
Policing with Augmented Reality

Open Access Teaching Case Developed for the Tech for Humanity Pathways Minor

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Terence is detained (and eventually arrested) when a police officer's Augmented Reality (AR) headset classifies him as a "likely offender." This fictional case explores the promise and perils of AR-enhanced policing in light of current controversies surrounding the detention and searching ("stop and frisk") of individuals—especially racial minorities—suspected of crime.

Background

The technology known as Augmented Reality has many promising applications in the areas of healthcare, education, social networking and—of particular concern here—law enforcement.

Among the many deficiencies which plague contemporary US law enforcement, perhaps the most notorious one pertains to the unequal treatment of racial minorities. Of particular concern are "racial profiling" (using a person's race to determine whether they should be detained or searched) and "racial bias" (the workings of negative stereotypes, e.g., pertaining to criminal behavior, in the minds of officers). Police unions around the country have implicitly admitted to the practice of racial profiling by opposing various legislative efforts that, since the 1990s, have sought to make profiling illegal.¹ Police bias is harder to measure, but some studies have shown that police in the US and abroad "have more racially biased and xenophobic attitudes than the population at large."²

¹David A. Harris, "Racial Profiling: Past, Present, and Future?," *Criminal Justice Magazine*, January 21, 2020, https://www.americanbar.org/groups/criminal_justice/publications/criminal-justice-magazine/2020/winter/racial-profiling-past-present-and-future/. (Accessed August 2, 2021)

²Phillip Atiba Goff and Kimberly Barsamian Kahn, "Racial Bias in Policing: Why We Know Less Than We Should," *Social Issues and Policy Review*, Vol. 6(1), 2012, p. 179

Evidence shows that racial disparities in law enforcement are widespread. For instance, “Blacks are approximately four times more likely than are Whites to be targeted for police use of force... [and] Blacks and Latinos are stopped and incarcerated at significantly higher rates than their representation in the population, particularly for drug-related crimes [and] are significantly more likely to fear unjust treatment by the police.”³ One need only look at the “Stop and Frisk” policy of the New York Police Department to get a sense of these disparities. Between 2004 and 2012, NYPD allowed its officers to “stop, interrogate and search New York City citizens on the sole basis of “reasonable suspicion.”⁴ “Reasonable suspicion” was a notoriously low bar to clear—one that allowed for considerable police discretion, intuition, and the inevitable workings of racial stereotypes. During the years Stop and Frisk was in use, NYPD stopped 4.4 million citizens, 80% of whom were Black or Latino, even though “the likelihood a stop of an African-American New Yorker yielded a weapon was half that of White New Yorkers stopped and the likelihood of finding contraband on an African American who was stopped was one-third that of White New Yorkers stopped.”⁵ New York’s Stop and Frisk policy was eventually found unconstitutional in 2013 on both Fourth and Fourteenth Amendment grounds, but it is unclear whether that finding will endure Supreme Court scrutiny, and there is little doubt among scholars and community members that racial bias and profiling persist.⁶

Despite the ruling against New York’s Stop and Frisk policy, recent US Supreme Court rulings pertaining to racial profiling by police have generally favored the police. One important ruling came from *Whren vs. United States* (1996) in which the court’s majority opinion (authored by Justice Anthony Scalia) found that “The temporary detention of a motorist upon probable cause to believe that he has violated the traffic laws does not violate the Fourth Amendment’s prohibition against unreasonable seizures, even if a reasonable officer would not have stopped the motorist absent some additional law enforcement objective.”⁷ This “additional law enforcement objective” clause implied that “an otherwise legitimate search or arrest would not

³ Goff and Kahn, “Racial Bias in Policing,” p. 178.

⁴ Taahira Thompson, “NYPD’s Infamous Stop-and-Frisk Policy Found Unconstitutional,” *The Leadership Conference Education Fund*, August 21, 2013. <https://civilrights.org/edfund/resource/nypds-infamous-stop-and-frisk-policy-found-unconstitutional/> (accessed August 2, 2021).

⁵ Thompson, “NYPD’s Infamous Stop-and-Frisk Policy...”

⁶ Joscha Legewie, “Racial Profiling and Use of Force in Police Stops: How Local Events Trigger Periods of Increased Discrimination,” *American Journal of Sociology*, 122(2), 2016: 379-424.

⁷ H.T. Greene & S.L. Gabbidon, “Whren v. United states,” in *Encyclopedia of Race and Crime* Vol. 1, 2016, pp. 901-902.

be invalidated even if an officer's decision to act was based on race."⁸ According to the *Whren* decision, the police use of racial profiling when determining probable cause concerned only the Equal Protection Clause of the Fourteenth Amendment. However, civil suits brought under the Fourteenth Amendment are notoriously difficult for plaintiffs (claimants) to win. This is because *Terry vs. Ohio* (1968) established the so-called Intent Doctrine, "which requires a claimant to trace a purported equal protection deprivation back to a discriminatory motive" in order to be considered in violation of the Equal Protection Clause.⁹ As various legal scholars attest, "(t)he difficulties of proving discrimination are likely to be insurmountable in the great majority of cases."¹⁰

The fact that the court system has proven itself lax regarding both its understanding of "probable cause" for police searches and its related prohibition of racial profiling, it seems likely that there will be few legal roadblocks to police uptake of new, potentially invasive technologies like Augmented Reality (AR) and facial recognition software.

Augmented Reality (AR) is often discussed in tandem with Virtual Reality (VR), perhaps because both rely on goggles and/or headsets to present digital information to the user's field of vision. But the two technologies are in some ways opposites—VR headsets immerse the user in a digital world that is wholly separate from the one in which their physical body is located. This can cause VR users to bump into objects in the real world that they cannot see. AR headsets allow the user to see the real world around them in "augmented" form, by inserting digital imagery into the real landscape. This can be quite amusing: "a pterodactyl might be seen landing in the trees, the dogs could be mingling with their cartoon counterparts, and the kids could be seen kicking past an alien spacecraft on their way to score a goal."¹¹ The 2016 game *Pokémon Go*, which had players find and catch digital figures (*Pokémon*), made AR a global sensation.¹² As familiarity with AR applications has become more widespread, social media

⁸ Gabriel J. Chin and Charles J. Vernon, "Reasonable but Unconstitutional: Racial Profiling and the Radical Objectivity of *Whren v. United States*," *The George Washington Law Review*, 83(3), 2015, pp. 882-941

⁹ Brando Simeo Starkey, "A Failure of the Fourth Amendment & Equal Protection's Promise: How the Equal Protection Clause Can Change Discriminatory Stop and Frisk Policies," *Michigan Journal of Race and Law*, Vol 18 (2012), p. 136.

¹⁰ Brian J. O'Donnell, "*Whren v. United States*: An Abrupt End to the Debate Over Pretextual Stops," 49 *Maine Law Review* 207 (1997). p. 233.

¹¹ "What is Augmented Reality?" *The Franklin Institute*, <https://www.fi.edu/what-is-augmented-reality>. (Accessed August 2, 2021).

¹² German Lopez, "Pokémon Go Explained: Everyone is Suddenly Catching Pokémon Fever Again. Here's What's Going On." *Vox*. August 5, 2016, <https://www.vox.com/2016/7/11/12129162/pokemon-go-android-ios-game>. (Accessed August 2, 2021).

applications (e.g., Spotselfie) have begun incorporating AR so that users located in the same physical space (detectable through GPS in their smartphones) can use smart devices to visualize one another's profiles hovering over their heads.¹³ Moreover, other AR apps can identify others in the user's physical surround even if these others are not holding GPS-bearing devices. This is accomplished through facial recognition software that immediately identifies individuals in a crowd, raising concerns that AR, combined with facial recognition, "might end privacy as we know it."¹⁴ Certainly these technologies could allow police officers to ascertain someone's identity, calling to their "field of view everything that the user knows about that person – their name, the names of their spouses and children, and so on."¹⁵ If the user is a law enforcement official with access to criminal records and other related databases, the amount of information that an officer will immediately see about each individual they glance at in a crowd will be unprecedented.

According to some enthusiasts in the US and abroad, AR-enhanced policing leads to better public safety. Dutch officials claim that police will be able to use AR "to take images, extract meaningful evidence about markers, clues, and traces, store the semantic annotations related to the crime scene, and ... could even detect license plates, recognize faces, and process fingerprints, giving you in-depth information about crime hotspots within moments."¹⁶ In the US, the FBI seems to share this optimism, arguing that AR technology will make policing more efficient by providing officers with "zoom, thermal and infrared imaging for the location and apprehension of fleeing criminals... audio and sensing devices to visualize blood pattern[s]... and software that can "accurately match voices against known criminals with speaker recognition capability."¹⁷ Theoretically, the additional information that AR can instantly provide officers about those individuals in their view could help them better discern law-abiding from

¹³ Gergana Mileva, "Augmented Reality in Social Media: The Good, The Bad, and The Ugly," *ARPost*. April 6, 2021. <https://arpost.co/2021/04/06/augmented-reality-social-media-good-bad-ugly/>. (Accessed August 2, 2021).

¹⁴ Mark Sullivan, "Face Search' Creeps People Out. But It Still Has a Future—in AR," *Fast Company*. February 14, 2020, <https://www.fastcompany.com/90463340/face-search-freaks-people-out-but-it-still-has-a-future-in-ar>. (Accessed August 2, 2021).

¹⁵ Brian D. Wassom, *Augmented Reality Law, Privacy, and Ethics Law, Society, and Emerging AR Technologies*. (Netherlands: Elsevier Science, 2014), p. 51.

¹⁶ Rebecca Pool, "Virtual and Augmented Reality Tech Joins the Fight against Crime," *SPIE: The International Society for Optics and Photonics* January 11, 2019. <https://spie.org/news/spie-professional-magazine-archive/2019-january/ar/vr-tech-joins-the-fight-against-crime?SSO=1>. (Accessed August 2, 2021).

¹⁷ Steve Seoane, "How Law Enforcement is Planning on Using Augmented Reality Technology," *GovThink: Public Policy*, <https://www.govthink.com/2019/09/how-law-enforcement-is-planning-on-using-augmented-reality-technology/>. (Accessed August 2, 2021).

law-breaking people and thus reduce the number of innocent people—ostensibly including people of color—whom officers detain and search. However, there is ample reason to worry that this technology could scale up the force and efficiency of the troubling police practices mentioned above.

Consider the case of China where use of AR by law enforcement is currently at its most advanced. In 2018, China's police began wearing "augmented-reality smartglasses that recognize facial features and license plates in near real time, checking them against a database of suspects."¹⁸ The Beijing tech company, Xloong, released an upgraded version of this AR system to the police in 2019 with glasses that allowed police to "gain access to real-time information regarding the facial, vehicle plate number and ID card of citizens from the national Chinese database."¹⁹ Xloong's system also works in tandem with some "176 million publicly and privately placed surveillance cameras"²⁰ which feed data to facial recognition software that the government claims can scan up to 2.4 Billion faces in one second.²¹ In Rongcheng City, for example, this software feeds data into a "social credit system," "wherein they get points for good deeds and get docked points for dishonest deeds"—and much of this information is ascertained through surveillance.²² "So, for example, you can earn points if you donate blood or bone marrow or if you give lessons to the neighbor's children that they need for school."²³

China's usage of AR and face recognition technologies has raised concerns among human rights activists. Human Rights Watch issued a warning about the integration of AR and big data, claiming that their use of these new technologies amounted to the state's "identifying persons who deviate from what they determine to be 'normal thought,' and then surveilling them."²⁴ Tech

¹⁸ Eric Mack, "Chinese Police Literally Use 'Skynet' Surveillance System" *CNET*, March 13, 2018, <https://www.cnet.com/news/chinese-police-wear-facial-recognition-surveillance-glasses/>. (Accessed August 2, 2021).

¹⁹ "New Smart Glasses from Chinese AR Company to Aid Police in Nabbing Suspects," *ImmersiveTechnology.com*, 2019. <https://immersive-technology.com/augmentedreality/new-smart-glasses-from-chinese-ar-company-to-aid-police-in-nabbing-suspects/> (Accessed August 2, 2021).

²⁰ "New Smart Glasses..."

²¹ Dave Davies, "Facial Recognition And Beyond: Journalist Ventures Inside China's 'Surveillance State'" *NPRRadio.com*, January 5, 2021, <https://www.npr.org/2021/01/05/953515627/facial-recognition-and-beyond-journalist-ventures-inside-chinas-surveillance-sta>. (Accessed August 2, 2021).

²² Charlie Campbell, "How China Is Using "Social Credit Scores" to Reward and Punish Its Citizens" *Time.com*. January 16, 2019. <https://time.com/collection/davos-2019/5502592/china-social-credit-score/>. (Accessed August 2, 2021).

²³ Davies, "Facial Recognition and Beyond..."

²⁴ Mack, "Chinese Police Literally Use 'Skynet'..." (2018)

journalist Kai Strittmatter notes that, "It doesn't even matter whether it's true or not, as long as people believe it ... Once you believe it's true, it's like you don't even need the policemen at the corner anymore, because you're becoming your own policeman."²⁵ Moreover, human rights-related concerns about law enforcement's use of AR extend beyond thought-policing and personal privacy; they relate to the Chinese state's usage of AR and facial recognition software to target ethno-racial minorities, such as the Muslim Uighur community, which the state deems dangerous or disruptive. One reporter for *The Washington Post* speculates, "If the system detected the face of a member of the mostly Muslim minority group, the test report said, it could trigger a 'Uighur alarm'—potentially flagging them for police in China, where members of the group have been detained en masse as part of a brutal government crackdown."²⁶ In sum, China provides an example for how police usage of AR technology could tighten state control over citizens' everyday lives and, in particular, how this technology can be turned against minority communities.

As it turns out, facial-recognition technology has shown serious imperfections in identifying people of different genders and ethno-racial minorities. One study by researchers at MIT and Stanford University found that the three commercially available facial analysis programs they tested were very good at determining the gender of lighter-skinned men (0.8% error rate); however, when it came to darker-skinned women, "the error rates ballooned—to more than 20 percent in one case and more than 34 percent in the other two."²⁷ Based on this and other studies, police forces in Boston and San Francisco have already banned the use of facial recognition technology (though not AR per se) in law enforcement because, as one Boston city council member claimed, "It has an obvious racial bias and that's dangerous."²⁸ Some facial recognition companies argue that these problems are fixable. Brian Bracken, the founder of one such company, Kairos, said that "(t)o solve the bias, the algorithms need to be supplied a more diverse set of faces to learn from, but high-quality datasets of people of color aren't always

²⁵ Davies, "Facial Recognition and Beyond..."

²⁶ Drew Harwell and Eva Dou, "Huawei Tested AI Software that Could Recognize Uighur Minorities and Alert Police, Report Says," *The Washington Post*. December 8, 2020.

<https://www.washingtonpost.com/technology/2020/12/08/huawei-tested-ai-software-that-could-recognize-uighur-minorities-alert-police-report-says/> (Accessed August 2, 2021).

²⁷ Larry Hardesty, "Study Finds Gender and Skin-type Bias in Commercial Artificial-intelligence Systems," *MIT News*. February 11, 2018,

<https://news.mit.edu/2018/study-finds-gender-skin-type-bias-artificial-intelligence-systems-0212>, (Accessed August 2, 2021).

²⁸ "Boston Bans Use of Facial Recognition Technology. It's The 2nd-Largest City To Do So," *WBUR News*, June 24, 2020. <https://www.wbur.org/news/2020/06/23/boston-facial-recognition-ban>. (Accessed August 2, 2021).

available.”²⁹ Still, even Bracken recommended against using this technology for law enforcement, a position reiterated by other critics who argue that its use will inevitably be racist: “Even if accurate, face recognition empowers a law enforcement system with a long history of racist and anti-activist surveillance and can widen pre-existing inequalities.”³⁰ That said, at present the “US has no federal regulations on facial recognition, leaving thousands of police departments to determine their own limits.”³¹

As for the future, consumers and everyday citizens can predict that facial recognition will be able to do more than identify individuals (and their ethnicity) and summon information on them from various databases. Facial recognition may also include emotion recognition. So-called “emotion AI” is already under development by, among others, the US-based company Affectiva, which hopes to harness this technology to tailor ads that bring pleasant emotions to potential customers. Through “(m)achine learning and deep learning... images and speech recognition systems ... the machines learn how to recognize and interpret a smile or change in tone of voice, for example: Is it a happy or sad smile?”³² From there, it is a short step to technologies that purport to discern “innocent” facial expressions from guilty, furtive glances, flashes of anger, and other expressions that some will claim can reveal (or predict) the commission of a crime.

In summary, scholars, innovators, activists, law enforcement and other stakeholders are increasingly attuned to a future of policing enhanced by AR (and related technologies), to the perils of AR-aided racial profiling, and to a more penetrating authoritative gaze.

Focus Questions

1) Suing the government under the Equal Protection Clause of the Fourteenth Amendment has been difficult largely because the plaintiff has had to prove that the official (usually a police

²⁹ Isabella Garcia, “Can Facial Recognition Overcome Its Racial Bias?,” *Yes Magazine*, April 16, 2020, <https://www.yesmagazine.org/social-justice/2020/04/16/privacy-facial-recognition>. (Accessed August 2, 2021).

³⁰ Alex Najibi, “Racial Discrimination in Face Recognition Technology,” *Blog, Science, Policy, Special Edition: Science Policy and Social Justice, Harvard University*, October 24, 2020. <https://sitn.hms.harvard.edu/flash/2020/racial-discrimination-in-face-recognition-technology/>. (Accessed August 2, 2021).

³¹ Alfred Ng, “Police are Using Facial Recognition for Minor Crimes because They Can,” *CNET*, October 24, 2020, <https://www.cnet.com/tech/services-and-software/police-are-using-facial-recognition-for-minor-crimes-because-they-can/>. (Accessed August 2, 2021).

³² Kai Bossen, “Emotion AI – the Artificial Emotional Intelligence,” *Dmexco (Digital Marketing Exposition & Conference)*, November 17, 2020. <https://dmexco.com/stories/emotion-ai-the-artificial-emotional-intelligence/>. (Accessed August 2, 2021).

officer) operated with “discriminatory motive” (or “intent”). Should “intent” continue to be the necessary element determining violations of Equal Protection? If we wish to lower the bar for proving violations of the Equal Protection clause, what might serve as that lower bar?

2) Leaving aside issues of law enforcement, can you think of other reasons why the spread of AR (along with facial recognition technologies) might be of special concern to minority communities?

3) If facial recognition technologies were improved such that they became equally successful at determining the identities of persons from all racial (gender, age, etc.) backgrounds, how far would that go toward alleviating concerns about this technology’s negative impact on communities of color?

Case Study

The year is 2030. One morning, Terence Macknamy, an African American man in his 30s who had served two years in prison for drug possession, spotted a police car across the street from the convenience store he was exiting. That morning had marked the eight week of Macknamy’s parole, and he was just getting his life in Provo, Utah back together when Officer Marilyn Townshend stopped him. She was courteous, but her tone was no-nonsense from the moment she approached him. He worried that if he didn’t behave in a certain way, the officer would panic and kill him. “I’m not carrying any weapons,” he told her preemptively, and he followed her instructions to the letter, producing his driver’s license when she told him, turning around when she told him, and even holding perfectly still as she body searched him. While Terence had been on edge from the moment he spotted the patrol car, he kept himself composed, telling himself that there was nothing to find, so he would be fine.

Officer Townshend had stopped Macknamy because, “You came up as a ‘probable offender’ through the ARALE system,” she said while tapping her eyeglasses. ARALE was short for Augmented Reality Assisted Law Enforcement, a combination of hardware (her eyeglasses) and several software applications. ARALE’s foundational software was a facial recognition system. The tiny cameras in the officer’s glasses communicated with multiple databases housing the headshots of many people that Provo police contacted. If ARALE couldn’t determine the person’s identity, it was usually because that individual was a child or an undocumented immigrant. ARALE didn’t just identify the individual in the officer’s field of vision; it made use of a

second application that analyzed that individual's facial "micro-expressions" and bodily movements to surmise their emotions—anger, anxiety, guilt, etc.. ARALE coordinated the individual's conjectured emotion with information from several background checks. In less than five seconds, ARALE could retrieve and integrate data about an individual's criminal records, place of residence, marital status, bank accounts/credit ratings, medical records, and employment history. The officer using the glasses didn't see all of these data, much of which was confidential. The officer saw only the synthesis of all that data, which the system presented as a color-coded classification. Each individual in the officer's field of vision appeared with a digitally superimposed halo around their head: Green for "unlikely offender, yellow for "possible offender" and red for "probable offender." According to Utah's case law precedent, a classification of red gave an officer probable cause to detain and search an individual.

While Macknamy had thought he would be fine, it turned out that the jacket he had plucked from his closet that morning held one of his old glass marijuana pipes in its side pocket. Macknamy hadn't smoked pot since before he had been caught with methamphetamine. And, anyway, an empty pipe was legal, right? They sold them at head shops all over, right? Wrong. Officer Townshend informed Macknamy that, according to the Utah Drug Paraphernalia Act of 1981³³ pipes were considered drug paraphernalia if they contained evidence of "any residue of a controlled substance on the object" or if the owner "had any prior convictions." It was only a Class B Misdemeanor (maximum fine of \$1000 and maximum jail time of six months), but it was a violation of Terence's parole. He would have to serve out the remaining three years of his five-year sentence. Five years for possessing methamphetamine on his person (actually, six months for possession and an additional four-and-a-half years for holding it while being in the wrong place, "an amusement park... open to the public," according to the Utah Controlled Substances Act of 2021).³⁴ Macknamy had just gone back to prison when his son was born in Salt Lake City, a child whom he would not know, let alone parent, until he was released three years later.

After Macknamy had served his sentence in full, he was contacted by an attorney who asked if he wanted to be part of a federal class action "Section 1983" lawsuit against the Provo Police Department for violation of the class members' Fourth (unlawful search) and Fourteenth (unlawful imprisonment and the "Equal Protection Clause") Amendment rights. The plaintiff class

³³ "Chapter 37a: Utah Drug Paraphernalia Act" *Utah State Legislature*, Chapter 101, 2011, https://le.utah.gov/xcode/Title58/Chapter37A/C58-37a_1800010118000101.pdf. (Accessed August 2, 2021).

³⁴ "Chapter 37a," 4(a)iv

consisted of non-white persons who had suffered any loss of livelihood resulting from “illegal searches” motivated by racial bias. It would seem that further evaluation of the ARALE system had determined that its identification of individuals by photo, as well as its conjecture of their emotional states, were differentially successful across ethno-racial groups. ARALE’s subject identification software was 99.7% accurate for Caucasians, 94.3% accurate for Latinos, 92.2%, and 87% accurate for Asians and Pacific Islanders, and 86.7% accurate for people from the Middle East. ARALE’s ability to accurately determine an individual’s emotion from their facial expressions and bodily movements showed a similar pattern of racially differentiated (in)accuracy. Moreover, in the case of emotion-guessing, the software’s patterns of error tended toward “false positives,” that is, the system over-ascribed criminal emotions (fear, guilt, anger, etc.) to African Americans and Latinos. In the case of Caucasians, Asians and people from the Middle East, ARALE’s bad guesses fell randomly between false positives and false negatives. The Plaintiff’s attorney argued that ARALE’s racially differentiated ability to identify individuals and individuals’ emotions constituted prima facie evidence of police discrimination in all cases where suspects were of non-White ancestry.

The Attorney General defending the Provo Police Department made the following five arguments: 1) There was no evidence indicating that ARALE’s designers had intentionally biased the system’s identification and emotion-recognition applications to the detriment of people of color; 2) None of the data retrieved from ARALE indicated that the system had misidentified any of the individuals in the plaintiff class and so the system’s racially-differentiated identification ability was irrelevant to the suit; 3) That there was no way to determine whether ARALE’s specific assessments of the emotional states of those comprising the plaintiff class (at their times of arrest) were inaccurate; 4) Even for those ethno-racial groups for whom ARALE showed the least accuracy, its ability to predict “offenders” (people found to be in possession of drugs or weapons) superseded that of trained professionals—and thus the Provo Police Department would be perpetuating racism were it not to use ARALE, relying only on officers’ human abilities; 5) Use of ARALE was of general benefit to poor people and people of color because it reduced the false arrests and police aggression resulting from officers’ racial biases. Indeed, since ARALE’s implementation, the frequency of violent encounters between the police and suspected persons from all ethno-racial groups had diminished, as had the frequency of police shootings of unarmed suspects of all races. Thus, once again, it was argued that the Provo Police Department would be perpetuating racism were it not to use ARALE.

The Plaintiff's Attorney rebutted the Defense's arguments one by one, claiming that: 1) The "demonstrable intent" standard required to prove racial bias in Fourteenth Amendment cases was met in this case, because the Provo Police Department had access to the evaluation of the ARALE system—including its racially-differentiated capabilities—and thus its continued use of the system did constitute intent to perpetrate racist bias in its policing; 2) Even if ARALE had correctly identified all of the plaintiffs in the class action, the fact that its identification errors were racially disparate indicated that the system as a whole had racial biases built into its functioning, and therefore these biases were likely operative in the system's classification of the plaintiffs as "probable offenders;" 3) Given that the accuracy of ARALE's emotion AI could not be determined in individual cases, one must assume that there are some cases in which it is racially biased either by design or by circumstance; 4) The fact that ARALE typically outperformed human police with respect to racially-differentiated errors reflected only its relative merit, not its absolute merit. In absolute terms, the system remained guilty of racial bias and thus violated the Equal Protection Clause of the Fourteenth Amendment; 5) ARALE's outperformance of human officers in the area of false arrest did not absolve it of racist bias any more than "a Klansman who lynches fewer people than his predecessor is absolved of murder."

The judge found in favor of the plaintiff. Her decision stated that the Provo Police Department's failure to take immediate action to suspend use of ARALE after the evaluations had revealed the system's biases constituted evidence of intent to violate the plaintiffs' Fourteenth Amendment rights. Judgement was awarded for the plaintiff class in the sum of \$50 million, which eventually translated into \$300,000 for Terence Macknamy and his family.

Focus Questions

- 1) What circumstances might cause an "emotion AI" (like the one ARALE uses) to misread a person's emotional state or to reach the wrong conclusions about the link between a person's emotional state and their commission of a criminal act? Consider that Macknamy saw the police car before the officer saw him.
- 2) What do you make of the Attorney General's attempt to "flip the script" by arguing that it would be racist for the Provo Police Department to substitute ARALE's superior judgment for (biased) human officer judgment?

3) Was the judge right to conclude that the Provo PD’s knowledge of ARALE’s shortcomings (i.e., its racially-differentiated capabilities) constituted proof of the PD’s intent to perpetuate racism through continued use of ARALE?

Discussion Questions

- 1) Assuming that AR-enhanced policing could somehow be made to improve law enforcement without reproducing racial discrimination, would we want to have it, or would it bring other side-effects that wouldn’t be worth it?

Recall the comments that the journalist Kai Strittmatter made in relation to China’s use of AR policing: “Once you believe it’s true, it’s like you don’t even need the policemen at the corner anymore, because you’re becoming your own policeman.” These remarks echo the arguments posed by the French philosopher, Michel Foucault, in his work on the “panoptic power” of modern society. Foucault’s argument tracks two major historical shifts in the modality of social control seen in Western societies during the last two hundred years. The first shift saw a diminished use of torture and dungeon-confinement to punish people and an increased use of corrective sequestration, i.e., rehabilitation, of “abnormal” people in a new type of building—the “panopticon”—that featured a central control tower from which guards could observe confined people and correct their deviant behavior. Foucault writes that, at a certain point, the presence of the guard becomes gratuitous as those confined internalize the norms of the institution. The second shift saw the spread of ever-watchful, panoptic power outside of those buildings, generalizing the “gaze” of authority throughout normal social landscapes—think about those electronic signs that tell you how fast you’re going. In this way, we are now living with an “infinitesimal distribution of power” in our daily lives that pushes dominant ideas and morals deeper into people’s hearts and minds.³⁵ Eventually, we come to regard those ideas as originating from within ourselves rather than being pushed on us from the outside: hence, “you don’t even need the policeman anymore.”

On the other hand, have Foucault (and Strittmatter) failed to anticipate the dangers of criminality in a high-tech society, dangers that might necessitate AR (and other intrusive) policing? This is the argument that philosopher Nick Bostrom develops in his “vulnerable

³⁵ Michel Foucault, “Panopticism,” in *The Foucault Reader*; Paul Rabinow ed. (New York: Pantheon Books, 1984), p. 207.

worlds hypothesis”. Bostrom, who directs Oxford University’s Future of Humanity Institute, hypothesizes that “there is some level of technology at which civilization almost certainly gets destroyed unless quite extraordinary and historically unprecedented degrees of preventive policing and/or global governance are implemented.”³⁶ For instance, someone might invent a “DIY biohacking tool that might make it easy for anybody with basic training in biology to kill millions.”³⁷ Bostrom acknowledges that the sort of policing needed to avoid the destruction of civilization would likely amount to a totalitarian nightmare. So he argues that we need to build just that sort of surveillance system but not turn it on until we absolutely need it: “turnkey totalitarianism.”³⁸ Bostrom hopes that once the turnkey-activated totalitarian state eliminates the threat, we can deactivate it, putting it on standby once again. Bostrom acknowledges that once the totalitarian genie is out of the bottle it may be very hard to shove it back in... though he might have added that we don’t all bear such a risk equally: Jews, African Americans and other historically persecuted minorities might be less willing to run that risk.

How then do we balance the risks of increasingly panoptic policing that go with AR with the existential risks that some say warrant “turnkey totalitarianism”?

- 2) Perhaps this whole conversation about preventing AR policing is outdated because the proverbial horse is already out of the barn. If so, should our focus be on how citizens—especially minority citizens—might utilize technologies like AR to protect themselves from the surveillance state?

There are several technologies that civilians already use to counter police surveillance. The ubiquity of smartphones with video cameras has created a kind of reverse-panopticism that puts a thousand eyes on state authority, exposing police officers’ actions to public scrutiny—as the recording of George Floyd’s murder at the hands of Officer Derek Chauvin so famously exemplifies. Even before these recording technologies were in use, ordinary citizens in many states were allowed to affix radar detection devices to their dashboards that alerted them to a nearby officer’s

³⁶ Nick Bostrom, “The Vulnerable World Hypothesis,” *Global Policy Volume* 10(4), 2019, p. 457.

³⁷ Bostrom, “The Vulnerable World...,” p. 455.

³⁸ Bostrom, “The Vulnerable World...,” p. 470.

speed-measuring radar.³⁹ Both examples provide legal precedent for some form of “counter-AR” technology to be deployed against the police.

A good counter-AR system would make visible to civilians the records of individual police officers regarding misconduct, excessive force, etc.. One can imagine such data synthesized visually, perhaps as a color-coding (e.g., red for “rights-violator”) that would appear over the officer’s head. This could backfire by giving rise to added citizen anxiety, but it might also change the behavior of detained persons, bystanders and fellow officers in ways that could help deter police brutality and killings. To return to the example of George Floyd, consider that Derek Chauvin already had eighteen complaints filed against him “and a reputation for aggression, according to police records.”⁴⁰ If that information were made publicly available and used to code him “red” on AR displays worn by the bystanders who filmed the event and even his fellow officer on the scene (Tou Thao), could Floyd have survived? Would the bystanders have implored Officer Thao to intervene on Floyd’s behalf? Would the firefighter who begged the officers to check Floyd’s pulse have been more insistent, even threatening to testify against Chauvin if he didn’t let up? Would a “red” halo over Chauvin provide legal justification for bystanders to pull Chauvin’s knee from Floyd’s neck?

- 3) Leaving aside both policing and racism, what implications might the sheer ubiquity of AR as a civilian technology have for interpersonal empathy?

AR increases our knowledge of anonymous others’ lives, just like reading their social media profile does. AR might provide a heads-up display of strangers’ networked others, their parents, children, friends and other contacts. What if, for every stranger we encountered in the street, we also saw floating above them the images of their mothers, children, siblings, and other dependents? Would that make us less likely to shove them on the subway or ridicule them? Would it make the police less aggressive? In sum, might AR help us to imagine others as socially embedded and therefore as valuable members of their community?

³⁹ Yourmechanicm, “Radar Detector Rules for All 50 States,” *Autoblog.com*, September 2, 2016, <https://www.autoblog.com/2016/09/02/radar-detector-rules-for-all-50-states/>. (Accessed August 2, 2021).

⁴⁰ Michelle Mark, “18 Complaints in 19 Years, and a Murder Charge: What We Know about Ex-Minneapolis police Officer Derek Chauvin,” *Business Insider Australia*, June 10, 2020, <https://www.businessinsider.com.au/derek-chauvin-minneapolis-police-background-life-2020-6>. (Accessed August 2, 2021).

Conversely, might the pressure to curate one's own AR profile intensify some of the negative consequences that social media has had on many in our society? Several studies show a "positive association between social media use and anxiety"—especially among young adults.^{41,42} Could this problem be compounded by AR use that essentially introduces social media-related anxieties into the everyday physical world, such that there is no escape from the sort of impression management pressures that we once confined to our screen lives? If so, the desired increase in interpersonal empathy suggested in the prior paragraph could fail to materialize as people become increasingly self-focused in physical, interactional space.

How can we harness AR's empathy-building capacity without becoming obsessed with the management of our AR profiles?

⁴¹Anna Vannucci and Christina McCauley Ohannessian, "Social Media Use and Anxiety in Emerging Adults," *Journal of Affective Disorders*, Vol. 207 (2017): 163-166.

⁴²Anca Dobrean and Costina-Ruxandra Pășărelu, "Impact of Social Media on Social Anxiety: A Systematic Review," *Intechopen*, December 7, 2017, <https://www.intechopen.com/chapters/52275>. (Accessed August 2, 2021).