0 [<https://perma.cc/9Q3V-SLE9>].

a FICO score,⁹³ reduce crime,⁹⁴ anticipate fraud,⁹⁵ predict divorce,⁹⁶ predict sexual harassment,⁹⁷ predict adult self-control from childhood testing,⁹⁸ or even famously tell if someone is pregnant before anyone else knows.⁹⁹ While often used in marketing, the same theories and statistical tools can apply to employee screening—easily so with digitized data.

On a simple scale, employers have already expanded their review and analysis of data by looking at Facebook and LinkedIn profiles and posts. One study indicates that viewing Facebook profiles, and rating them with “personality-related questions, such as ‘[i]s this person dependable?’ and ‘[h]ow emotionally stable is this person?’” correlated strongly with employee evaluations from supervisors.¹⁰⁰ According to the lead researcher, “[t]he findings show that Facebook could be used as a reliable job-screening tool . . . especially since candidates would have a hard time ‘faking’ their personalities in front of their friends.”¹⁰¹ Companies use resume mining software to search for key terms thought to be predictively valuable.¹⁰² But these are rudimentary applications compared to

⁹³ Louis Columbus, *What Are Direct Examples That Show Predictive Analytics to be Highly Reliable?*, QUORA (July 10, 2011), <https://www.quora.com/What-are-direct-examples-that-show-predictive-analytics-to-be-highly-reliable> [<https://perma.cc/UN2Y-J222>].

⁹⁴ *Memphis Fights Crime with Predictive Analytics*, KMWORLD (July 26, 2010), <http://www.kmworld.com/Articles/News/KM-In-Practice/Memphis-fights-crime-with-predictive-analytics-68488.aspx> [<https://perma.cc/YZC7-QTYQ>].

⁹⁵ See SAP BusinessObjects Analytics, *Predictive Pearl: Uncover Fraud Rings with Social Network Analysis*, YOUTUBE (Sept. 18, 2014), https://www.youtube.com/watch?v=iY CZN8m_cQ&list=PLuff7pZxICBgVGz-UbBbop-mXzKXgbgHu-&index=15.

⁹⁶ See John M. Gottman and Robert W. Levenston, *The Timing of Divorce: Predicting When a Couple Will Divorce Over a 14-Year Period*, 62 J. MARRIAGE & FAM. 737, 743 (2000).

⁹⁷ See Charlotte Diehl, Jonas Rees & Gerd Bohner, *Flirting with Disaster: Short-Term Mating Orientation and Hostile Sexism Predict Different Types of Sexual Harassment*, 38 AGGRESSIVE BEHAV. 521, 530 (2012); see also Erin A. Casey et al., *Predicting Sexual Assault Perpetration Among Heterosexually Active Young Men*, 23 Violence Against Women 3, 5-7 (2017).

⁹⁸ See Terrie E. Moffitt et al., *A Gradient of Childhood Self-Control Predicts Health, Wealth, and Public Safety*, 108 PROCEEDINGS NAT. ACAD. SCI. U.S. 2693, 2693 (2011).

⁹⁹ See Hill, *supra* note 27.

¹⁰⁰ Leslie Kwoh, *Facebook Profiles Found to Predict Job Performance*, WALL ST. J. (Feb. 21, 2012), <http://www.wsj.com/articles/SB10001424052970204909104577235474086304212> [<https://perma.cc/YLF8-XEZJ>].

¹⁰¹ *Id.*

¹⁰² Jim Boulden, *Software Weeds Out Weak Resumes*, CNN (Jan 8, 2013, 10:01 AM), <http://www.cnn.com/2013/01/08/business/resume-software-scanning/> [<https://perma.cc/E9HC-2FK7>]; Ben Bradford, *Why Companies Use Software To Scan Re-*

what is possible.¹⁰³

With the availability of so much data and so many ways of selecting employees, companies are increasingly at risk of failing to use “reasonable methods” for hiring. When faced with a drunk driving injury in a negligent hiring or supervision case, a picture on Facebook of an employee driving a car while holding a beer could be evidence that the employer “knew” or “should have known” the employee might drink and drive.

Some may hesitate at this kind of data usage because it appears to treat people as if they are guilty of something they have not done yet. Keep in mind, however, that we are discussing the powers, liberties, obligations, and liabilities of *civil* law here, not *criminal* law. The civil law system is very different. In civil law, for the most part, the issue is liability not guilt, there is the lower “preponderance of evidence” standard of proof rather than the criminal “beyond a reasonable doubt” standard. Civil law features fewer or no protections against double jeopardy, warrantless searches, and self-incrimination, no right to a public defender or a speedy trial, and the very notion of vicarious responsibility (absent in criminal law) is what causes the issues to begin with.¹⁰⁴ Refusing to hire someone or failing to fire someone because probability suggests future impropriety is normal. Even the criminal background check only looks for what has been done—the applicants are mainly turned down not for what they have done but for what they are thought likely to do. Predictive analytics could do a much stronger job of that kind of prediction and would be entirely in keeping with what we already do.

2. Potential Technology: Predictive fMRI Scans

Behavioral and attitudinal data is only part of the equation (literally). The use of biotechnology in the very near future could lead to predicting the behavior

sumes, NPR (Oct. 6, 2012 3:00PM), <http://www.npr.org/2012/10/06/162440531/why-companies-use-software-to-scan-resumes> [<https://perma.cc/9CM5-FD5V>].

¹⁰³ “By some estimates, humankind now captures the same amount of data in any two days than in all of history prior to 2003. . . . [Already used in market research, [t]he explosion of self-reporting on social media has led us to provide intimate details of ourselves. Many market research companies now use this data by ‘scraping’ the web to obtain detailed examples of the sentiment relating to particular issues, brands, products and services. . . . We are now not only able to see and track the ways in which people relate, but with whom they relate, how they do it, and when.” Martin Zwilling, *What Can Big Data Ever Tell Us About Human Behavior*, FORBES (Mar. 24, 2015 7:39 PM), <http://www.forbes.com/sites/martinzwilling/2015/03/24/what-can-big-data-ever-tell-us-about-human-behavior/print/> [<https://perma.cc/9XEX-XZF5>].

¹⁰⁴ Patrick D. Hopkins & Harvey L. Fiser, *Neuro-Interventions and Business Law: On the Legal and Moral Issues of Neuro-Technology in Business and How They Differ from the Criminal Law Context*, in *NEURO-INTERVENTIONS AND THE LAW: REGULATING HUMAN MENTAL CAPACITY* (Nicole A. Vincent ed., forthcoming 2017).

and fit of potential employees better than any human could alone and possibly better than relying on behavioral data alone. For example, studies have shown that functional magnetic resonance imaging (fMRI) scans are more effective at predicting human behavior than individuals' own predictions of how they will behave.¹⁰⁵ In one notable study, researchers placed 20 human subjects in a fMRI machine and showed the subjects a series of public service announcements for sunscreen.¹⁰⁶ Using data on activity differentials in the medial prefrontal cortex, the researchers were able to predict "for about three-quarters of the people whether they [would] increase their use of sunscreen beyond what they [said] they [would] do."¹⁰⁷ Using survey and interview techniques where people were asked what they planned to do and would do, "fewer than half of the people accurately predicted."¹⁰⁸ This study is not about selecting employees, but it is illuminating because it describes an instance in which a brain scanning technology was about 50% better at predicting behavior than conventional survey techniques.¹⁰⁹

While this study was about comparing traditional self-reporting techniques used in marketing research to brain scanning techniques, the implications for predicting crime, impulsivity, recidivism, fraud, theft, drug use, and numerous other employment liability-related behaviors are clear. Instead of using background checks and interviews, perhaps brains scans would be better (and if *reasonably* practicable and *reasonably* affordable, then expected as *reasonable* care). Studies of fMRI scanned activity in the anterior cingulate cortex were better at predicting criminal recidivism than age, drug use history, or even psychopathic traits.¹¹⁰ Other studies showing certain patterns of activity in the ventral striatum and amygdala predicted problem drinking during stress.¹¹¹ Still other studies showed that fMRI scans were better at predicting alcohol abuse problems

¹⁰⁵ Wolpert, *supra* note 88.

¹⁰⁶ *Id.*

¹⁰⁷ *Id.*

¹⁰⁸ *Id.*

¹⁰⁹ *Id.*

¹¹⁰ Aharoni, *supra* note 10, at 6224. In another study, ninety-six male prisoners were given a similar fMRI scan and asked to make decisions during the tests. Scientists, focusing on the anterior cingulate cortex (ACC), "a small region in the front of the brain involved in motor control and executive functioning," found that soon to be released prisoners "who had lower ACC activity during the quick-decision tasks were more likely to be arrested again after getting out of prison, even after the researchers accounted for other risk factors such as age, drug and alcohol abuse and psychopathic traits." Nuzzo, *supra* note 10 (citing Aharoni, *supra* note 10).

¹¹¹ Y. S. Nikolova et al., *Divergent Responses of the Amygdala and Ventral Striatum Predict Stress-Related Problem Drinking in Young Adults: Possible Differential Markers of Affective and Impulsive Pathways of Risk for Alcohol Use Disorder*, 21 MOLECULAR PSYCHIATRY 348, 350 (2016).

than information about family history of alcohol use or impulsivity traits.¹¹² Such studies are very intriguing if you are highly motivated either to weed out employees that might cost you money or to sue an employer for negligent employment harm whom you think should have been more vigilant in their weeding out.

Note that this sort of technology could potentially both *raise and lower* liability. If you hired a newly released felon and scanned them to determine their “impulsivity” (or some other measure) and they “passed”, this could be like a “clean bill of mental health” or at least an indication of a lower risk. This could allow them to be hired and, if hired, placed in a more suitable position based on the lowered risk.¹¹³ For example, the recidivism study mentioned previously showed anterior cingulate cortex brain activity was better than behavioral history and criminal background checks at predicting which felons would repeat crime.¹¹⁴ It is entirely possible that people who would always be denied a job based on the current practice of looking at criminal backgrounds and behavioral history could actually get a job based on the low probability that they would recidivate as predicted by brain scans. In this case, instead of being treated as “guilty” of a crime they had yet not committed, they would be seen as “innocent” of a crime other screening methods assumed they would commit.¹¹⁵ Moreover,

¹¹² Alecia D. Dager et al., *Functional Magnetic Resonance Imaging (fMRI) Response to Alcohol Pictures Predicts Subsequent Transition to Heavy Drinking in College Students*, 109 *ADDICTION* 585, 592 (Apr. 2014).

¹¹³ Adding to the possibilities, the government could then issue a certification that the person has been tested, adding a layer of scientific validation to the “immunity certificates” being given by some states to rehabilitated criminals. *See supra* discussion at note 54.

¹¹⁴ Aharoni, *supra* note 10, at 6224.

¹¹⁵ As technology allows us to better predict impulsivity, honesty, and other behavior, employers would have more information on which to base hiring decisions. However, this also causes a major problem when considering a negligent hiring case. If these new scanning techniques are used, then those results would surely be brought up in a case for negligent hiring. In the categories of “what did the employer know” or “what should the employer have known,” these scans provide both an insulation to liability and could be prime evidence of a negligent hiring situation. But, if these scans were to be considered “medical” then they could be prohibited in employment law. Americans with Disabilities Act of 1990, 42 U.S.C. § 12112(d) (2012). They could also lead to a problem with the ADA since employers would be basing hiring decisions on a “physical” and/or “medical” test. We would argue that such scans are *not* medical tests because what makes any test “medical” is its purpose and context. Employers would be trying to predict liability-creating behavior, not diagnose or treat any illness. There could still be a problem, though. The increasingly aggressive and expansive ADA protects employees and applicants who may simply be “regarded as having a disability”—making the protections about the employer’s attitude, irrespective of the employee’s physical or mental state. If the employer considered a “failed” brain scan as indicating the employee had a “sick brain” (or something along those lines), then the ADA might protect that employee. This would be a monumental problem because then the law would be protecting a person

evidence that an employer went to this effort to “know” all they could about this employee could show evidence against a future negligent employment case.

Finally, it may seem far-fetched that a company would employ such expensive techniques as an fMRI or other futuristic testing even if available and legal. However, if statements regarding costs made by companies marketing these services are true—that it may cost “one-third of a new hire’s annual salary to replace him or her and that those costs increase the higher up in the organization the turnover occurs,”¹¹⁶ that the average cost of a negligent hiring settlement is one million dollars,¹¹⁷ and that the average loss rate for employers in negligent hiring cases is 79%¹¹⁸—the cost of an fMRI may seem worth the investment.¹¹⁹

B. Monitoring

1. Existing Technology: Real-time Activity and Location Recording

Technology so permeates our daily lives that many of us never consider the amount of data we produce and the degree to which monitoring our activity is possible. Seeing a CCTV camera on a utility pole near a busy intersection or in a convenience store or at a bank teller’s window usually alerts us to the fact that we are being visually recorded. What is far less noticeable, however, are the recordings and transmissions much closer to us than video cameras. With the

against being refused employment based on some particular trait—but it would be precisely that trait that would be used in a negligent hiring suit against the employer. The law would essentially require an employer to harm themselves. This paper will not permit a full discussion and analysis of the ADA and its protections that are sure to cause a major collision with this technology, however, papers forthcoming will fully discuss these new implications and categories of problems. *See*, Hopkins & Fiser, *supra* note 299.

¹¹⁶ Yager, *supra* note 17. Hewlett-Packard claims to be able to predict which employees will leave the company. Through massive data, HP can scrutinize “the loyalty of each one of their 330,000 colleagues” and assigns them with a “Flight Risk” score indicating the likelihood a certain staff member will leave. Eric Seigel, *Predictive Analytics: The Privacy Pickle – Hewlett-Packard’s Prediction of Employee Behavior*, ANALYTICS (Nov./Dec. 2013), <http://analytics-magazine.org/predictive-analytics-the-privacy-pickle-hewlett-packards-prediction-of-employee-behavior/> [https://perma.cc/5LV8-DTC7].

¹¹⁷ *Negligent Hiring – The Million Dollar Mistake*, HIRERIGHT: BLOG (Oct. 9, 2009), <http://www.hireright.com/blog/2009/10/negligent-hiring-the-million-dollar-mistake/#sthash.Ef3XXk73.dpbs> [https://perma.cc/VK5S-ZECC].

¹¹⁸ Sandy Steinman, *Negligent Hiring Lawsuits and Proving the Case*, BACKGROUND CHECKS EXPRESS, INC., <http://backgroundchecksexpress.com/negligent-hiring-lawsuits-and-proving-the-case/> [https://perma.cc/4798-67N4] (last visited Nov. 17, 2016).

¹¹⁹ Yale University publishes its fMRI cost as \$510 per hour for grant supported research and double that amount for industry supported research. *Usage Charges, Magnetic Resonance Research Center*, YALE SCH. MED. (July 1, 2016), <http://mrrc.yale.edu/users/charges.aspx> [https://perma.cc/KQ6K-CVRR].

advent of mobile phones, smart watches, fitness activity trackers, GPS systems in automobiles and mobile devices, and social media sites, every keystroke, cursor move, finger swipe, and voice interaction with our laptops and tablets transmits information about our location, behavior, and biometrics to companies, vendors, and advertisers.¹²⁰

For example, in 2004, it was widely reported that Apple iPhones had been tracking millions of users with the “Frequent Locations” feature installed in its software update.¹²¹ In 2008, Google created a flu tracking system using search inquiries,¹²² and Twitter data has shown that tweet contents can predict flu outbreaks up to two weeks sooner than the CDC’s average monitoring.¹²³ In 2014, data coming in from Jawbone fitness trackers about suddenly waking up in the early morning was more effective at fixing the epicenter of a Northern California earthquake than the self-reporting system for citizens run by the U.S. Geological Survey.¹²⁴ People can trick themselves into thinking they felt a tremor, but they cannot trick themselves into being jolted awake at 3:00 AM.

With over 6 billion of the 7 billion of people on earth having access to mobile

¹²⁰ Peter Mass & Megha Rajagopalan, *That’s No Phone. That’s My Tracker*, N.Y. TIMES (July 13, 2012), <http://www.nytimes.com/2012/07/15/sunday-review/thats-not-my-phone-is-my-tracker.html> [<https://perma.cc/HXD9-6LRP>].

¹²¹ E.g., Ben Spencer, *iPhone? It’s a Spyphone: Apple Devices Can Record Your Every Movement*, DAILY MAIL (Sept. 26, 2014), <http://www.dailymail.co.uk/sciencetech/article-2771566/iPhone-It-s-spyphone-Apple-devices-record-movement.html> [<https://perma.cc/AWN6-UAUP>].

¹²² Jeremy Ginsberg et al., *Detecting Influenza Epidemics Using Search Engine Query Data*, 457 NATURE 1012, (2009). While the flu tracker is no longer available from Google, the data analysis and use continues through partner health institutions. The Flu Trends Team, *The Next Chapter for Flu Trends*, GOOGLE RES. BLOG (Aug. 20, 2015), <https://research.googleblog.com/2015/08/the-next-chapter-for-flu-trends.html> [<https://perma.cc/6UQQ-NDYP>].

¹²³ Charles W. Schmidt, *Using Social Media to Predict and Track Disease Outbreaks*, 120 ENVTL. HEALTH PERSP. A31, A32 (2012); Harshavardhan Achrekar et al., *Predicting Flu Trends Using Twitter Data*, INT’L CONFERENCE ON COMPUTER COMM. 702, 702 (2011), <http://ieeexplore.ieee.org/abstract/document/5928903/> [<https://perma.cc/XPC8-XP4V>]; Alessio Signorini et al., *The Use of Twitter to Track Levels of Disease Activity and Public Concern in the U.S. During the Influenza A H1N1 Pandemic*, 6 PLOS ONE 1, 6 (2011), <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0019467> [<https://perma.cc/JUY6-7Z4S>].

¹²⁴ Caitlin Dewey, *What Personal Fitness Trackers Like Jawbone Tell Us About Earthquakes, Public Health – and Just About Anything Else*, WASH. POST (Aug. 25, 2014), <https://www.washingtonpost.com/news/the-intersect/wp/2014/08/25/what-personal-fitness-trackers-like-jawbone-tell-us-about-earthquakes-public-health-and-just-about-anything-else/> [<https://perma.cc/L7E9-P2UC>]; see Marcus Wohlsen, *Fitness Trackers Show How Many People Woke Up During the Bay Area Quake*, WIRED (Aug. 25, 2014, 2:45 PM), <http://www.wired.com/2014/08/fitness-trackers-show-how-many-people-woke-up-during-the-bay-area-quake/> [<https://perma.cc/AN38-B28B>].

phones (more than have access to toilets and soon more than have access to electricity),¹²⁵ with much of the world volunteering personal information on social media (over 1.1 billion people were daily active users of Facebook in June 2016),¹²⁶ and with billions of people regularly sending emails and signals of all sorts, it is becoming so easy to track movement and behavior and information that people would have to take extraordinary steps to opt out of being tracked than to be tracked.

Does this increase in available information and ease of monitoring change what the employer “knew” or “should have known” about their employee? Does the standard of what counts as “reasonable” in supervision change simply because the technology exists?

Writers, news media, and bloggers often seem to worry about monitoring technology giving employers more control over employees for purposes of productivity, but it may equally be giving third parties (i.e. potential plaintiffs) more control over employers and employees by upping the ante on reasonable care standards. In other words, while most eyes are on the overbearing employer and the big brother monitoring of its employees, the real push for more and more control and monitoring could be the prevention of lawsuits and the increase in safety for third persons.

Consider the announcement by Uber in June 2016 that it had implemented “an extensive test of new software that aims to increase safety by analyzing data from individual drivers and sending them daily reports about things like sudden acceleration, braking and whether there’re holding their phones when they drive.”¹²⁷ While the software does not intervene in real-time to warn a driver or the company of potentially dangerous driving, it does send daily summaries to drivers indicating their driving habits¹²⁸ and potentially gathers information for the company to discipline or intervene in the event of repeated violations. Now that Uber has shown that it has the technology, that it can implement the technology, and that it already has implemented the technology to a degree, it has clearly expanded the range of what it can know. Does that expand the range of what it *should* know and thus what it is liable for? Does that expand the range of what *every* similar company *should* know, since the technology is not that

¹²⁵ Roger Cheng, *By 2020, More People Will Own a Phone Than Have Electricity*, CNET (Feb. 3, 2016, 5:00 AM PST), <http://www.cnet.com/news/by-2020-more-people-will-own-a-phone-than-have-electricity/> [<https://perma.cc/UN8A-9WQ9>]; Yue Wang, *More People Have Cell Phones Than Toilets, U.N. Study Shows*, TIME (Mar. 25, 2013), <http://newsfeed.time.com/2013/03/25/more-people-have-cell-phones-than-toilets-u-n-study-shows/> [<https://perma.cc/ZJ9C-VT89>].

¹²⁶ Newsroom, FACEBOOK, <http://newsroom.fb.com/company-info/> [<https://perma.cc/G9T2-LLCS>] (last visited Dec. 6, 2016).

¹²⁷ Bailey, *supra* note 81.

¹²⁸ *Id.*

complicated?

Uber's monitoring software is just one example of existing real-time supervisory technology. Implantable radio-frequency identification (RFID) chips about the size of a grain of rice are already being used to operate smart offices, access buildings, log on to copiers, unlock cell phones, and potentially to pay for lunch in the building café (Interestingly, this project appears to have started not as a company mandate, but by bio-hackers and then implemented into building and office infrastructure¹²⁹).¹³⁰ Real-time tracking would be a simple add-on. Other implantable real-time technologies include "pills" that monitor heart and respiratory rates.¹³¹ Ingestible sensors that can measure drugs and patient compliance are being reviewed by the FDA.¹³²

All these existing technologies lead to a simple question for any employer whose employee crashed a car, drove drunk, had a seizure as a result of not taking their prescription medicine, trespassed, stole something, or assaulted someone—Shouldn't you have known what your employee was doing?

2. Potential Technology: Sensory Recording and Remote Control Locomotion

The monitoring technology just described can report where someone is, how they are moving, how they are operating machinery, and can send back some biometric data. It is limited in what it can tell you about the monitored person and provides only specific information, not control. What if it were possible to do substantially more? Mechanical and electronic devices provide two simple examples.

A digital movie camera photographically (and sometimes radiographically) records activity in a particular field, which can then be replayed, magnified, contrasted, slowed, and sped up to show much more objectively than human memory what happened at a particular place and time. Although limited by available light and viewing angles, resulting recordings provide greater accuracy and greater amounts of information than a human viewer. As such, photographic

¹²⁹ Jane Wakefield, *The Rise of the Swedish Cyborgs*, BBC NEWS (Dec. 10, 2014), <http://www.bbc.com/news/technology-30144072> [https://perma.cc/8Q58-ZKCJ].

¹³⁰ Rory Cellan-Jones, *Office Puts Chips Under Staff's Skin*, BBC NEWS (Jan. 29, 2015), <http://www.bbc.com/news/technology-31042477> [https://perma.cc/M8X5-6LWC].

¹³¹ Stacy Lawrence, *MIT Researchers Develop Ingestible Real-Time Vital Sign Monitor*, FIERCE BIOTECH (Nov. 23, 2015, 11:44 AM), <http://www.fiercebiotech.com/medical-devices/mit-researchers-develop-ingestible-real-time-vital-sign-monitor> [https://perma.cc/S75S-UNPQ].

¹³² van der Schaar, *supra* note 42; *U.S. FDA Accepts First Digital Medicine New Drug Application for Otsuka and Proteus Digital Health*, PROTEUS DIGITAL HEALTH (Sept. 10, 2015), <http://www.proteus.com/press-releases/u-s-fda-accepts-first-digital-medicine-new-drug-application-for-otsuka-and-proteus-digital-health/> [https://perma.cc/UKE4-F6WL].

recordings from a police officer's dashcam, a bank security camera, or a bystander's smart phone would likely trump contradictory eyewitness testimony. But cameras are not everywhere. If everything a person did or saw could be recorded, however, there would be a tremendous increase in the ability to determine what is happening and what did happen (not to mention a likely deterrent effect for impropriety in the first place.)¹³³

Engine governors, also called speed limiters and immobilizers, are required for many automobiles and other vehicles.¹³⁴ Using a set of sensors that detect how fast a vehicle is traveling, the engine computer will adjust the amount of fuel, or air, or electricity available to the engine so that it cannot exceed a certain limit—even if the engine is capable of far greater speeds.¹³⁵ Though governors are common, there are scores of variations on this theme, in which a sensor device relays information to a regulating device that then alerts, slows, adjusts, transfers control, or shuts down the operation.¹³⁶ If the various monitoring technologies discussed here (sensors) could be connected somehow to human muscle or nervous systems (engines), then a failsafe could be introduced into human resources as they already are in mechanical resources. It turns out neither example is outside the realm of possibility for humans.

Technology already facilitates constant photographic (and audiographic) documentation with simple devices such as small wearable cameras, which photograph everything they are pointed towards and download that information to other devices.¹³⁷ Advertisements and stories about cameras regularly use terms such as “perfect memory,” “perfect recall,” and “indelible memory.”¹³⁸ One suggested use is attaching a camera to pets so that you can see what your dog or cat

¹³³ For example, while the ACLU in general is against surveillance cameras, they have called for the use of body cameras for police use, with limitations. Jay Stanley, ACLU, POLICE BODY-MOUNTED CAMERAS: WITH RIGHT POLICIES IN PLACE, A WIN FOR ALL 1 (2015), <https://www.aclu.org/other/police-body-mounted-cameras-right-policies-place-win-all> [https://perma.cc/E22Y-PG3K].

¹³⁴ Gary Wickert, *Fed to Require Speed Limiters on Trucks*, CLAIMS JOURNAL (May 1, 2014), <https://www.claimsjournal.com/news/national/2014/05/01/248279.htm> [https://perma.cc/7QS9-3SEN].

¹³⁵ Patrick E. George, *How Speed Limiters Work*, HOWSTUFFWORKS (Apr. 10, 2012), <http://auto.howstuffworks.com/car-driving-safety/safety-regulatory-devices/speed-limiter.htm> [https://perma.cc/CU4D].

¹³⁶ *Id.*

¹³⁷ See Samantha Cooney, *This Tiny Wearable Camera Can Record Everything You See*, BUSINESS INSIDER (June 22, 2016, 12:18 PM), <http://www.techinsider.io/perfect-memory-camera-features-specs-photos-2016-6/#the-camera-can-record-continuously-and-has-a-battery-life-that-should-last-up-to-four-hours-when-recording-without-interruption-1> [https://perma.cc/QE43-SVAF].

¹³⁸ It is interesting that the word “indelible” is used. It may simply be imprecision on the part of the writer, but “indelible” does not simply mean “permanent” in the sense that the

has been up to all day. It is easy to imagine that use extended to babies, toddlers, children . . . and employees?

The idea of constant video chronicling is not alien to contemporary culture. Ironically, in an age of preoccupation with legal constraints on organizational and governmental protection for privacy, individuals regularly upload personal and even unflattering information on social media for the world to see. Even Google's "Street View" captures the occasional embarrassing situation and posts it for the world to see.¹³⁹ There are even more systematic approaches to this phenomenon. In the name of "remembering everything," the proponents of the hyper-journaling process known as "e-memory" or "lifelogging" encourage people to record everything they say, write, see, and listen to in digital form and then store that data in folders dedicated to specific days, months, years, or events.¹⁴⁰ They anticipate future software that will organize and access the data.¹⁴¹

Cameras could be much smaller, too. Google recently announced it is testing a "smart contact lens that's built to measure glucose levels in tears using a tiny wireless chip and miniaturized glucose sensor that are embedded between two layers of soft contact lens material."¹⁴² The patent indicates that glucose monitoring is just one capability.¹⁴³ Reportedly, the lenses are solar-powered, can monitor body temperature and blood-alcohol levels, allergens, and other envi-

person recording the images will not lose the images but "permanent" in the sense that the images could not be erased ever—even by the person recording them. This is why "indelible" is sometimes used to connote "haunting"—as in, "that scene was indelibly imprinted on her mind for life." Truly indelible images could not be eradicated at all, so the person who recorded them must deal with their permanence, wanted or not. See John Biggs, *The Perfect Memory Camera Will Record Your Entire Life*, TECHCRUNCH (June 21, 2016), <https://techcrunch.com/2016/06/21/the-perfect-memory-camera-will-record-your-entire-life/> [https://perma.cc/44T3-ZKEV].

¹³⁹ Narasu Rebbapragada, *The Craziest Google Street View Moments*, NBC NEWS, http://www.nbcnews.com/id/38695392/ns/technology_and_science-tech_and_gadgets/t/craziest-google-street-view-moments/#.V8yZVSxTGmQ [https://perma.cc/26GA-DTQX] (last visited Sept. 4, 2016).

¹⁴⁰ Alex Bowyer, *Lifelogging 101: How to Record Your Life Digitally*, HUMAN2.0 (May 10, 2010), <http://human20.com/lifelogging-101/> [https://perma.cc/GZ73-KAZT].

¹⁴¹ *Id.*

¹⁴² Amy Tenderich, *NewsFlash: Google is Developing Glucose-Sensing Contact Lenses!*, HEALTHLINE (Jan. 16, 2014), <http://www.healthline.com/diabetesmine/newsflash-google-is-developing-glucose-sensing-contact-lenses> [https://perma.cc/97NY-NC3L].

¹⁴³ Ilan Mochari, *7 Crazy Things Google's Solar-Powered Contact Lenses Might Do*, INC. (Oct. 15, 2015), <http://www.inc.com/ilan-mochari/google-patent-solar-powered-contact-lens.html> [https://perma.cc/5KCG-Q98L].

ronmental hazards, scan bar codes, and be used for authentication for other devices (i.e. unlock doors, cell phones, etc.).¹⁴⁴ While it appears initially intended for medical purposes, and people will likely adopt them for that reason, companies could begin to asking for biometric information for other purposes. Samsung was recently granted a patent for a contact lens with a camera, display, and wireless transmission able to send information to other devices.¹⁴⁵ In a separate project from the glucose-monitoring projects, Google also filed for a camera contact lens patent.¹⁴⁶

But data-gathering is just half the process. The back-connection to the body is also a possibility. While we already have all kinds of electrodes, implantable stimulators, drug-delivery devices, and prostheses, these are (relatively) big, degrade over time, and require dermal penetration. Engineers, however, have created tiny interactive sensors about the size of a grain of sand (one cubic millimeter) that can be inserted into the body and sit beside cells, constantly recording information.¹⁴⁷ Dubbed “neural dust” in reference to their size and application, the proof-of-concept sensors are already small enough to be used in the peripheral nervous system (e.g., for appetite suppression), but the inventors say that they could eventually shrink the technology to the 50-micron range, which would allow application in the brain and central nervous system.¹⁴⁸ Apropos of the applications discussed in this paper, neural dust could be used not only to record and transfer information but to affect the cells and tissues they are in. The purpose of the invention is to serve as an “electroceutical,” able to stimulate muscles and nerves to treat epilepsy, for example¹⁴⁹ and more generally, as long

¹⁴⁴ Amit Chowdhry, *Samsung Patent Unveils Idea for Smart Contact Lenses with a Camera and Display*, FORBES (Apr. 11, 2016, 6:29 PM), <http://www.forbes.com/sites/amitchowdhry/2016/04/11/samsung-patent-unveils-smart-contact-lenses-with-a-camera-and-display/#5b6da5ab67be> [<https://perma.cc/SK77-DRC2>]; Mochari, *supra* note 143.

¹⁴⁵ Chowdhry, *supra* note 144.

¹⁴⁶ Olivia Solon, *Google Embeds Camera in Smart Contact Lens*, WIRED (Apr. 15, 2014), <http://www.wired.co.uk/article/google-contact-lenses-cameras> [<https://perma.cc/U695-6ZD9>].

¹⁴⁷ Dongjin Seo et al., *Wireless Recording in the Peripheral Nervous System with Ultrasonic Neural Dust*, 91 NEURON 529, 530 (2016); Robert Sanders, *Sprinkling of Neural Dust Opens Door to Electroceuticals*, U.C. BERKELEY: BERKELEY NEWS (Aug. 3, 2016), <http://news.berkeley.edu/2016/08/03/sprinkling-of-neural-dust-opens-door-to-electroceuticals/> [<https://perma.cc/5QEY-YCJ7>].

¹⁴⁸ Sanders, *supra* note 134.

¹⁴⁹ “‘I think the long-term prospects for neural dust are not only within nerves and the brain, but much broader,’ said Michel Maharbiz, an associate professor of electrical engineering and computer sciences and one of the study’s two main authors. ‘Having access to in-body telemetry has never been possible because there has been no way to put something supertiny [sic] superdeep [sic]. But now I can take a speck of nothing and park it next to a nerve or organ, your GI tract or a muscle, and read out the data.’” *Id.*

term “brain-machine interfaces.”¹⁵⁰

Even without a tinier version of neural dust, the ability to send signals to a human body to affect its movements has been demonstrated. Scientists have employed a “cruise control for pedestrian[s]” technology in which electrodes attached to the legs of walkers led them to turn whichever way the remote operator wanted, guiding them through park trails.¹⁵¹ Though the subjects said they could have overridden the electro-nudges, ratcheting up the power might increase operator control.¹⁵² Similar effects have been shown using small external stimulator placed behind the ear that electrically stimulated human vestibular systems, allowing blindfolded or skyward-gazing subjects to be directed around obstacle-filled rooms.¹⁵³ While not lending itself to much practical use at the moment, it does show that mobility can be remotely affected.¹⁵⁴ Scientists have even been able to send a signal from one person’s brain to another’s, causing them to involuntarily perform the movement the first person commanded.¹⁵⁵

Now put these ideas together and you get a remotely monitored employee able to be locked out, shut down, or remotely controlled.¹⁵⁶ An employer would be able to have real time streaming data that would provide them with the knowledge and control ability to further ensure safety, compliance, and proper conduct.

A well-crafted and psychologically trenchant fictional treatment of this kind

¹⁵⁰ *Neural Dust: An Ultrasonic, Low Power Solution for Chronic Brain-Machine Interfaces*, U.C. BERKELEY: SWARM LAB, <https://swarmlab.eecs.berkeley.edu/projects/4887/neural-dust-ultrasonic-low-power-solution-chronic-brain-machine-interfaces> [https://perma.cc/4KTK-F6ZQ] (last visited Sept. 4, 2016).

¹⁵¹ Nick Stockton, *Scientists Are Using Electrodes to Remote-Control People*, WIRED (Apr. 20, 2015, 7:00 AM), <http://www.wired.com/2015/04/scientists-using-electrodes-remote-control-people/> [https://perma.cc/DM9W-5EAJ].

¹⁵² *Id.*

¹⁵³ Emily Singer, *Remote-Controlled Humans*, MIT TECH. REV. (Aug. 8, 2006), <https://www.technologyreview.com/s/406220/remote-controlled-humans/> [https://perma.cc/2U8N-B44P].

¹⁵⁴ Richard Van Noorden, *Blindfolded Humans Steered by Remote Control*, NATURE (Aug. 7, 2006), <http://www.nature.com/news/2006/060807/full/news060807-3.html> [https://perma.cc/L2SH-4LKJ].

¹⁵⁵ Doree Armstrong & Michelle Ma, *Researcher Controls Colleague’s Motions in 1st Human Brain-to-Brain Interface*, UW TODAY (Aug. 27, 2013), <http://www.washington.edu/news/2013/08/27/researcher-controls-colleagues-motions-in-1st-human-brain-to-brain-interface/> [https://perma.cc/5MPY-HH5R].

¹⁵⁶ Keep in mind we do not have to jump to the remotely controlled human options if robotics is advanced enough by the time remote technology becomes easy and robots do better jobs than humans. In that situation negligent hiring pressures may be extended to the demand to only use robots instead of humans altogether—a subject we are currently pursuing in another paper.

of technology appears in an episode of the BBC Television series *Black Mirror*, which explores social and moral issues of new media and communication technology, entitled *The Entire History of You*.¹⁵⁷ In that episode, most citizens have voluntarily chosen to have a high-tech sensory interface and recording device called a “grain” implanted in their necks just behind the ear. The “grain” connects to the visual and auditory sensory systems and records everything a person sees, hears, and says.

Importantly, the device does not record memories (which would be suspect for accuracy) but the actual objective visual and auditory input, along with various biometric data, including emotional status and chemical levels. The device allows a playback, known as a “re-do,” of anything it has recorded, so that a person can reexamine events to more closely scrutinize details and get the facts just right (the episode is largely about the psychological effects of always having access to perfect recall and the emotional value of forgetting or missing something). For our purposes here, however, one scene stands out. The main character has discovered that his wife has had an affair. Emotionally distressed, he gets drunk and angry and gets into his car. The implanted “grain” sends the biometric information about his emotional state and inebriation to his car’s computer system, which then warns him in a pleasant but firm female voice that he has been assessed as unable to drive safely and that if he chooses to drive in his current state, all insurance is voided and all liability for consequences entirely his.¹⁵⁸

In the *Black Mirror* example, it is a matter of a privately-owned car and presumably the insurance company has linked with the “grain” to warn of the contract status for impaired driving. However, in the case of an employee, an employer would only need to be given access during business hours or in a business vehicle, and the implant could shut down the vehicle (or whatever machine was being operated) and alert supervisors. This could potentially insulate companies from liability in the first instance. It could also provide potential plaintiffs with reason to argue that reasonable care was not taken by any company who failed to employ such technology. If it becomes easy to tell an employee is in no condition to drive—as one example—then is it the case that any employer *should have known* their employee was in no condition to drive and taken steps to prevent them from driving?

C. Modification

1. Existing Technology: Drugs and Surgeries

Screening and monitoring employees are important employment workspace tasks, but they are largely about determining beforehand whether someone can

¹⁵⁷ *Black Mirror: The Entire History of You* (BBC television broadcast Dec. 18, 2011).

¹⁵⁸ *Id.*

and will do a job or making sure they continue to do the job. What about modifying the employee to do the job rather than hoping to find one who does? Does a job require that an employee work a night shift and need to be alert and fully functioning at 3:00 AM? Does a position require being able to solve complex problems on the fly? Does an employee need to be highly attuned to unfair offers during negotiations and be ready to reject them quickly without second-guessing and emotional turmoil? Should a manager be able to make dispassionate monetary decisions without being swayed by pity? Then instead of just trying to find the person already best suited for such work, the employee could be given, respectively, modafinil,¹⁵⁹ methylphenidate,¹⁶⁰ tryptophan-deletion,¹⁶¹ or 15 minutes of magnetic stimulation to their right temporo-parietal junction.¹⁶²

Although the practice of somehow modifying an employee's abilities on the job is not novel, these practices are not typically thought of as modifications. Many companies alter employees in some way. Resistance to heat and cold, the ability to physically hold on to materials, and to breathe in toxic environments are changed by clothing—coats, helmets, hazmat suits, boots, gloves, sunglasses, safety glasses, sunscreen, and insect repellent, for example.¹⁶³ Magnifying glasses, binoculars, surgical loupes,¹⁶⁴ harnesses, welding goggles, SCUBA gear, infrared goggles, parachutes, Kevlar vests, and even a medieval knight's armor are examples of other kinds of wearable technologies that modify employee abilities.

But external alterations are only part of the story. Internal alterations, such as chemical and pharmacological interventions are also frequently used. Though

¹⁵⁹ Modafinil d-amphetamine is specifically marketed for narcolepsy and "shift work sleep disorder, also known as shift work disorder." Nancy J. Wesensten et al., *Performance and Alertness Effects of Caffeine, Dextroamphetamine, and Modafinil During Sleep Deprivation*, 14 J. SLEEP RES. 255, 255 (2005); *FDA Approves Cephalon's Provigil*, WORLD HISTORY PROJECT (Dec. 24, 1998), <https://worldhistoryproject.org/1998/12/24/fdaapproves-cephalons-provigil> [<https://perma.cc/8KNN-EVVP>]; see also PROVIGIL, <http://www.provigil.com> [<https://perma.cc/PAF3-DS8N>] (last visited Sept. 14, 2016).

¹⁶⁰ The chemical methylphenidate has been shown to improve problem-solving skills in healthy subjects. Mitul A. Mehta et al., *Methylphenidate Enhances Working Memory by Modulating Discrete Frontal and Parietal Lobe Regions in the Human Brain*, 20 THE J. OF NEUROSCIENCE RC65 (2000).

¹⁶¹ Molly J. Crockett et al., *Serotonin Modulates Behavioral Reactions to Unfairness*, 320 SCIENCE 1739, 1739 (2008).

¹⁶² Sebastien Tassy et al., *Disrupting the Right Prefrontal Cortex Alters Moral Judgement*, 7 SOC. COGNITION AND AFFECTIVE NEUROSCIENCE 282, 282 (2012).

¹⁶³ Hopkins & Fiser, *supra* note 29.

¹⁶⁴ "A magnifying lens mounted in a frame worn on the head, as used to examine the eyes." *Definition of Loupes by Medical Dictionary*, THEFREECTIONARY.COM, <http://medical-dictionary.thefreedictionary.com/Loupes> [<https://perma.cc/96DX-TKCD>] (last visited Sept. 11, 2016).

there is still debate on the extent of its benefits, caffeine has been shown to increase vigilance, alertness, task performance, attention, memory consolidation, athletic performance, and reduces fatigue, sleepiness, and distraction.¹⁶⁵ It is also well-tolerated and often provided for free by employers.

Caffeine is so common many do not consider it an intervention or an alteration and not really a “drug” in spite of the fact that it is a stimulant. Increasingly common, however, is the use of prescription drugs such as amphetamine/dextroamphetamine (“Adderall”) or modafinil (“Provigil”) and armodafinil (“Nuvigil”).¹⁶⁶ These substances are not typically being offered or promoted by companies, but arise more as a bottom up phenomenon. Originally marketed for narcolepsy and now for “circadian rhythm sleep disorder, shift work type,”¹⁶⁷ these medications increase alertness and are often used for reducing the need to sleep in normal individuals.¹⁶⁸ These pharmaceutical interventions could easily be used to assist in making employees more functional for critical jobs when they are faced with a job that requires being alert and awake at different times of the day, or to alleviate tiredness. As the ability to stay awake has been held as an essential job function in certain jobs,¹⁶⁹ employers can mandate that the need to stay awake be a part of the requirements.¹⁷⁰ If that requires an employee

¹⁶⁵ Daniel Borota et al., *Post-Study Caffeine Administration Enhances Memory Consolidation in Humans*, 17 NATURE NEUROSCI. 201, 201 (2014); Paulo Henrique Botton et al., *Caffeine Prevents Disruption of Memory Consolidation in the Inhibitory Avoidance and Novel Object Recognition Tasks by Scopolamine in Adult Mice*, 214 BEHAV. BRAIN RES. 254, 254 (2010); Suzanne J. L. Einöther & Timo Giesbrecht, *Caffeine as an Attention Enhancer: Reviewing Existing Assumptions*, 225 PSYCHOPHARMACOLOGY 251, 251 (2013); Astrid Nehlig, *Is Caffeine a Cognitive Enhancer?*, 20 J. ALZHEIMER’S DISEASE S85, S85 (2010); A. Smith, *Effects of Caffeine on Human Behavior*, 40 FOOD & CHEMICAL TOXICOLOGY 1243, 1243 (2002).

¹⁶⁶ “Already highly competitive places like Silicon Valley are seeing employees using these neurointerventions to compete against other companies and probably against their supernormal co-employees.” Fiser, *supra* note 84, at 475-76; *Provigil Alternative? The Rise of Modafinil Use in Silicon Valley*, PRLG (May 24, 2012), <http://www.prolog.org/11874585-provigil-alternative-the-rise-of-modafinil-use-in-silicon-valley.html> [<https://perma.cc/F9R4-DTLT>].

¹⁶⁷ “A subtype of circadian rhythm sleep disorder in which the individual exhibits a normal endogenous pattern of sleep and wakefulness, but this pattern comes into conflict with the desired pattern of sleep and wakefulness required by shift work.” *Circadian Rhythm Sleep Disorder, Shift Work Type*, ICD-10 DATA, <http://www.icd10data.com/ICD10CM/Codes/G00-G99/G40-G47/G47-/G47.26> [<https://perma.cc/K99E-YHYU>] (last visited Dec. 7, 2016).

¹⁶⁸ *The Treatment for Malpractice*, *supra* note 84, at 475-76; Hopkins & Fiser, *supra* note 29; Wesensten, *supra* note 159.

¹⁶⁹ See *Roetter v. Mich. Dep’t. of Corr.*, No. 10-1952, 2012 WL 181387, at *2 (6th Cir. Jan. 23, 2012).

¹⁷⁰ *Id.* at *5.

to take a cognitive enhancement to remain awake, then in order to keep that job, they may have to do so—for example, a physician on call at night or a surgeon working long emergency shifts.¹⁷¹ The increased commonness of these drugs, particularly among college students, has led to them often being perceived as “not a drug” at all.¹⁷²

Physical “enhancements” are also options, including “Tommy John” surgery for improving baseball pitching¹⁷³ and Lasik for acquiring better than 20/20 vision for pilots, drivers, and golfers.¹⁷⁴ In fact, some vision clinics now advertise specifically for improving vision in order that patients can get certain jobs currently unavailable to them.¹⁷⁵

2. Potential Technology: Supervision (Super-Vision¹⁷⁶)

What remains to be seen (pun intended and sticking to just one example) is how much vision could be improved by Lasik or another technology and how much of an advantage or requirement for a job this might be. While chemical enhancements can be measured, there is still a good bit of subjectivity and individualized response. Vision enhancement is more consistent, objective, and for the most part, only embeds the kinds of technologies humans already use into the body itself.

Straightforwardly improving the accuracy and clarity of vision, lens engineers have reportedly created a “bionic” contact lens implant that could make an ordinary person’s vision better than 20/20, supposedly three times better.¹⁷⁷ This

¹⁷¹ *The Treatment for Malpractice*, *supra* note 84, at 456.

¹⁷² Alan D. DeSantis & Audrey Curtis Hane, “*Adderall is Definitely Not a Drug*”: *Justifications for the Illegal Use of ADHD Stimulants*, 45 *SUBSTANCE USE & MISUSE* 31, 35 (2010).

¹⁷³ *The Treatment for Malpractice*, *supra* note 84, at 458; see Lindsay Berra, *Force of Habit*, ESPN (Mar. 23, 2012), http://www.espn.com/mlb/story/_/id/7712916/tommy-john-surgery-keeps-pitchers-game-address-underlying-biomechanical-flaw-espn-magazine [<https://perma.cc/4HCA-RX3J>].

¹⁷⁴ See Craig Bestrom & John Strege, *Eyes of the Tiger: Tiger Woods – LASIK Laser Eye Surgery*, EYE SURGERY USA (last visited Nov. 19, 2016), <http://www.eyesurgeryusa.com/eye-surgery-articles/tiger-woods-lasik-laser-eye-surgery.htm> [<https://perma.cc/FS56-ZU2A>].

¹⁷⁵ See, e.g., *Jobs You May Be Ineligible For if You Have Poor Eyesight*, CLEARVIEW VISION INSTITUTE, <http://www.clearviewinstitute.com/2014/01/jobs-you-may-be-ineligible-for-if-you-have-poor-eyesight/> [<https://perma.cc/C94G-LAW3>] (last visited Nov. 19, 2016).

¹⁷⁶ The puns here are less intended than demonstrative of how much the metaphor of sight is used in our concept of management with “supervisors”, “supervision”, and “vision statements.”

¹⁷⁷ Victoria Woollaston, *Bionic Lens Could Give You SUPER SIGHT: Implant Promises Vision Three Times Better than 20/20 – and Won’t Deteriorate Over Time*, DAILY MAIL (May 21, 2015), <http://www.dailymail.co.uk/sciencetech/article-3090934/Bionic-lens-SUPER-SIGHT-Implant-promises-vision-three-times-better-20-20-won-t-deteriorate-time.html> [<https://perma.cc/NTW7-EDZK>].

would essentially mean that what an ordinary person could make out clearly at 20 feet, someone with the bionic implant could make out clearly at 60 feet, or another way of putting it, what would be clear to an ordinary person only inches from their eyes, could be read with ease by the bionically enhanced person at 20 feet away.

Another team of researchers has capitalized on the properties of a remarkable material known as graphene to develop a method for detecting heat signatures (say of a human) without the current limitations of adjunct technology and cost.¹⁷⁸ Graphene is a hexagonal layer of carbon atoms only one atom thick. The pure carbon substance is far stronger than steel, lighter than steel, a better electrical conductor than copper, and almost transparent.¹⁷⁹ Graphene could be used in contact lenses or other light forms of night vision to grant cheap, accurate infrared detection to the wearer.

Swiss engineers have developed a type of contact lens using miniature aluminum telescopes that can interact with glasses to give the wearer telescopic/magnification abilities. As the report from the American Association for the Advancement of Science report put it, “Wink your right eye to zoom in; wink your left eye to zoom out. Those are the operating instructions for a vision-enhancing system that could be a workaround for certain kinds of vision loss—or a futuristic upgrade to human sight.”¹⁸⁰ As a telescope can be miniaturized, so can a camera. Both Sony and Google have been awarded or have pending patents for contact lenses that record what a wearer is seeing¹⁸¹ and can upload the images

¹⁷⁸ *Graphene Could Take Night-Vision Technology Beyond ‘Predator’*, AM. CHEMICAL SOC’Y (Nov. 4, 2015), <https://www.acs.org/content/acs/en/pressroom/presspac/2015/acs-presspac-november-4-2015/graphene-could-take-night-vision-technology-beyond-predator.html> [<https://perma.cc/2F6Y-BWQB>]; David Nield, *Graphene Can Create Super-Powerful Night Vision Lenses That Are Just One Atom Thick*, SCIENCEALERT (Nov. 10, 2015), <http://www.sciencealert.com/graphene-can-create-super-powerful-night-vision-lenses-that-are-just-one-atom-thick> [<https://perma.cc/62M3-Z9YK>].

¹⁷⁹ K. S. Novoselov et al., *A Roadmap for Graphene*, 490 NATURE 192, 192 (2012); David Larousserie, *Graphene – The New Wonder Material*, THE GUARDIAN (Nov. 22, 2013), <https://www.theguardian.com/science/2013/nov/26/graphene-molecule-potential-wonder-material> [<https://perma.cc/9TYC-ZBTQ>].

¹⁸⁰ Kelly Servick, *Telescopic Contact Lenses Could Magnify Human Eyesight*, SCIENCE (Feb. 13, 2015, 6:30 PM), <http://www.sciencemag.org/news/2015/02/telescopic-contact-lenses-could-magnify-human-eyesight> [<https://perma.cc/Z7TR-TFMV>].

¹⁸¹ Michelle Starr, *Sony Patents Contact Lens That Records What You See*, CNET (May 2, 2016, 8:34 PM PDT), <http://www.cnet.com/news/sony-patents-contact-lens-that-records-what-you-see/> [<https://perma.cc/2D3R-YYME>]; Scott Stump, *Sony Applies for Patent on Contact Lens Camera That Shoots Photos in a Blink*, CNBC (May 3, 2016, 1:41 PM ET), <http://www.cnbc.com/2016/05/03/sony-applies-for-patent-on-contact-lens-camera-that-shoots-photos-in-a-blink.html> [<https://perma.cc/5LKA-AS7F>]; Richard Trenholm, *After Google Glass, Google Developing Contact Lens Camera*, CNET (April 15, 2014, 11:13 PM

to other devices. Sony's patent even offers zoom, focus, aperture change, and stabilizing functions.

With vision enhancement on the horizon and easy-to-imagine vision clinics offering affordable optical upgrades, what happens when an employee whose job either requires good vision *or* could simply benefit from better vision has an accident that hurts someone? What happens when a pilot, air traffic controller, surgeon, night driver, marksman, security guard, firefighter, police officer, or drone operator misses something and gets their company or organization sued by a claimant arguing that given the foreseeability of an accident, the importance of this job, the availability of vision enhancement technology, and the demonstrated willingness of other job applicants to have contact implants, that it was negligent of the employer not to make enhancement a requirement? What happens when the plaintiff, right there in court, demonstrates the efficacy of their own bionic implants by easily reading a juror's driver license number from their wallet card from 40 feet away, and then explains how cheap and easy and useful the implant was? Extend that same sort of claim to contact lens cameras. Why did the employer not require cam-lenses for a job as important and sensitive as policing, or child-care, or financial dealings where constant recording could prevent or prove harmful action? Should the employer be found liable for not offering job applicants enhanced vision? Or liable for hiring someone who was not enhanced? Or for not including vision enhancement in the job qualifications? As a plaintiff's attorney might argue in court, if strip clubs pay for breast augmentation for their employees—a surgery far more invasive and risky than a contact implant—how can a school district not provide contacts for a bus driver responsible for the safety of our children?

V. LEGAL, MORAL, AND SOCIAL PROBLEMS AND TECHNOLOGICAL "CREEP"

Now we return to the standards used in negligent hiring cases. An employer is expected to exercise "reasonable care" in screening and monitoring employees. For a claim to be successful, the plaintiff must show the employee or agent was not fit to perform the work, the employer "knew or reasonably should have known" the employee or agent unfit, and the unfitness was the proximate cause of injury.¹⁸² As argued, however, the standards of what an employer reasonably

AEST), <http://www.cnet.com/au/news/after-google-glass-google-developing-contact-lens-camera/> [<https://perma.cc/Q37F-6WBG>]; *Google's Microcamera Contact Lens Is Coming to an Eyeball Near You*, TIME (April 15, 2014), <http://time.com/63604/google-contact-lens-patient-application> [<https://perma.cc/BV8J-KGSP>].

¹⁸² *Flaherty v. Royal Caribbean Cruises, Ltd.*, 172 F. Supp. 3d 1348, 1351 (S.D. Fla. 2016) (quoting *Smolnikar v. Royal Caribbean Cruises Ltd.*, 787 F. Supp. 2d 1308, 1318 (S.D. Fla. 2011)). See also *Doe v. Medeiros and Ellis Management Services, Inc.*, 168 F. Supp. 3d 347, 351 (D. Mass. 2016); *Franklin v. Turner*, No. 2014-CA-01006-COA, 2016 WL 1203838 at 5 (Miss. Ct. App. Mar. 29, 2016).

should have known shifts depending on the availability of information and technology and the changing expectations of how that technology should be used. Herein lies the push-and-pull conundrum of expanding technology. There is a push as new technology appears (for a wide variety of research, medical, and commercial purposes) and there is a pull as alleged victims and potential plaintiffs demand the technology (irrespective of its intended application) should be used to protect them. The overarching question here, then, is *where are the limits of this monitoring, supervision, intervention and control?*

A. *Privacy and Liberty*

Though a number of legal and moral issues could be analyzed here, privacy and liberty capture the bulk of the worries. Likely, many people reading this article would bristle at the idea of an employer following your every driving habit, from stops and starts, speed, turns complete with a full GPS map of your day (much less the other forms of monitoring and control discussed earlier).

These kinds of methods are not only widely used,¹⁸³ they have been found quite legal and do not necessarily violate an employee's legal privacy rights.¹⁸⁴ Employers have seen a major shift in the use of technological monitoring and a corresponding change in their liability from the 1990s to today. For example, with the advent of in-office internet/email use, employers have not only conducted surveillance of corporate use of technology, but have been held liable for failing to act on information contained in those databases. "No federal or state statute currently prohibits employers from monitoring their electronic workplace."¹⁸⁵ While there are some minor protections against intercepting emails contemporaneously with the third party, nothing prohibits an employer from reviewing stored data.¹⁸⁶

For example, in *Blakey v. Continental Airlines*,¹⁸⁷ a female pilot sued Continental for sexual harassment. During the litigation, other Continental employees posed defamatory and derogatory statements on the employees' online computer bulletin board accessible through CompuServe and available to all pilots and

¹⁸³ See generally David Meyers & David Patience, *Employee Monitoring with GPS, in PRIVACY IN A TRANSPARENT WORLD* 31 (Kai R. Larsen & Zoya A Boronovich eds., 2007).

¹⁸⁴ See, e.g., *Elgin v. Coca-Cola Bottling Co.*, No. 4:05CV970-DJS, 2005 WL 3050633, at *4 (E.D. Mo. Nov. 14, 2005) (holding that installing a tracking device on an employee's company car was not a substantial intrusion on the employee's privacy); *c.f.* *Tubbs v. Wynne Transport Serv.*, No. H-06-0360, 2007 WL 1189640, at *1, *10 (S.D. Tex. Apr. 19, 2007.); *Luedtke v. Nabors Alaska Drilling, Inc.*, 768 P.2d 1123, 1136 (Ala. 1989).

¹⁸⁵ William G. Porter II & Michael C. Griffaton, *Between the Devil and the Deep Blue Sea: Monitoring the Electronic Workplace*, 70 DEF. COUNS. J. 65, 66 (2003) (hereinafter *Between the Devil and the Deep Blue Sea*).

¹⁸⁶ *Id.*

¹⁸⁷ *Blakely v. Continental Airlines, Inc.*, 751 A.2d 538, 539 (N.J. 2000).

crew.¹⁸⁸ The court found that Continental's liability depended, in part, on how integrated the technology was with Continental's policies.¹⁸⁹ One significant admonition by the court was that this was not a company-run bulletin board, but it was potentially quite integrated with Continental's work activity.¹⁹⁰ While the Court did *not* state that a corporation *must* monitor email and other activity, the court did state that "it may well be in [their] best interests to adopt a proactive stance when it comes to dealing with co-employee harassment," adding that "the best defense may be a good offense."¹⁹¹ The court is certainly implying that Continental may have a duty to know of the harassment even though it was not on their own servers. The only way to cover this in the future would, of course, be to increase monitoring.

Key to many monitoring cases challenged under a right to privacy is "the expectation of privacy."¹⁹² However, keep in mind that this expectation primarily refers to the 4th Amendment limitations of the federal governments in searches and seizures.¹⁹³ It only obliquely applies to employer/employee relationships and then mostly through common law or state statutes.¹⁹⁴ Typically, when an employer provides the means of transportation, communication, or labor, the employee has little right to privacy in the use of those machines or means of work.¹⁹⁵ This is true with electronic communications¹⁹⁶ and other monitoring

¹⁸⁸ *Id.*

¹⁸⁹ *Id.* at 558.

¹⁹⁰ *Id.* at 557-558.

¹⁹¹ Porter II & Griffaton, *supra* note 185, at 68 (quoting *Blakey v. Continental Airlines*, 751 A.2d 538 (N.J. 2000)).

¹⁹² "The expectation of privacy test, originated from *Katz v. United States* is a key component of Fourth Amendment analysis. The Fourth Amendment protects people from warrantless searches of places or seizures of persons or objects, in which they have an subjective expectation of privacy that is deemed reasonable in public norms. The reasonableness standard is construed upon the totality of circumstances on a case-by-case basis. The person's precautions taken to exclude others' access are strong indicators to the expectation of privacy and might be taken into consideration by the court." *Expectation of Privacy*, CORNELL UNIVERSITY LAW SCHOOL, LEGAL INFORMATION INSTITUTE, https://www.law.cornell.edu/wex/expectation_of_privacy [<https://perma.cc/CZ49-BE9T>] (last visited Oct. 2, 2016); see also Diane Vaksdal Smith & Jacob Burg, *What Are the Limits of Employee Privacy?*, 29 GP SOLO 8, A.B.A. (2012)http://www.americanbar.org/publications/gp_solo/2012/november_december2012privacyandconfidentiality/what_are_its_employee_privacy.html [<https://perma.cc/3TZ8-VVWJ>].

¹⁹³ Privacy rights for employees of private employers are given through common law or state statutes, not the Constitution. *Cf. Katz v. U.S.*, 389 U.S. 347, 350 (1967) (stating 4th Amendment privacy applies to the government).

¹⁹⁴ See *id.* at 351.

¹⁹⁵ See, e.g., *Between the Devil and the Deep Blue Sea*, *supra* note 185, at 70.

¹⁹⁶ See, e.g., *id.*, at 66-67.

systems such as GPS data from company vehicles.¹⁹⁷ Further, the “right” to privacy is overridden when the public’s safety is concerned, for example in drug testing employees who work in dangerous occupations.¹⁹⁸

Some federal laws do place limitations on detection, monitoring, and intervention in the workplace. The ADA provides that employers shall not “discriminate against a qualified individual on the basis of disability” in the application process, in hiring, promotions, firing, compensation, training, or other employment conditions.¹⁹⁹ The ADA also prohibits an employer from conducting pre-employment medical examinations and from asking an employee about disability. However, the ADA does allow an employer to “make preemployment inquiries into the ability of an applicant to perform job-related functions.” After an offer of employment has been extended, an employer may then require a medical examination as long as the examination is job-related and consistent with any business necessity, including the ability of an employee to perform job-related functions.²⁰⁰ Further restrictions include the Genetic Information Non-discrimination Act of 2008, which prohibits employment discrimination based on an employee’s genetic information.²⁰¹ Note that these federal acts are far less about privacy directly than they are about discrimination law. While medical privacy information is shored up indirectly, the goal is to prevent employers from acquiring information they would be likely to use to for illegal discrimination.

Outside this tangential application, there would be few existing legal barriers to the technologies we have discussed. Common among states in the U.S. is the doctrine of “employment at will.”²⁰² This means that absent an employment contract or other type of agreement, employers may fire employees for “good reason, bad reason or no reason at all.”²⁰³ So, unless one of the actions of the employer violates a law such as the ADA or GINA or contains a discriminatory effect or purpose, there are few, if any, restrictions on the use of monitoring and control technology, provided employers inform employees of their policies prior to accepting the job. They may choose to continue looking for other employment or accept the loss of privacy as part of their employment.

¹⁹⁷ See, *supra* notes 183-184 and accompanying text.

¹⁹⁸ See, e.g., *Luedtke v. Nabors Alaska Drilling, Inc.*, 768 P.2d 1123, 1136 (Ala. 1989).

¹⁹⁹ Americans with Disabilities Act, 42 U.S.C. § 12112(a) (2012).

²⁰⁰ *Id.* at § 12112(d)(2)(A).

²⁰¹ Genetic Information Nondiscrimination Act, 42 U.S.C. § 2000ff (2012).

²⁰² See, e.g., Deborah A. Ballam, *Employment-At-Will: The Impending Death of a Doctrine*, 37 AM. BUS. L. J. 653 (2000); See also Paul Berks, *Social Change and Judicial Response: The Handbook Exception to Employment-At-Will*, 4 EMPL. RTS. & EMPL. POL’Y J. 231, 232 (2000).

²⁰³ *Berks, supra* note 202.

Liberty concerns follow much the same pattern. Employers have wide latitude to set the qualifications of a job as they wish and, given the contractual nature of the employer/employee relationship, can extend requirements of the job outside the actual workplace and workday—provided an employee’s behavior off the clock could have a deleterious effect on the company. Moral turpitude clauses still exist²⁰⁴ and personal social media restrictions are increasingly common.²⁰⁵ Morally speaking, the liberty “restrictions” that an employer might place on an employee are merely conditions of a contract that the employee (or potential employee) has the liberty to accept or reject.

What one can contract for is not unlimited, of course. The law deems some forms of exclusion too immoral to permit (racial discrimination, for example)²⁰⁶ and even some forms of liberty-to-contract too immoral to permit (selling body parts for example).²⁰⁷ Less formally, there is also the category of an “unconscionable” contract that would be unenforceable.²⁰⁸ Some may interpret a company requiring workers to record everything they do, or swallow ingestible drug monitors, or take non-medical eugeroics (wakefulness-promoting agents) as unconscionable, but the characterization of an unconscionable contract is more specific than simply ‘something we hate.’²⁰⁹ A contract is usually held to be unconscionable only if it is so unfair and one-sided that one party to the contract essentially has no choice in the matter and is unreasonably pressured to accept the terms—situations involving undue influence, duress, misleading, surprises, or severely limiting warranty clauses.²¹⁰ In a related sense, courts will also often

²⁰⁴ See Caroline Epstein, *Morals Clauses: Past, Present and Future*, 5 N.Y.U. J. INTELL. PROP. & ENT. L. 73 *passim* (2015).

²⁰⁵ See, e.g., Jeanne Meister, *To Do: Update Company’s Social Media Policy ASAP*, FORBES (Feb. 7, 2013, 10:45 AM), <http://www.forbes.com/sites/jeannemeister/2013/02/07/to-do-update-companys-social-media-policy-asap/#46138b4da10d> [<https://perma.cc/S79H-TCEE>]; *Acting General Counsel Releases Report on Employer Social Media Policies*, NATIONAL LABOR RELATIONS BOARD (May 30, 2012), <https://www.nlr.gov/news-outreach/news-story/acting-general-counsel-releases-report-employer-social-media-policies> [<https://perma.cc/J7VA-U8JV>]; *Social Media Policy Database*, SOCIAL MEDIA GOVERNANCE, <http://socialmediagovernance.com/policies> [<https://perma.cc/8P4A-66Y5>] (last visited Sept. 29, 2016).

²⁰⁶ See Rebecca L. Faust, *Doe v. Kamehameha Schools: What is the Proper Standard for Analyzing a § 1984 Claim?*, 34 N. KY. L. REV. 703, 704-05 (2007); George Rutherglen, *The Improbable History of Section 1981: CLIO Still Bemused and Confused*, 55 SUP. CT. REV. 303, 304 (2003).

²⁰⁷ Revised Anatomical Gift Act, 8 A U.L.A. §§11, 16, 19 (2014).

²⁰⁸ Carol Swanson, *Unconscionable Quandary: UCC Article 2 and the Unconscionability Doctrine*, 31 N.M. L. REV. 359, 368 (2001).

²⁰⁹ See *id.* at 361.

²¹⁰ See *id.*; see also Melissa T. Lonegrass, *Finding Room for Fairness in Formalism-The Sliding Scale Approach to Unconscionability*, 44 LOY. U. CHI. L.J. 1 *passim* (2012).

employ the “doctrine of reasonable expectations” in interpreting vague or ambiguous clauses in an adhesion contract to the benefit of the weaker party so that the weaker party will not be required to adhere to the interpretations of the clause that would be outside what they would have “reasonably expected” in a contract.²¹¹

In the kinds of employment contracts we have discussed here, however, none of the standard elements of unconscionability exist. There would be no undue influence, duress, misleading, etc. (at least not a result of the nature of the contract). As to the broad application of the reasonable expectations doctrine, the ironic twist here would be that—as we have argued—the dominant push for companies to utilize more extensive monitoring and control technology would be a reaction to the pull of negligent employment suits. Think back to the hypothetical situation that opened this paper. If companies started requiring fMRI scans of job applicants to detect susceptibility to alcohol abuse, what sense would it make for a court to declare that part of an employment contract unreasonable and unenforceable if another court had held a business liable for not having required the very same scans—which is why other companies started requiring the scans in the first place?

The lack of legislative restrictions may allow companies great latitude in using new techniques in selecting, monitoring, and modifying employees.. At the same time, it opens the door to affirmative use by plaintiffs in negligent employment cases. Since an employer cannot argue that there are legal restrictions on monitoring and controlling their employees, an employer cannot use “illegality” as a defense when faced with a negligence allegation that they did not sufficiently monitor or control.

B. Little Brother, not Big Brother

As a social phenomenon, increased monitoring and control unsurprisingly elicits references to “Big Brother” and Orwellian intrusions on individual liberty.²¹² To a large extent, however, 1984 allusions are misplaced. It is not so much that government or big business is proactively pushing for more and more surveillance and power as it is that they are reactively piecing together responses to litigation to protect themselves. It is the woman on the street, the man in the

²¹¹ Francis J. Mootz III, *After the Battle of the Forms: Commercial Contracting in the Electronic Age*, 4 I/S: J. L. & POL’Y FOR INFO. SOC’Y 271, 312-13 (citing *Zuckerman v. Transamerica Ins. Co.*, 650 P.2d 441 (Ariz. 1982)).

²¹² See Dave Nevogt, *Employee Monitoring Tools: The Top Ten Options*, HUBSTAFF BLOG (Jan. 19, 2015), <http://blog.hubstaff.com/10-employee-monitoring-software-options-monitor-activity/> [<https://perma.cc/T7RX-QJ92>]; see also Bruce Kasanoff, *Big Brother Venture Uses Mindfulness to Monitor Employees*, FORBES (Oct. 10, 2015, 07:29 AM), <http://www.forbes.com/sites/brucekasanoff/2015/10/10/big-brother-venture-uses-mindfulness-to-monitor-employees/#1e5db7887ea5> [<https://perma.cc/VVW8-Y6ZP>].

car, the child in the daycare, and their lawyers who will make this happen. It is Little Brother, not Big Brother, that generates much of the pressure to watch you all the time. Remember in the Uber negligent hiring case discussed above, the court said seven years of background check was not enough, denying a motion to dismiss in a case when the driver had a twelve year old offense.²¹³ What turns out to be enough is not stated, and so to be safe, Uber may have to go back as far as they can and now initiate constant monitoring. That is not what Uber wanted. Uber begged the courts to dismiss these cases and the courts said no.²¹⁴ If you are now required to submit to real-time constant monitoring at your job, it may not be your boss you should blame . . . but instead your neighbor, who insisted in their lawsuit that they were owed that level of protection from you.

VI. CONCLUSION

Every organization and system has some kind of motivational effect when it interacts with human psychology. Unintended or not, some actions will be promoted, some deterred, some outcomes more likely, some less. The structure of the negligent employment tort system in the United States is organized in such a way that there will be constant pressure to increase the amount of technology and the extent of its use by raising the standards of reasonable care. For the most part, this will not be deliberate or top-down, but piecemeal and bottom-up. Litigiousness, the vagueness of “reasonable care,” and an increasingly risk-intolerant attitude all conspire to promote the proverbial “freedom-from” environment over the “freedom-to” environment.

This is a bad system.

While a full moral and psychological analysis of problems would require another paper, suffice it to say this: a) as a general psychological rule, uncertainty creates anxiety²¹⁵ and employers who are uncertain about what counts today as reasonable care can end up constantly worried, blindsided by lawsuits, or jumping the gun with excessive care; b) a constantly challenged and perhaps shifting definition of reasonable care ends up as inconsistent, scattered, court-made law, ripe with potential for confusion; and c) an unchecked “creep” of technology use increases a sense of, and probably the reality of, a loss of personal privacy and

²¹³ Doe v. Uber Technologies, Inc., No. 15-cv-04670-SI, 2016 WL 2348296, at *10 (N.D. Cal. May 4, 2016).

²¹⁴ *Uber Technologies, Inc.*, 2016 WL at *12.

²¹⁵ Pietro Badia, et al., *Preference Behavior in an Immediate Versus Variably Delayed Shock Situation With and Without a Warning Signal*, 72 J. EXPERIMENTAL PSYCHOL. 847, 847, 850-51 (1966); Dan W. Grupe & Jack B. Nitschke, *Uncertainty and Anticipation in Anxiety: An Integrated Neurobiological and Psychological Perspective*, 14 NATURE REVIEWS NEUROSCIENCE 488, 488, 490, 496 (2013); Julie Beck, *How Uncertainty Fuels Anxiety*, THE ATLANTIC (Mar. 18, 2015), <http://www.theatlantic.com/health/archive/2015/03/how-uncertainty-fuels-anxiety/388066/> [<https://perma.cc/SP4P-RBGV>].

control.

While in no sense a full proposal here, let us introduce the kernel of at least one idea about how to address this situation—society could create a binding definition of reasonable care from a legally authorized body set up for the purpose of creating such definitions. That body would examine the current state of technology, the psychological literature on the effects of the technologies we have described here on employee’s mental states, the economic effects of both using and not using certain technologies, actual risk probabilities,²¹⁶ and public attitudes toward risk. The body would then establish a binding civil law code that would state that x, y, z, etc. count as reasonable care and anything outside that is acceptable risk.²¹⁷

Two immediate objections to such an idea would be some form of “Who’s to say what is reasonable?” and “Why limit ourselves to the standards of what will soon be old technology?”

To the first objection we would say that, often, such questions are disingenuous. They are less about determining who would actually be appropriate to make such decisions and more about creating doubt that there could be any legitimate authority, thus effectively ruling out restrictions and leaving the status quo. Furthermore, the question suggests a false dilemma. It is not the case that either someone illegitimately decides the definition of reasonable care or that no one decides. Inherent in the situation here is that someone would be suing, which means they are placing the definitional issue into a court. Therefore, some court will decide. A decision will be made as to what is reasonable. There is no option that no one will decide. So, the real answer to the question is that in a democratic society, the people decide. They can decide by setting up an official body (such as we have suggested) to analyze, assess, weigh, and rationally establish a reasonability standard or they can choose to let Little Brother and his array of attorneys, jurors, and judges make decisions case by case with its attendant complications.²¹⁸

To the second objection, we would say that the benefit of an appointed regulative body tasked with defining reasonable care—as opposed to turning the matter over to a torpid and partisan legislature—would be that the body could revisit the issue every five or ten years, or whenever an important, relevant, new technology arrives on the scene. There is no reason to become, and no necessary danger of becoming, stagnant and unresponsive. The goal here is not to ossify,

²¹⁶ For example, perhaps with enough studies we could determine that a 7-year history of no criminal activity, coupled with an fMRI which showed a low risk of recidivism is, statistically, a sufficient background check for certain positions.

²¹⁷ All this is, of course, very preliminary. We are just laying out the barest outlines of uniform approach.

²¹⁸ Or, they could create some other system.

not to dig in and ignore change. To the contrary, the goal is to be uniform, consistent, and beneficially practicable while still maintaining the flexibility and agility to rationally adapt to a new technological milieu.

None of these ideas are that unfamiliar. From tort reform and limitations on damages to the insulation of liability for hiring rehabilitated felons, our legal and legislative systems have preemptively addressed similar issues. OSHA prescribes minimal care standards for employees working in certain occupations and regularly adjusts its regulations and recommendations according to new threats and technologies.²¹⁹ The State of Tennessee has implemented a program to insulate employers of “certifiably rehabilitated felons” from negligent hiring suits under certain circumstances.²²⁰ Is it much of a leap to create an oversight or regulatory body to review the use of new technology in employment and to advise on the standard of care that should be used in various situations? Rather than relying on a court in California to determine that a twelve-year minimum background check for Uber is appropriate, wouldn’t it be preferable to have a professional organization charged with the duty of reviewing the efficacy and value of new technology standards and use? A series of uniform policies stating definitively the line employers must walk when hiring certainly seems preferable to a court deciding *post hoc* if an employer has done enough. Without such guidelines, employers will continue to face the technology creep brought on by consumers who see the newest technology as an open door to a negligent hiring suit.

There are, no doubt, other options worth considering. What is important is to recognize is the risky business (hearkening back to both negligence and employment) of our current system and to take greater control of where we are headed. We can do better than relying on Little Brother to make policy.

²¹⁹ For a sample of the discussion of OSHA’s changing standards and rulemaking, see generally Richard Braden, *Can OSHA Survive in the New International Economic Order? New Constraints on the Promulgation of Permanent Health Standards*, 14 IN PUB. INT. 121, 123-25 (1994-1995).

²²⁰ TENN. CODE ANN. §§ 40-29-107(i)(1) (2014). The law purports to partially immunize employers against negligent hiring lawsuits for employment of certifiably rehabilitated felons. *Id.* at §§ 40-29-107(k), 40-29-107(n).