

NOTE

Sloshing Through the Factbound Morass of Reasonableness: Predictive Algorithms, Racialized Policing, and Fourth Amendment Use of Force

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ABSTRACT

The Supreme Court developed the Fourth Amendment doctrine of reasonableness during a time before big data technology had lent itself to powerful algorithms that police could use to predict the likelihood of criminal activity. Now, police are able to use presumably “objective” algorithms that assign individuals dangerousness scores based on racially- and socioeconomically-skewed information—such as contacts with the criminal system—with little transparency around how they work. With the rise in popularity of these algorithms, it is imperative to answer what, if any, Fourth Amendment protections against police use of force remain. In the context of persistent police brutality against people of color, primarily poor Black communities, it is unclear how the Fourth Amendment use of force doctrine will protect against law enforcement using these algorithms to make decisions. This Note describes how the current Fourth Amendment reasonableness standard will treat

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predictive policing algorithms. The Note then explains why this treatment would not allay the concerns surrounding predictive policing and suggests how the Court can start to adapt existing doctrine to better accommodate big data technology and predictive algorithms.

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INTRODUCTION

At around 10:45 p.m. on October 3, 1974, Officer Elton Hymon, responding to a “prowler inside call,” went to the back of a house to investigate and noticed somebody running across the backyard.¹ Hymon was “reasonably sure” that the fleeing individual, Edward Garner, was not armed.² Despite this, as Garner began to climb the fence of the backyard in an attempt to escape the police, Hymon shot him in the back of the head, killing him.³ The Supreme Court held in *Tennessee v. Garner*⁴ that a police officer could not use deadly force

1 *Tennessee v. Garner*, 471 U.S. 1, 3 (1985). The woman who called said that she suspected somebody was breaking in next door because she heard the sound of shattering. *Id.* When he went to the back of the house, Hymon saw Edward Garner with his flashlight. *Id.*

2 *Id.*

3 *Id.* at 4.

4 471 U.S. 1 (1985).

against a person unless the officer has “probable cause to believe that the [individual] poses a significant threat of death or serious physical injury.”⁵ The Court pointed out that Garner was “young, slight, and unarmed” and could not possibly have been considered a threat, even if he was committing a burglary.⁶ As such, Officer Hymon’s use of deadly force was unjustified.⁷ This decision was one of two that established the modern-day doctrine of reasonable use of force.⁸

The *Garner* decision, however, was before the time of big data and predictive policing. Predictive policing is the use of algorithms that find patterns in large data sets in order to make predictions related to the future likelihood of criminal activity.⁹ The predictive policing algorithm behind Chicago’s Strategic Subject List (“SSL”), for example, relies on information about age, various aspects of one’s criminal record, and whether one has been a victim of a crime.¹⁰ The algorithm whittles this information down to one number: a “risk-assessment” score that determines the likelihood of somebody being involved in a shooting or murder, either as a victim or a perpetrator.¹¹

But whether police treat individuals as equally likely to be victims or perpetrators remains a mystery. And now that police can view individuals’ SSL scores on their dashboards when they are patrolling the streets,¹² there is an obvious danger that these scores taint how the police view their interactions with young, Black¹³ teenagers who are

⁵ *Id.* at 3.

⁶ *Id.* at 21.

⁷ *Id.* at 20–21.

⁸ The other case is *Graham v. Connor*, 490 U.S. 386 (1989).

⁹ See *infra* Section I.A for a more comprehensive explanation of predictive policing algorithms and how they work.

¹⁰ These are the factors listed in the spreadsheet that the Chicago Police Department released to the public after much pressure from activists, lawyers, and community members. See *Strategic Subject List*, CHI. DATA PORTAL (Dec. 7, 2017), <https://data.cityofchicago.org/Public-Safety/Strategic-Subject-List/4aki-r3np/data> [<https://perma.cc/BF33-6Y46>]; *infra* notes 44–47 and accompanying text. The algorithm also takes into account the individual’s associations, such as who that individual gets arrested with and what that person’s “risk-assessment” score is. See Josh Kaplan, *Predictive Policing and the Long Road to Transparency*, SOUTH SIDE WKLY. (July 12, 2017), <https://southsideweekly.com/predictive-policing-long-road-transparency/> [<https://perma.cc/5ZUJ-Y662>].

¹¹ See Mick Dumke & Frank Main, *A Look Inside the Watch List that Chicago Police Fought to Keep a Secret*, CHI. SUN-TIMES (May 18, 2017, 9:26 AM CDT), <https://chicago.suntimes.com/news/what-gets-people-on-watch-list-chicago-police-fought-to-keep-secret-watchdogs/> [<https://perma.cc/W6FQ-UVZR>].

¹² Kaplan, *supra* note 10.

¹³ The capitalization of “Black” is a conscious decision on the part of the author. While terms for race are generally not capitalized in major publications, there has been an informal push to treat Black as a proper name for a “nationalities, peoples, races, tribes,” which are

saddled with a high-risk score. Of the 153 anonymized individuals that the Chicago Police Department’s algorithm assigned the highest risk score of 500, about 89% of them were Black (136), 12 were Hispanic white, and 5 were non-Hispanic white.¹⁴ All but five were men, and 128 of them were below the age of 20.¹⁵ These are Black teenagers and young adults—the exact demographic of people who are also at the highest risk of being subject to police violence.¹⁶

Given the prevalence of implicit racial bias against Black individuals and with algorithms to sanction that implicit bias with a stamp of objectivity, police use of force when confronting racial minorities can escalate in even the most innocuous of circumstances.¹⁷ As these algorithms are used more and more, police could rely on them to justify their decision-making, wearing down Fourth Amendment protections and justifying racial policing under the guise of “objective” data analysis. At best, the “reasonableness” standard must reaffirm the need for more particularity rather than a general “dangerousness” assessment when analyzing big data-driven policing decisions. At the least, the algorithms that are otherwise shrouded in secrecy because of intellectual property concerns must be widely available for assessment, not just by institutions but by the communities that are most impacted.

This Note argues that the Court should reinforce the need for particularized facts when applying reasonableness analysis in use of

capitalized. See Lori L. Tharps, *The Case for Black with a Capital B*, N.Y. TIMES (Nov. 18, 2014), <https://www.nytimes.com/2014/11/19/opinion/the-case-for-black-with-a-capital-b.html> [https://perma.cc/HJT3-YUKD]. In order to respect this position, the author has chosen to make this stylistic choice throughout this Note.

¹⁴ *Strategic Subject List*, *supra* note 10. The risk scores are based on data gathered between August 2012 and July 2016. *Id.*

¹⁵ *Id.*

¹⁶ See, e.g., Maggie Fox, *Police Killings Hit People of Color Hardest, Study Finds*, NBC NEWS (May 8, 2018, 6:30 PM), <https://www.nbcnews.com/health/health-news/police-killings-hit-people-color-hardest-study-finds-n872086> [https://perma.cc/W76S-QA4T] (“[P]olice violence disproportionately impacts young people, and the young people affected are disproportionately people of color.”); Olga Khazan, *In One Year, 57,375 Years of Life Were Lost to Police Violence*, ATLANTIC (May 8, 2018), <https://www.theatlantic.com/health/archive/2018/05/the-57375-years-of-life-lost-to-police-violence/559835/> [https://perma.cc/544G-ETE2] (“Young people and people of color were disproportionately affected . . . Whites also tended to be killed by police at older ages than African Americans and Hispanics . . .”); Jon Swaine & Ciara McCarthy, *Young Black Men Again Faced Highest Rate of US Police Killings in 2016*, GUARDIAN (Jan. 8, 2017, 7:00 PM), <https://www.theguardian.com/us-news/2017/jan/08/the-counted-police-killings-2016-young-black-men> [https://perma.cc/8JXL-WA9K] (“Black males aged 15–34 were nine times more likely than other Americans to be killed by law enforcement officers [in 2016] . . . They were also killed at four times the rate of young white men.”).

¹⁷ See *infra* Section I.B.2 for a detailed discussion of racial and socioeconomic bias and its role in predictive policing algorithms.

force cases that involve person-based predictive policing algorithms, especially given the racialized nature of such cases and the policing data that is used in such algorithms. Section I.A of this Note describes broadly how predictive policing algorithms work and the rising trend of city police departments using these algorithms in their day-to-day operations. Section I.B explains the various concerns with predictive policing that lawyers, activists, and community members have raised. Namely, this Note addresses the lack of transparency surrounding how these algorithms work and what kinds of data go into them as well as the fact that the data that is known to be used is inherently racially and socioeconomically biased. Section I.C of this Note describes the Fourth Amendment body of law that serves as the backdrop and foundation of present-day reasonable use of force doctrine. This Note then analyzes, in Part II, the impact predictive policing would have on this doctrine. This Note illustrates how that impact can distort Fourth Amendment protections and why that is a problem given the racialized nature of police violence and the algorithms themselves. Finally, Part III proposes a way to interpret the reasonableness doctrine to account for developing technology without overturning the entire body of law that contributes to it. Specifically, Part III reaffirms the need for particularized facts—a need that underlies most Fourth Amendment protections—in a big data world in order to avoid the overgeneralizing nature of predictive policing algorithms and “risk assessments.”

I. BIG DATA AND PREDICTIVE POLICING ALGORITHMS

“Big data” refers to large data sets that are collected and analyzed for the purpose of finding patterns or insights.¹⁸ Such analyses can reveal correlations, though not causations, between different variables.¹⁹ Big data analyses are done in numerous contexts: by city officials and engineers looking at crash data to make highways safer,²⁰ by companies looking to make their advertising targeted to their customers,²¹ and by scientists and researchers in public health and epidemiol-

¹⁸ ANDREW GUTHRIE FERGUSON, *THE RISE OF BIG DATA POLICING* 8 (2017).

¹⁹ *Id.* at 9.

²⁰ *E.g.*, Skip Descant, *How Utah Uses Big Data to Make Highways Safer*, GOV'T TECH. (Aug. 28, 2018), <http://www.govtech.com/fs/How-Utah-Uses-Big-Data-to-Make-Highways-Safer.html> [<https://perma.cc/T6M9-ZLZZ>].

²¹ *See, e.g.*, Kristin Broughton, *Citizens Bank Mines Big Data to Drive Loan, Deposit Growth*, AM. BANKER (Sept. 26, 2018, 10:00 PM), <https://www.americanbanker.com/news/citizens-bank-mines-big-data-to-drive-loan-deposit-growth> [<https://perma.cc/478T-LGPOQ>]; Louis Columbus, *Ten Ways Big Data is Revolutionizing Marketing and Sales*, FORBES (May 9, 2016,

ogy.²² The results of such analyses obtained through algorithms are called “mechanical predictions,” in contrast to “clinical judgments” that are based on the subjective judgement of the person analyzing a given data set.²³

In criminal law, big data analyses are being used to guide decision-making that has historically been made based on the past experiences, training, and common sense of the key players in the system, such as law enforcement and judges.²⁴ For example, judges are increasingly using data-driven predictions of individual defendants’ risk of reoffending as factors in pretrial release determinations²⁵ and when crafting sentences.²⁶ For law enforcement, big data analyses can be used to predict likely targets of police intervention—termed “predictive policing.”²⁷

Law enforcement across the country is increasingly using predictive policing algorithms to predict who may be a likely perpetrator or victim of a crime, or even where and when a crime will occur, in order

2:56 AM), <https://www.forbes.com/sites/louiscolumnbus/2016/05/09/ten-ways-big-data-is-revolutionizing-marketing-and-sales/#cafff7521cff> [<https://perma.cc/5VUQ-P94H>].

²² See Michael S. Malone, *The Big-Data Future Has Arrived*, WALL STREET J. (Feb. 22, 2016, 6:47 PM), <https://www.wsj.com/articles/the-big-data-future-has-arrived-1456184869> [<https://perma.cc/7DMB-TY9G>].

²³ Clinical predictions come from data-analyzing methods that involve expert judgement and subjective, often experiential, knowledge, whereas mechanical predictions are the results of statistical, actuarial, or algorithmic methods of data analysis. Ric Simmons, *Quantifying Criminal Procedure: How to Unlock the Potential of Big Data in Our Criminal Justice System*, 2016 MICH. ST. L. REV. 947, 952; see also William M. Grove et al., *Clinical Versus Mechanical Prediction: A Meta-Analysis*, 12 PSYCHOL. ASSESSMENT 19, 19 (2000). In the context of policing, an officer relying on his expert judgement and prior experiences would be a type of clinical judgement. There has been a shift toward favoring mechanical predictions over clinical predictions, especially in the early part of the 20th century. See Andrew Guthrie Ferguson, *Policing Predictive Policing*, 94 WASH. U. L. REV. 1109, 1117–18 (2017).

²⁴ See Simmons, *supra* note 23, at 949, 954–57.

²⁵ See PRETRIAL JUSTICE INST., PRETRIAL RISK ASSESSMENT 2 (2015), [http://www.pacenterofexcellence.pitt.edu/documents/Issue_Brief-Pretrial_Risk_Assessment_\(May_2015\).pdf](http://www.pacenterofexcellence.pitt.edu/documents/Issue_Brief-Pretrial_Risk_Assessment_(May_2015).pdf) [<https://perma.cc/ME2J-4XB6>].

²⁶ Sonja B. Starr, *Sentencing, by the Numbers*, N.Y. TIMES (Aug. 10, 2014), <https://www.nytimes.com/2014/08/11/opinion/sentencing-by-the-numbers.html> [<https://perma.cc/XF4X-MY23>].

²⁷ See WALTER L. PERRY ET AL., PREDICTIVE POLICING (2013), https://www.rand.org/content/dam/rand/pubs/research_reports/RR200/RR233/RAND_RR233.pdf [<https://perma.cc/5TP4-DMW6>]. Predictions have always been a necessary component to policing, with data-driven prediction studies tracing back to the 1920s when they were applied in the context of parole recidivism at the Chicago School of Sociology. See Ferguson, *supra* note 23, at 1117–18. The rising trend of predictive policing corresponds more to the development of technology and big data analysis that shifts predictions from “clinical” to “mechanical,” that is, from the hands of officers to computer algorithms. *Id.* at 1123.

to assist traditional police decision-making.²⁸ These algorithms look at patterns that emerge from data such as historical crime information, 911 calls, geographical features of an area that increase risk of crime, and contacts with the criminal system.²⁹ Additionally, these algorithms examine aspects of criminal records such as information on arrest, probation, parole, incident reports, incidents of being a victim of a crime, and individuals' age and association with other people on the list.³⁰ Predictive policing is being implemented in cities such as Los Angeles, Chicago, New Orleans, and New York³¹—in fact, one-third of all cities in the country have either considered using or are currently using predictive policing.³²

A. *Predictive Policing Algorithms: An Overview*

Predictive policing algorithms are broadly of two types: place-based predictive policing and person-based predictive policing.³³ Place-based predictive policing is the identification of certain areas that pose a higher likelihood of being the location of a particular type of crime, allowing law enforcement to patrol those areas with more targeted frequency with the hope of deterring criminal behavior.³⁴ Such algorithms factor in a combination of locations and times of particular crimes, arrests, incident reports, and calls in order to find geographic patterns of what areas have a higher likelihood of crime occurring and allow law enforcement to allocate resources accord-

²⁸ Justin Jouvenal, *Police Are Using Software to Predict Crime. Is It a 'Holy Grail' or Biased Against Minorities?*, WASH. POST (Nov. 17, 2016), https://www.washingtonpost.com/local/public-safety/police-are-using-software-to-predict-crime-is-it-a-holy-grail-or-biased-against-minorities/2016/11/17/525a6649-0472-440a-aae1-b283aa8e5de8_story.html [https://perma.cc/8422-H92G].

²⁹ PERRY ET AL., *supra* note 27, at xv–xvii.

³⁰ *Id.*; see also Kaplan, *supra* note 10, at 4.

³¹ Dave Collins, *Various Cities Predictive Policing Systems Face Lawsuits*, EFFICIENTGOV (July 5, 2018), <https://efficientgov.com/blog/2018/07/05/various-cities-predictive-policing-systems-face-lawsuits/> [https://perma.cc/CR2F-9SSG].

³² Kenneth Coats, *The Future of Policing Using Pre-Crime Technology*, FORBES (Aug. 14, 2018, 7:00 AM), <https://www.forbes.com/sites/forbestechcouncil/2018/08/14/the-future-of-policing-using-pre-crime-technology/#76796c2b64a1> [https://perma.cc/G9AD-U6VC]. A 2012 survey found that only about 38% of responding police departments were using predictive policing algorithms at that time, but 70% expected that they would implement such algorithms in the next two to five years. CMTY. ORIENTED POLICING SERVS., U.S. DEP'T OF JUSTICE ET AL., *FUTURE TRENDS IN POLICING 3* (2014), https://www.policeforum.org/assets/docs/Free_Online_Documents/Leadership/future%20trends%20in%20policing%202014.pdf [https://perma.cc/TP39-ZFLR].

³³ See FERGUSON, *supra* note 18, at 35, 62.

³⁴ See *id.* at 62.

ingly.³⁵ For example, Los Angeles’s predictive policing algorithm, PredPol, allows police officers to view on a map which areas are likely to host what kinds of criminal activity based on large swaths of information collected over decades.³⁶ Most police departments use place-based predictive policing algorithms.³⁷

Person-based predictive policing, a more recent development, is the identification of individuals who have a higher likelihood of being involved in a crime.³⁸ Such predictive policing algorithms analyze information from existing criminal records, associations, and trends in criminal activity in order to assign risk scores to individuals.³⁹ These scores are then applied to arrested suspects to determine who will be the target of proactive police intervention, ranging from home visits to police surveillance.⁴⁰ For example, the software used by the New Orleans police department used data from social media and criminal databases to predict the likelihood of individuals being perpetrators or victims of violence.⁴¹ The New Orleans police department would then

³⁵ Andrew Guthrie Ferguson, *Predictive Policing and Reasonable Suspicion*, 62 EMORY L.J. 259, 266–67 (2012).

³⁶ Nate Berg, *Predicting Crime, LAPD-Style*, GUARDIAN (June 25, 2014, 5:19 PM), <https://www.theguardian.com/cities/2014/jun/25/predicting-crime-lapd-los-angeles-police-data-analysis-algorithm-minority-report> [<https://perma.cc/GC3R-5VKJ>].

³⁷ DAVID ROBINSON & LOGAN KOEPKE, *STUCK IN A PATTERN 2* (2016), <https://www.teamupturn.com/reports/2016/stuck-in-a-pattern> [<https://perma.cc/8D5J-34CQ>]. Past police practices may explain why place-based predictive policing is more prevalent than person-based predictive policing. Predictive policing algorithms started out as place-based because they reflected the kind of crime-mapping techniques that police had been using for years. See Ferguson, *supra* note 23, at 1126 (“While given the label ‘predictive policing,’ [the early computer-augmented hotspot policing used in Los Angeles that serves as the origin myth of predictive policing] had all of the same characteristics of past crime pattern identification strategies that had been in use for years.”). Person-based predictive policing is a more recent development. See *id.* at 1137 (“[N]ew predictive technologies are being created to target individuals predicted to be involved in criminal activity.”).

³⁸ See FERGUSON, *supra* note 18, at 35.

³⁹ See Andrew Guthrie Ferguson, *The Police Are Using Computer Algorithms to Tell if You’re a Threat*, TIME (Oct. 3, 2017), <http://time.com/4966125/police-departments-algorithms-chicago/> [<https://perma.cc/AA79-EL87>]. The theory behind person-based policing relies partially on an epidemiological approach that treats crime as contagious. See Ferguson, *supra* note 23, at 1138. As such, it posits that a small number of individuals are at high risk of committing crimes. See *id.* In doing so, the approach seeks to identify and map a social network of those individuals. See *id.*

⁴⁰ *Id.* at 1137, 1139; see also Jeff Asher & Rob Arthur, *Inside the Algorithm That Tries to Predict Gun Violence in Chicago*, N.Y. TIMES (June 13, 2017), <https://www.nytimes.com/2017/06/13/upshot/what-an-algorithm-reveals-about-life-on-chicagos-high-risk-list.html> [<https://perma.cc/4PR6-8N3M>].

⁴¹ See Ali Winston, *Palantir Has Secretly Been Using New Orleans to Test Its Predictive Policing Technology*, VERGE (Feb. 27, 2018, 3:25 PM) [hereinafter Winston, *Palantir Has Secretly Been Using New Orleans to Test Its Predictive Policing Technology*], <https://>

proactively arrange for these individuals to be contacted in order to preempt reoffending under the threat of future prosecution and offer various training programs and services to those who cooperated.⁴² Person-based predictive policing can also be used by officers responding to 911 emergencies, providing them with a predictive assessment of the threat associated with the person or place involved.⁴³

In Chicago, the police department took person-based predictive policing a step further. Developed by researchers at the Illinois Institute of Technology in Chicago, the Strategic Subject List (“SSL”) analyzes information such as past arrests, weapons or narcotics offenses, age of most recent arrest, whether the person was involved in a shooting as a perpetrator or victim, and trends in criminal activity in order to assign a “threat score.”⁴⁴ The scores produced by the SSL are displayed on police officers’ dashboards, allowing officers who pull over an individual to access that individual’s score alongside other basic information such as height, weight, recent arrests, etc.⁴⁵ For Chicago police officers, the dashboard also provides an explanation of the score calculation in a separate tab if the officer wishes to access it.⁴⁶

B. Concerns with Predictive Policing Algorithms

The use of predictive policing algorithms has raised concerns among activists, civil rights groups, and citizens. In August 2016, a collection of 17 organizations, including the American Civil Liberties Union (“ACLU”) and the National Association for the Advancement

www.theverge.com/2018/2/27/17054740/palantir-predictive-policing-tool-new-orleans-nopd [https://perma.cc/V546-6KNS]. New Orleans took a stab at person-based predictive policing between 2012 and 2018 when it collaborated with Palantir, a data-mining firm, to execute a program similar to Chicago’s SSL program. *See id.*; Ali Winston, *New Orleans Ends Its Palantir Predictive Policing Program*, VERGE (Mar. 15, 2018, 3:50 PM) [hereinafter Winston, *New Orleans Ends Its Palantir Predictive Policing Program*], <https://www.theverge.com/2018/3/15/17126174/new-orleans-palantir-predictive-policing-program-end> [https://perma.cc/VDX5-KUHF]. New Orleans declared in March 2018 that it would not renew its contract with Palantir after it expired in February 2018. *See id.*; Winston, *Palantir Has Secretly Been Using New Orleans to Test Its Predictive Policing Technology*, *supra*.

⁴² Winston, *Palantir Has Secretly Been Using New Orleans to Test Its Predictive Policing Technology*, *supra* note 41.

⁴³ Conor Friedersdorf, *A Police Department’s Secret Formula for Judging Danger*, ATLANTIC (Jan. 13, 2016), <https://www.theatlantic.com/politics/archive/2016/01/a-police-departments-secret-formula-for-judging-danger/423642/> [https://perma.cc/7LFG-592B]. Police officers in Fresno used *Beware*, a software that analyzed publicly available data in order to return a “threat assessment” of the person or place implicated in a 911 call. *Id.*

⁴⁴ Ferguson, *supra* note 39.

⁴⁵ *See* Kaplan, *supra* note 10.

⁴⁶ *Id.*

of Colored People (“NAACP”), released a statement of concern regarding law enforcement’s use of predictive policing tools.⁴⁷ In May 2018, local Los Angeles community organization Stop LAPD Spying Coalition released a report detailing and criticizing the Los Angeles police’s use of PredPol and Los Angeles Strategic Extraction and Restoration (“LASER”) programs to predict “hot spots” of crime in the city and create chronic offender bulletins.⁴⁸ The main concerns about these tools were a lack of transparency in the data used and how the algorithms work, that the algorithms reinforce conventional racialized policing, and that they distort existing constitutional protections against law enforcement abuse of power.⁴⁹

1. Algorithmic Transparency

There is little information available to communities about what specific kinds of data are being fed into particular algorithms used by their local police departments and how these algorithms develop their results. Accordingly, it is difficult to conduct studies on the accuracy of such algorithms, on the error rates, and on whether the information being fed into the system carries racial and socioeconomic biases.

For example, the New Orleans police force’s partnership with Palantir was only known to the police force, the mayor’s office, and the city attorney.⁵⁰ Key city council members, civil and criminal attorneys

⁴⁷ *Statement of Concern about Predictive Policing by ACLU and 16 Civil Rights Privacy, Racial Justice, and Technology Organizations*, ACLU (Aug. 31, 2016) [hereinafter *Statement of Concern*], <https://www.aclu.org/other/statement-concern-about-predictive-policing-aclu-and-16-civil-rights-privacy-racial-justice> [https://perma.cc/H5DZ-Q2LM].

⁴⁸ STOP LAPD SPYING COAL., *BEFORE THE BULLET HITS THE BODY* 6, 29 (2018), <https://stoplapdspying.org/wp-content/uploads/2018/05/Before-the-Bullet-Hits-the-Body-May-8-2018.pdf> [https://perma.cc/6P9C-BKE4].

⁴⁹ See *Statement of Concern*, *supra* note 47. On February 13, 2018, Stop LAPD Spying Coalition filed a petition under the California Public Records Act seeking information on Operation LASER. Verified Petition for Writ of Mandate Directed to the Los Angeles Police Dep’t Ordering Compliance with Cal. Pub. Records Act, *Stop LAPD Spying Coal. v. City of Los Angeles*, No. BS172216 (Cal. Super. Ct. Feb. 13, 2018), <https://static1.squarespace.com/static/5a57b24e01002738e0ef8e1e/t/5a8cef3a419202fa34d4d222/1519185724906/Stop+LAPD+Spying+LA-SER+Petition.PDF> [https://perma.cc/KNL3-CCDW]. Under legal and public pressure, the police department released documents and names of people targeted by the LASER and Chronic Offender programs. Emmanuel Morgan, *Group that Sued LAPD over Controversial Data Policing Programs Claims Victory*, L.A. TIMES (Dec. 10, 2019, 1:27 PM), <https://www.latimes.com/california/story/2019-12-10/stop-lapd-spying-coalition-announces-lawsuit-victory-against-lapd> [https://perma.cc/FM9C-5M9S]; see also *Case Access: Stop LAPD Spying Coal. v. City of Los Angeles*, SUPERIOR CT. OF CAL., <http://www.lacourt.org/casesummary/ui/casesummary.aspx?casetype=civil> [https://perma.cc/79GJ-W5UQ] (type “BS172216” in case number field).

⁵⁰ Winston, *Palantir Has Secretly Been Using New Orleans to Test Its Predictive Policing Technology*, *supra* note 41.

in the system, particularly defense attorneys, and impacted community members were not entirely aware of the extent or nature of the predictive policing tools being used.⁵¹ Palantir claimed that it was merely “developing a better understanding of violent crime propensity and designing targeted interventions to protect the city’s most vulnerable populations.”⁵² Because a majority of these algorithms and technologies are privately owned by entities such as Palantir, Intrado, and IBM,⁵³ they invoke trade secrets privileges⁵⁴ that allow these companies to withhold information about their predictive policing products from defendants, defense attorneys, and the general public.⁵⁵ Law enforcement is also reluctant to release this information because of security concerns of potential criminals finding out how to circumvent the system.⁵⁶ Moreover, there are technical barriers in studying algorithms that learn from past data, where simply looking at the codes may not reveal how they work because of their complexities and machine-learning capacities.⁵⁷

There is also a push for more transparency in how effective and accurate the algorithms are. In February 2018, Stop LAPD Spying Coalition sued the Los Angeles Police Department in an attempt to seek information about its predictive policing program, with the Brennan Center for Justice at NYU Law and journalists in Chicago similarly challenging their respective police departments in court.⁵⁸ The push for transparency revolves around a need for empirical, objective stud-

⁵¹ *Id.*

⁵² *Id.*

⁵³ *Id.*; ROBINSON & KOEPKE, *supra* note 37 at 14–17 (Table 2 provides snapshots of predictive policing across U.S. cities).

⁵⁴ Trade secrets are intellectual property that are meant to be kept secret to preserve a competitive business advantage for its owners. *Trade Secret*, BLACK’S LAW DICTIONARY (11th ed. 2019).

⁵⁵ Rebecca Wexler, *Life, Liberty, and Trade Secrets: Intellectual Property in the Criminal Justice System*, 70 STAN. L. REV. 1343, 1349–50 (2018). The privatized nature of predictive policing technology means that the algorithm owners can withhold information about their products by claiming them to be trade secrets. *Id.*

⁵⁶ Andrew Guthrie Ferguson, *Illuminating Black Data Policing*, 15 OHIO ST. J. CRIM. L. 503, 510 (2018).

⁵⁷ Machine-learning involves systems that use artificial intelligence to develop and improve, in theory, over time without needing to rely on explicit programming. *Id.* at 512.

⁵⁸ The majority of the transparency push in Chicago, Los Angeles, New Orleans, and New York is for police departments and city governments to divulge information about how predictive policing programs are being used and what data is going into them. Dave Collins, ‘Predictive Policing’: Big-City Departments Face Lawsuits, U.S. NEWS & WORLD REP. (July 5, 2018), <https://www.usnews.com/news/best-states/louisiana/articles/2018-07-05/predictive-policing-big-city-departments-face-lawsuits> [<https://perma.cc/83KC-2M2U>].

ies on the effectiveness, accuracy, and bias involved in the predictive policing algorithms.⁵⁹

Of the few studies that have been conducted, one by RAND Corporation, a nonpartisan think tank, of an experimental predictive policing program that the National Institute of Justice funded in Shreveport, Louisiana, found that the place-based predictive program had no discernable effect on property crime.⁶⁰ RAND also conducted a study on an earlier version of Chicago's SSL and found that although the individuals on the list were not more or less likely to be involved in a shooting as predicted, they were more likely to be arrested for it.⁶¹

Moreover, police data is often riddled with man-made errors that go uncorrected because of unchecked systems, and feeding such data into predictive policing algorithms would result in an inaccurate output.⁶² But ultimately, there is a concern that the data being fed into these algorithms, specifically if it includes data based on prior contact with the criminal justice system, can lead to predictive results that target low-income and nonwhite neighborhoods because law enforcement has historically focused its policing on such communities.⁶³

2. Reinforcing Racialized Policing

Contact or involvement with law enforcement is not always an accurate reflection of who is committing crime.⁶⁴ Poor communities of color are overpoliced and are overrepresented in the criminal justice system. For example, studies have shown that poor Black and Latinx populations are arrested more frequently for drug-related crimes despite drug use being equally prevalent between white and nonwhite

⁵⁹ Stephen Goldsmith & Chris Bousquet, *The Right Way to Regulate Algorithms*, CITYLAB (Mar. 20, 2018), <https://www.citylab.com/equity/2018/03/the-right-way-to-regulate-algorithms/555998/> [<https://perma.cc/2MHQ-QWCD>].

⁶⁰ PRISCILLIA HUNT ET AL., EVALUATION OF THE SHREVEPORT PREDICTIVE POLICING EXPERIMENT 49 (2014).

⁶¹ See Jessica Saunders et al., *Predictions Put into Practice: A Quasi-Experimental Evaluation of Chicago's Predictive Policing Pilot*, 12 J. EXPERIMENTAL CRIMINOLOGY 347, 363–64 (2016).

⁶² See Ferguson, *supra* note 56, at 511.

⁶³ See Kristian Lum & William Isaac, *To Predict and Serve?*, 13 SIGNIFICANCE 14, 15 (2016).

⁶⁴ For example, certain types of crimes, such as sexual assault, are not reported as much as others. From 2006–2010, 65% of survivors of rape and sexual assault did not report it to the police and a similar percentage of household thefts also were unreported. U.S. DEP'T OF JUSTICE, OFFICE OF JUSTICE PROGRAMS, VICTIMIZATIONS NOT REPORTED TO THE POLICE, 2006–2010, at 4 (2012).

populations, as well as between low-income and wealthy areas.⁶⁵ There is thus an overcrowding of police resources and patrol in certain neighborhoods even when the activity deemed criminal is widespread.⁶⁶ This is not limited to drug use—people of color are also more likely to be arrested for low level offenses such as loitering, defiant trespass, and disorderly conduct.⁶⁷ Additionally, certain groups of people—primarily Black individuals—have the police called on them more often than their white counterparts.⁶⁸ On the other hand, not all demographics of people feel comfortable reporting crime to law enforcement: many Black Americans do not feel comfortable calling the police because of the risk of police misconduct that can lead to false arrests, police brutality, or both.⁶⁹

⁶⁵ See Dylan Matthews, *The Black/White Marijuana Arrest Gap*, in *Nine Charts*, WASH. POST (June 4, 2013, 12:41 PM), <https://www.washingtonpost.com/news/wonk/wp/2013/06/04/the-blackwhite-marijuana-arrest-gap-in-nine-charts/> [<https://perma.cc/2MHQ-QWCD>].

⁶⁶ A study that compared a representative “synthetic” population based off of public health survey data from a 2011 National Survey on Drug Use and Health to Oakland Police Department’s records of drug use revealed that the police records were concentrated in two largely nonwhite, largely low-income neighborhoods, whereas the representative population estimated that drug use occurred more evenly throughout the city. See Lum & Isaac, *supra* note 63, at 17.

⁶⁷ *Study Documents Extreme Racial Disparity in Arrests for Low-Level Offenses*, ACLU (Dec. 21, 2015), <https://www.aclu.org/news/study-documents-extreme-racial-disparity-arrests-low-level-offenses> [<https://perma.cc/4GZE-5CME>].

⁶⁸ There are numerous instances of white individuals, namely white women, calling the police to report black individuals who were not doing anything that could be considered criminal behavior. See, e.g., David DeBolt, *Listen to BBQ Becky’s 911 Calls: ‘My Race Doesn’t Matter’*, MERCURY NEWS (Sept. 1, 2018, 5:46 AM), <https://www.mercurynews.com/2018/08/31/listen-to-bbq-beckys-911-calls-my-race-doesnt-matter/> [<https://perma.cc/Q2EN-RKXT>]; Damien Gayle, *Arrest of Two Black Men at Starbucks for ‘Trespassing’ Sparks Protests*, GUARDIAN (Apr. 16, 2018, 8:28 AM), <https://www.theguardian.com/us-news/2018/apr/16/arrest-of-two-black-men-at-starbucks-for-trespassing-sparks-protests> [<https://perma.cc/B3H9-ENTN>]; Amy Held, *Video: Georgia Woman Calls Police on Black Babysitter*, NPR (Oct. 10, 2018, 4:25 PM), <https://www.npr.org/2018/10/10/656155483/video-georgia-woman-calls-police-on-black-babysitter> [<https://perma.cc/M37P-FRDQ>]; Rachael Herron, *I Used To Be a 911 Dispatcher. I Had to Respond to Racist Calls Every Day*, VOX (Oct. 31, 2018, 12:08 PM), <https://www.vox.com/first-person/2018/5/30/17406092/racial-profiling-911-bbq-becky-living-while-black-babysitting-while-black> [<https://perma.cc/32FJ-JQFT>]; Erik Ortiz & Gabe Gutierrez, *Man Who Called Police on Black Woman at North Carolina Pool No Longer Has Job*, NBC NEWS (July 6, 2018, 1:27 PM), <https://www.nbcnews.com/news/nbcblk/man-who-called-police-black-woman-north-carolina-pool-no-n889371> [<https://perma.cc/WK3G-VJC9>].

⁶⁹ There is a history of black communities being over-policed, over-incarcerated, and disproportionately subject to police brutality. See *supra* notes 65–67 and accompanying text. This has fostered a mistrust between the police and Black Americans. Juleyka Lantigua-Williams, *Police Brutality Leads to Thousands Fewer Calls to 911*, ATLANTIC (Sept. 28, 2016), <https://www.theatlantic.com/politics/archive/2016/09/police-violence-lowers-911-calls-in-black-neighborhoods/501908/> [<https://perma.cc/6ZE7-BYCJ>].

Criminal records are thus not a measure of crime, but rather of complex interplay between criminal activity, strategies employed by the police, and community relationships with the police.⁷⁰ When predictive policing algorithms use criminal records as a source of data, the result is race- and income-skewed correlations between future criminality and places or people, and a subsequent positive feedback loop of police presence in those areas or surveillance of those people.⁷¹ Because these algorithms are perceived to be objective, their discriminatory effects run the real risk of remaining largely hidden and unimpeachable.⁷²

C. *The Fourth Amendment Doctrine on Reasonable Use of Force*

While both federal and state case law can govern police use of force, civil actions under the Civil Rights Act of 1871, 42 U.S.C. § 1983, are governed by the Fourth Amendment.⁷³ The Fourth Amendment guarantees a right against “unreasonable searches and seizures” and conditions the issuance of warrants only upon “probable cause.”⁷⁴ A typical “seizure” is an arrest,⁷⁵ and a “search” occurs when the government infringes on an “expectation of privacy that society is prepared to consider reasonable.”⁷⁶ A warrantless search or seizure must nonetheless be supported by probable cause.⁷⁷

Limited searches and seizures, colloquially termed “stop and frisk,” may be conducted pursuant to “reasonable suspicion” with the

⁷⁰ Lum & Isaac, *supra* note 63, at 16.

⁷¹ *See id.* at 18–19; *see also* FERGUSON, *supra* note 18, at 47.

⁷² Claire Cain Miller, *When Algorithms Discriminate*, N.Y. TIMES (July 9, 2015), <https://www.nytimes.com/2015/07/10/upshot/when-algorithms-discriminate.html> [<https://perma.cc/26AG-RTZL>].

⁷³ Criminal prosecution against officers for homicide or assault are dealt with under state use of force statutes and case law, while federal civil actions for excessive force can be heard in federal court under 42 U.S.C. § 1983 (2018) and are governed by the Fourth Amendment. Cynthia Lee, *Reforming the Law on Police Use of Deadly Force: De-Escalation, Pre-Seizure Conduct, and Imperfect Self-Defense*, 2018 U. ILL. L. REV. 629, 640. This Note focuses exclusively on Fourth Amendment use of force cases. Section 1983 allows individuals to sue government officials for depriving them of their constitutional rights, including Fourth Amendment rights against excessive force. *Monell v. Dep’t of Soc. Servs. of N.Y.*, 436 U.S. 658, 690 (1978); *Bivens v. Six Unknown Named Agents of Fed. Bureau of Narcotics*, 403 U.S. 388, 389 (1971).

⁷⁴ U.S. CONST. amend. IV.

⁷⁵ *California v. Hodari D.*, 499 U.S. 621, 624 (1991).

⁷⁶ *United States v. Jacobsen*, 466 U.S. 109, 113 (1984).

⁷⁷ *Wong Sun v. United States*, 371 U.S. 471, 479–480 (1963); *Brinegar v. United States*, 338 U.S. 160, 175–76 (1949) (“Probable cause exists where ‘the facts and circumstances within their [the officers’] knowledge and of which they had reasonably trustworthy information [are] sufficient in themselves to warrant a man of reasonable caution in the belief that’ an offense has been or is being committed.” (quoting *Carroll v. United States*, 267 U.S. 132, 162 (1925))).

understanding that certain police procedures cannot practically be subject to the warrant process.⁷⁸ In *Terry v. Ohio*,⁷⁹ the Supreme Court held that a police officer was permitted to stop and pat down three individuals who he had seen engage in what he thought was suspicious activity: Two of the individuals had alternately walked up and down a sidewalk multiple times, stopping to peer through a store window every time.⁸⁰ The Court reasoned that although the police's actions fell under the Fourth Amendment purview and had to be assessed for reasonableness, because they did not amount to a full-blown search and seizure, the reasonableness threshold the police had to meet was lower.⁸¹ The police need only have reasonable suspicion, and not probable cause, to justify a stop and frisk, and the officer exacting it must be able to provide "specific and articulable facts" to support that suspicion.⁸² The inquiry is whether, given the facts available to the officer at the time of the incident, a person who is reasonably cautious would believe that the officer took appropriate action.⁸³

In such warrantless situations, prediction is a key element in the analysis of reasonable suspicion.⁸⁴ In order to justify a limited search or seizure, the police officer must be able to predict, given the facts available, whether the person is about to or is in the process of committing a crime.⁸⁵ Police relying on "inarticulate hunches" are therefore not acting reasonably.⁸⁶ Rather, police must point to facts that are specific and particularized to the person.⁸⁷ Police can use information they may not possess firsthand, such as informant tips, as long as the tips are reliable: they must be sufficiently individualized to a particular person and criminal activity and they must be sufficiently corroborated with police observation.⁸⁸ Profiling can factor into the reasona-

⁷⁸ *Terry v. Ohio*, 392 U.S. 1, 20–22, 37 (1968).

⁷⁹ 392 U.S. 1 (1968).

⁸⁰ *Id.* at 5–7, 28.

⁸¹ *See id.* at 19–21.

⁸² *See id.* at 20–23.

⁸³ *Id.* at 21–23.

⁸⁴ Ferguson, *supra* note 35, at 287.

⁸⁵ *Id.*

⁸⁶ *See Terry*, 392 U.S. at 22.

⁸⁷ *Id.* at 27.

⁸⁸ Ferguson, *supra* note 35, at 291–92. In *Alabama v. White*, police received an anonymous tip that White would leave her house at a particular time, in a particular car, headed to Dobey's Motel, and would be carrying a briefcase with cocaine inside. 496 U.S. 325, 327 (1990). The police set up surveillance and observed the described car outside White's address, eventually seeing White leave her home, get in the car, and head toward Dobey's Motel. *Id.* White was not carrying a briefcase when she walked to the car. *Id.* Just short of Dobey's Motel the police stopped the car, searched it, and found a briefcase containing marijuana. *Id.* Later at the police

ble suspicion analysis. For example, police officers are allowed to use the fact that a suspect matches a drug courier profile to justify a stop as long as it is corroborated by police observation.⁸⁹ Finally, the designation of a “high crime area” is also a permissible factor in the reasonable suspicion analysis.⁹⁰

The Supreme Court applies the same objective reasonableness standard to the question of whether a police officer used excessive force against a civilian.⁹¹ Given that stops and arrests require police officers to use some degree of physical coercion and force, the courts must ask what a reasonable officer in that particular situation would have done and balance the nature and quality of the police’s intrusion against the government’s interests.⁹² The reasonableness evaluation requires a consideration of the “totality of the circumstances,”⁹³ including factoring in whether the suspect poses an immediate threat, the nature of the crime, and the suspect’s behavior in resisting arrest or attempting to flee.⁹⁴ When the government’s intrusion—its use of force—is at its most devastating and results in death, a government interest in stopping a fleeing suspect alone is not sufficient to meet the

station, after she was arrested, the police found three milligrams of cocaine in her purse. *Id.* The Court held that while the informant’s information was not completely accurate, the police had corroborated enough of the details of the predictions that they had reasonable suspicion to stop White. *Id.* at 331. On the other hand, the Court in *Florida v. J.L.* held a tip to be insufficient to support reasonable suspicion. 529 U.S. 266, 271 (2000). An anonymous caller called the police to report that a black man at a bus stop wearing plaid was carrying a gun. *Id.* at 268. The police observed three black men at a bus stop; nothing about their behavior was otherwise suspicious, but the police seized one of the three black men at the bus stop wearing plaid and frisked him. *Id.* The Court stated that it was not sufficient for informants to simply identify present factual conditions, rather, there must be some predictive element to the information that would allow the police to assess the informant’s veracity, credibility, and basis of knowledge. *Id.* at 271.

⁸⁹ Ferguson, *supra* note 35, at 298. In *United States v. Sokolow*, DEA agents stopped Sokolow at an airport in Honolulu for suspected drug smuggling. 490 U.S. 1, 3 (1989). The agents knew that Sokolow had a roll of \$20 bills amounting to nearly \$4,000 with which he paid for two round-trip tickets, that his name did not match what was listed for his phone number, that his original destination was Miami, where he stayed for only two days despite the round trip lasting 20 hours, that he was acting nervous, and that he did not check any of his or his companion’s four bags. *Id.* The DEA agents eventually recovered over 1,000 grams of cocaine from his bags. *Id.* at 5. The Court held that taken in their totality, the facts indicated that there was ongoing criminal activity and the DEA agents were allowed to rely on “drug courier profiles” so long as they were able to articulate specific factors sufficient to establish reasonable suspicion. *Id.* at 9–10.

⁹⁰ Ferguson, *supra* note 35, at 300–01.

⁹¹ See *Graham v. Connor*, 490 U.S. 386, 395 (1989); *Tennessee v. Garner*, 471 U.S. 1, 7 (1985).

⁹² *Graham*, 490 U.S. at 396.

⁹³ *Garner*, 471 U.S. at 8–9.

⁹⁴ *Graham*, 490 U.S. at 396.

standard of reasonable use of force, especially where the officer could not have reasonably believed that the suspect posed a threat.⁹⁵

Because the stop and frisk doctrine and the use of force doctrine share the same reasonableness standard, they also share a need for highly fact-dependent analyses.⁹⁶ In *Garner*, the Court rejected an argument that police could attribute a generalized dangerousness to a suspect, thus justifying the use of force, merely because he appeared to be a burglar.⁹⁷ In *Scott v. Harris*,⁹⁸ the justices disagreed over whether the suspect posed an immediate threat to public safety and whether this question should have gone to the jury, demonstrating in their various interpretations that the analysis came down to interpreting very specific facts.⁹⁹ Thus, the question of whether the suspect's actions could reasonably be perceived as an immediate threat to the officer or the public is fact dependent: the difference between the outcome in *Garner* versus the one in *Scott* came down to the fact that the suspect was fleeing on foot in the former while the suspect was in a fast-moving vehicle in the latter, thereby posing a threat to the public.¹⁰⁰ Federal courts¹⁰¹ have held that a suspect's past criminal re-

⁹⁵ *Scott v. Harris*, 550 U.S. 372, 382–83 (2007) (explaining how the Court applied the *Graham* Fourth Amendment reasonableness test in the *Garner* use of deadly force situation).

⁹⁶ See *Graham*, 490 U.S. at 396 (“[T]he test of reasonableness under the Fourth Amendment is not capable of precise definition or mechanical application,’ however, its proper application requires careful attention to the facts and circumstances of each particular case” (citation omitted) (quoting *Bell v. Wolfish*, 441 U.S. 520, 559 (1979))); *Wilson v. Meeks*, 52 F.3d 1547, 1553 (10th Cir. 1995) (“The reasonableness inquiry is an objective one and heavily fact dependent.”).

⁹⁷ *Garner*, 471 U.S. at 21; *Haugen v. Brosseau*, 339 F.3d 857, 871 (9th Cir. 2003), *rev’d on other grounds sub nom.* *Brosseau v. Haugen*, 543 U.S. 194 (2004).

⁹⁸ 550 U.S. 372 (2007).

⁹⁹ In *Scott*, the court was confronted with the question of whether a police officer who rammed his bumper against the rear of a fleeing suspect's car used unreasonable force in attempting to stop the motorist. *Id.* at 375–76. The chase started when the police officer clocked the motorist going 73 miles per hour in a 55 miles-per-hour zone, and the motorist sped up to 83 miles per hour when the police officer began pursuing him. *Id.* at 374–75. The motorist was cornered in a parking lot but evaded capture by making a sharp turn, bumping into the officer's car, and speeding away. *Id.* at 375. After the chase continued for a few more minutes, the officer touched the front of his car to the motorist's to stop him, which made the motorist lose control of his car and crash, rendering him quadriplegic. *Id.* The majority ultimately held that the officer's actions were reasonable, and that no reasonable jury could conclude otherwise. *Id.* at 386.

¹⁰⁰ *Id.* at 382–83 (comparing the facts of *Garner* with the current case).

¹⁰¹ The Fourth Amendment doctrine on reasonable use of force, given its constitutional nature, is litigated in federal courts. The Supreme Court has refused to decide use of force cases on their constitutionality in a number of cases on the basis of qualified immunity, but lower federal court decisions flesh out more of the reasonableness analysis. See, e.g., *Salazar-Limon v. City of Houston*, 137 S. Ct. 1277, 1277–78 (2017) (Alito, J., concurring in the denial of certiorari); *Mullenix v. Luna*, 136 S. Ct. 305 (2015). Qualified immunity is immunity from lawsuit that can be

cord,¹⁰² gang membership,¹⁰³ and prior incidents of violence or drug use¹⁰⁴ are probative of the reasonableness of the threat an officer perceives if the officer was aware of these facts at the time of the use of force.¹⁰⁵ The reasonableness analysis in use of force cases, like in other Fourth Amendment contexts, is highly fact-dependent.

II. HOW PREDICTIVE POLICING CAN INFLUENCE REASONABLE USE OF FORCE DETERMINATIONS

The Supreme Court and lower federal courts have yet to hear any use of force cases where the police have advanced an argument that the result of a particular predictive policing algorithm factored into their determination of perceived threat and subsequently justified the use of force. Nonetheless, legal scholars have hypothesized about whether predictive policing algorithms would distort the Fourth Amendment doctrine in various other contexts, including in the context of reasonable suspicion and the Fourth Amendment as it applies to international borders.¹⁰⁶ Given that the reasonable suspicion and use of force doctrines share the “reasonableness” standard, much of the effects of predictive policing on the latter can be extrapolated from the projected effects on the former.

A. *Predictive Policing and Reasonable Suspicion*

The cornerstone of reasonable suspicion is its dependence on the totality of the circumstances and on “specific and articulable facts.”¹⁰⁷

granted to officers accused of violating a constitutional right. *See, e.g.*, *Saucier v. Katz*, 533 U.S. 194, 200–01 (2001). *But see* *Pearson v. Callahan*, 555 U.S. 223, 236 (2009) (receding from the *Saucier* standard and stating, “[W]e conclude that, while the sequence set forth there is often appropriate, it should no longer be regarded as mandatory. . . . [Lower courts] should be permitted to exercise their sound discretion in deciding which of the two prongs of the qualified immunity analysis should be addressed first in light of the circumstances in the particular case at hand.”).

¹⁰² *See, e.g.*, *Snyder v. Trepagnier*, 142 F.3d 791, 801 (5th Cir. 1998); *Ruvalcaba v. City of Los Angeles*, 64 F.3d 1323, 1328 (9th Cir. 1995); *Geitz v. Lindsey*, 893 F.2d 148, 151 (7th Cir. 1990).

¹⁰³ *Cf.* *Anderson v. City of Chicago*, No. 09C2311, 2010 WL 4811937, at *2 (N.D. Ill. Nov. 19, 2010) (holding defendants could not introduce evidence of plaintiff’s alleged gang membership, even though it could help support probable cause to arrest, because defendants did not allege arresting officers knew about gang membership).

¹⁰⁴ *Senra v. Cunningham*, 9 F.3d 168, 171–72 (1st Cir. 1993).

¹⁰⁵ *Valtierra v. City of Los Angeles*, 99 F. Supp. 3d 1190, 1193–94 (2015).

¹⁰⁶ *See, e.g.*, *Lindsey Barrett, Reasonably Suspicious Algorithms: Predictive Policing at the United States Border*, 41 N.Y.U. REV. L. & SOC. CHANGE 327, 332 (2017); *Ferguson, supra* note 35.

¹⁰⁷ *Terry v. Ohio*, 392 U.S. 1, 21 (1968).

This necessarily implies a “small data” world—in order to justify that a police officer’s suspicion was sufficiently reasonable, he must articulate specific, discrete facts that led him to believe the suspect was engaging in criminal activity, much of which includes observations made by the officer.¹⁰⁸ Even if the same discrete data points—prior criminal record, gang affiliation, age, etc.—go into both “small data” individual officer assessments and “big data” predictive policing analyses, the latter results in an output that is “generalized and prospective” rather than “retrospective and particularized” as with the former.¹⁰⁹

Recognizing the prospective nature of algorithmic predictions, Andrew Guthrie Ferguson, in his article *Predictive Policing and Reasonable Suspicion*, discusses the parallels between predictive policing algorithms and anonymous informant tips that are also prospective.¹¹⁰ When police officers rely on anonymous tips, they are relying on information of which they have no personal knowledge. Accordingly, the Court has required tips to have a degree of reliability¹¹¹ to them and to be corroborated by observations by the police in order for the final calculus to meet reasonable suspicion.¹¹² The reliability of an informant tip often boils down to whether it is sufficiently particularized to the area or person.¹¹³

While computer algorithms are more generalized and therefore less particularized, they may seem more reliable because of their “objective” nature.¹¹⁴ If deemed sufficiently reliable however, predictive policing algorithms could serve as “tips” that cast suspicion on individuals or places even without the officer having personal knowledge of what goes into that suspicion, so long as there is sufficient corroboration by police observation.¹¹⁵ Analogizing to the anonymous tip lines

¹⁰⁸ See FERGUSON, *supra* note 18, at 54.

¹⁰⁹ Fabio Arcila, Jr., *Nuance, Technology, and the Fourth Amendment: A Response to Predictive Policing and Reasonable Suspicion*, 63 EMORY L.J. ONLINE 87, 93 (2014).

¹¹⁰ See Ferguson, *supra* note 35, at 289–93.

¹¹¹ The Court assesses the tip’s “veracity,” “reliability,” and “basis of knowledge” considered in the context of the “totality-of-the-circumstances,” meaning the strength of one factor can compensate for the weakness of another. *Illinois v. Gates*, 462 U.S. 213, 230 (1983).

¹¹² See Ferguson, *supra* note 35, at 292.

¹¹³ See *id.* at 306.

¹¹⁴ See *id.* at 307. Arguably, the kind of person-based predictive policing of the SSL is less generalized and is more particularized to the individual suspect than the kinds of predictive policing algorithms Ferguson discusses in his article. As such, there is a stronger argument to be made for the reliability of predictive policing algorithms under current tip informant reasonable suspicion doctrine.

¹¹⁵ See *id.* at 305–08.

of cases makes a strong case for how the Court might apply the reasonable suspicion calculus to predictive policing algorithms.

B. Predictive Policing and Use of Force

Predictive policing algorithms could have a similar effect on the use of force doctrine. The factors for assessing the reasonableness of a police officer's use of force are whether the suspect poses an immediate threat, the nature of the crime, and the suspect's behavior in resisting arrest or attempting to flee.¹¹⁶ Predictive policing algorithms could impact how police assess the immediacy of the threat and would color how the suspect's behavior is perceived.¹¹⁷

Take, for example, Dethorne Graham, who brought a lawsuit against Officer Connor of the Charlotte, North Carolina, Police Department in the seminal case, *Graham v. Connor*.¹¹⁸ The facts of the case serve as a prime example of how predictive policing could play out in practice. Graham, a diabetic, had his friend drive him to a grocery store to get orange juice after he felt he was having an insulin reaction.¹¹⁹ Graham entered the store, saw there was a line, and hurriedly left, raising the suspicion of Officer Connor, who followed Graham and his friend in his car.¹²⁰ Connor stopped Graham's car and went back to his own car to call for backup.¹²¹ Meanwhile, Graham, due to his insulin reaction, exited the car, ran around it twice, and sat down on the curb, where he fainted.¹²² Such action by Graham, by itself, may not reasonably be considered a threat to an officer or to the public.¹²³

Now assume that Graham had an extensive criminal record that included intoxication-related charges as well as disorderly conduct,

¹¹⁶ *Graham v. Connor*, 490 U.S. 386, 396 (1989).

¹¹⁷ Ferguson, *supra* note 39. As Ferguson points out in his article, “[O]nce police have information that a person has a high threat score, this knowledge will color criminal suspicion and increase perceived danger, resulting in more frequent and more aggressive interactions with people the algorithm deems ‘high risk.’” *Id.*

¹¹⁸ 490 U.S. 386, 388 (1989).

¹¹⁹ *Id.*

¹²⁰ *Id.* at 388–89.

¹²¹ *Id.* at 389.

¹²² *Id.*

¹²³ The Court in *Graham* held that excessive force claims were to be evaluated under the Fourth Amendment “reasonableness” standard and not under substantive due process. *Id.* at 395. The Court then vacated and remanded the case. *Id.* at 399. Graham lost the case at his new trial under this new standard. Eileen Sullivan, *A 25-Year-Old Supreme Court Case Will Shape the Investigation in Ferguson*, BUS. INSIDER (Aug. 22, 2014, 6:56 AM), <https://www.businessinsider.com/a-25-year-old-supreme-court-case-will-shape-the-investigation-in-ferguson-2014-8> [<https://perma.cc/PBP9-A56G>].

and Connor knew about these facts. Perhaps this would automatically tip the scale toward a finding of dangerousness. Courts have accepted that knowledge of criminal records may be relevant to the assessment of whether a police officer reasonably perceived a threat.¹²⁴ It is noteworthy that the known charges in the hypothetical are intoxication and disorderly conduct, two priors that could explain specific odd behavior that Connor can observe—for example, that Graham was walking unstably or that he passed out.¹²⁵ But imagine if, instead of details of a criminal record that may be corroborated by Graham's specific actions, Connor merely had a more generalized dangerousness assessment of Graham, as in the case of Chicago's "threat score" algorithm, SSL. Such a marker of dangerousness, with no further details on what precisely makes Graham a threat, could color every behavior of Graham's in Connor's eyes, even when Graham's actions are otherwise unthreatening.¹²⁶

This is a problem for two major reasons. First, predictive policing algorithms have not been sufficiently tested for their accuracy because few outside of law enforcement and algorithm proprietors are able to access them.¹²⁷ At worst, a couple studies have demonstrated that programs currently in use do not predict what they claim to and do not have discernable effects on crime.¹²⁸ Thus, police's perception of the dangerousness of suspects can be inaccurate, and any subsequent action taken by the police would be based on false assumptions and a heightened sense of wariness that could easily translate to a greater use of force in response to actions that would not otherwise be threatening.¹²⁹ This is even more concerning when under the reasonableness doctrine, police's actions are not judged based on the benefit of hindsight or actual accuracy, but rather on whether it would have been reasonable for an officer to believe the inaccurate fact to be true.¹³⁰

¹²⁴ See, e.g., *Snyder v. Trepagnier*, 142 F.3d 791, 801 (5th Cir. 1998); *Ruvalcaba v. City of Los Angeles*, 64 F.3d 1323, 1328 (9th Cir. 1995); *Geitz v. Lindsey*, 893 F.2d 148, 151 (7th Cir. 1990).

¹²⁵ *Graham*, 490 U.S. at 388–89.

¹²⁶ See *Ferguson*, *supra* note 39 (“[O]nce police have information that a person has a high threat score, this knowledge will color criminal suspicion and increase perceived danger, resulting in more frequent and more aggressive interactions with people the algorithm deems ‘high risk.’”).

¹²⁷ See *Ferguson*, *supra* note 56, at 510; *Wexler*, *supra* note 55, at 1349–50.

¹²⁸ *Supra* notes 60–61 and accompanying text.

¹²⁹ See *Ferguson*, *supra* note 39.

¹³⁰ See *Graham*, 490 U.S. at 396 (“The ‘reasonableness’ of a particular use of force must be judged from the perspective of a reasonable officer on the scene, rather than with the 20/20 vision of hindsight.”); *Torres v. City of Madera*, 648 F.3d 1119, 1124 (9th Cir. 2011) (“Where an

Given the assumption of objectivity and accuracy that often attaches to algorithmic calculations over human perception,¹³¹ it could be easier for an officer to justify that it was reasonable for him to believe a dangerousness assessment provided by an algorithm.

The second problem with the practical effect of policing algorithms coloring officers' use of force relates to the fact that these algorithms impart an assumption of objectivity when the data is not clean of biases.¹³² Information that would otherwise be recognized for being racially and socioeconomically skewed is processed to deliver a single "objective" output, without contending with the underlying biases it carries.¹³³ Information about criminal records, for example, is heavily racially and socioeconomically skewed from decades of police practices targeting specific types of crimes that correlate with specific neighborhoods, which in turn correlate with minority communities to create a feedback loop of accumulating crime data against poor people of color.¹³⁴ Scholars are just now beginning to formally talk about and study disproportionate policing practices and the complicated nature of institutionalized racism that makes it difficult to add a simple "filter" to fix bias.¹³⁵ When this information is fed to algorithms that analyze it to find patterns and correlations, the output reflects the biases that already exist in police decision-making.¹³⁶

Ultimately, if a suspect is marked as "dangerous," any actions on her part, whether inherently dangerous, illegal, or not, could be grounds for negating her Fourth Amendment rights without any fur-

officer's particular use of force is based on a mistake of fact, we ask whether a reasonable officer would have or *should* have accurately perceived that fact.").

¹³¹ See Miller, *supra* note 72.

¹³² See *id.*

¹³³ For a more in-depth discussion, see *supra* Section I.B.2.

¹³⁴ See Lum & Isaac, *supra* note 63, at 16.

¹³⁵ A team of researchers at the Boston University School of Public Health conducted a 2018 study on state-level structural racism and its relationship to the racial disparity in police shootings. Aldina Mesic et al., *The Relationship Between Structural Racism and Black-White Disparities in Fatal Police Shootings at the State Level*, 110 J. NAT'L MED. ASS'N 106 (2018). The index they developed, drawn from existing social science literature, measured structural racism based on five dimensions: residential segregation, incarceration rates, educational attainment, economic indicators, and employment status. *Id.* at 107. The study empirically demonstrated a positive correlation: the higher a state's structural racism index, the greater the racial disparity in police shootings. *Id.* at 113. This study was the first to examine the relationship between structural racism and police shootings at the state level. *Id.*

¹³⁶ For an example of this in a different context, see Professors Solon Barocas and Andrew Selbst's findings of how an algorithm meant to sort medical school applications based on prior admissions decisions data merely ended up incorporating the biases that went into those prior admission decisions. Solon Barocas & Andrew D. Selbst, *Big Data's Disparate Impact*, 104 CAL. L. REV. 671, 682 (2016).

ther information needed.¹³⁷ And given how biased police procedures have tended to be so far, the people with fewer Fourth Amendment protections will invariably be lower-income and non-white.¹³⁸ This is more so a problem in use of force situations that are the grounds for hotly contested questions of police brutality and institutionalized racism in the political arena. More and more as people are recording and uploading videos of instances of police use of force—making them widely available in a way they were not prior to the ubiquity of smartphones—questions around excessive force have become a part of the national conversation.¹³⁹ Many studies on implicit biases show that Black and Latinx identities are more often correlated with dangerousness and criminality than whiteness is,¹⁴⁰ leading to harmful stereotyping that permeates the entire criminal system, from police, to courts, to media.¹⁴¹ Most relevant to the question of use of force, implicit biases color police officers’ split-second decisions and judgement

¹³⁷ Ferguson elaborated on this concept in his book with a hypothetical using the facts of *Terry* to show how a heat list could distort the reasonable suspicion calculus of a stop and frisk interaction. See FERGUSON, *supra* note 18, at 56–57 (“Terry has not done anything more or less suspicious. Terry’s actions—criminal or innocent—were exactly the same, but the information about him as a person has changed the suspicion calculus.”).

¹³⁸ See *supra* Section I.B.2 for a discussion of biased policing and its disparate impact on lower-income minority communities.

¹³⁹ Various federal courts of appeals, including the First, Third, Fifth, Seventh, Ninth, and Eleventh Circuits, have decided cases having to do with citizens’ rights to film on-duty police in public. *Fields v. City of Philadelphia*, 862 F.3d 353, 355 (3d Cir. 2017) (“Every Circuit Court of Appeals to address this issue (First, Fifth, Seventh, Ninth, and Eleventh) has held that there is a First Amendment right to record police activity in public.”); see also *Turner v. Lieutenant Driver*, 848 F.3d 678 (5th Cir. 2017); *Gericke v. Begin*, 753 F.3d 1 (1st Cir. 2014); *ACLU of Ill. v. Alvarez*, 679 F.3d 583 (7th Cir. 2012); *Glik v. Cunniffe*, 655 F.3d 78 (1st Cir. 2011); *Smith v. City of Cumming*, 212 F.3d 1332 (11th Cir. 2000); *Fordyce v. City of Seattle*, 55 F.3d 436 (9th Cir. 1995). This issue has come up in recent years because of the ubiquity of smartphones and the near-universal access to social media and the Internet that allows citizens to rapidly disseminate recordings of police misconduct to vast numbers of people. *Fields*, 862 F.3d at 357–58.

¹⁴⁰ See, e.g., Cynthia Lee, *But I Thought He Had a Gun: Race and Police Use of Deadly Force*, 2 HASTINGS RACE & POVERTY L.J. 1, 12–14 (2004); Justin D. Levinson et al., *Guilty by Implicit Racial Bias: The Guilty/Not Guilty Implicit Association Test*, 8 OHIO ST. J. CRIM. L. 187, 204 (2010) (describing the results of an implicit bias test showed that participants implicitly associated “Black” and “Guilty”).

¹⁴¹ For example, after the murder of Michael Brown at the hands of the police, the New York Times published a profile on Brown that described him as “no angel” who “dabbled in drugs and alcohol.” John Eligon, *Michael Brown Spent Last Weeks Grappling with Problems and Promise*, N.Y. TIMES (Aug. 24, 2014), <https://nyti.ms/1qEMb4d> [<https://perma.cc/5P3T-YGR2>]. Compare this with the New York Times’ profile on Dylann Roof, who shot and killed nine black individuals at a church in Charleston, lamenting, “How did the silent young man with no record of violence in his past come to be accused of killing nine people who had gathered to pray?” Frances Robles & Nikita Stewart, *Dylann Roof’s Past Reveals Trouble at Home and School*, N.Y. TIMES (July 16, 2015), <https://nyti.ms/1CG142T> [<https://perma.cc/N4SG-7668>].

calls, such as whether an individual is carrying a weapon or not.¹⁴² Algorithms that assign “objective,” generalized dangerousness values to people and places that can then be used to justify excessive force can reinforce harmful stereotypes and perpetuate a false idea that issues of police bias in interactions with people of color can be fixed with big data technologies instead of meaningful challenges to the system’s underlying issues.

III. CLARIFYING THE REASONABLENESS STANDARD IN A BIG DATA WORLD

The Court should reinforce the need for particularized facts when applying reasonableness analysis in use of force cases that involve person-based predictive policing algorithms. As technology develops and decision-making becomes more automated, so should the Court’s standards for assessing those decisions. Courts should not accept algorithmic assessments of situations without scrutiny simply because they appear to be objective. Turning a critical eye to emerging technology would not require the Court to develop entirely new doctrines for assessing whether police used reasonable force against a suspect because the fundamental requirements for showing reasonableness can be applied in a big data world. In the reasonableness analysis, this means doubling down on the need for particularized facts.

A. *Doubling Down on the Need for “Specific and Articulable Facts” and Corroboration*

The Fourth Amendment was created in a “small data” world—a world where police suspicion was aroused primarily based on the police’s own sensory data and, at most, information from sources and people that were verifiable or had primary knowledge of that information.¹⁴³ But even with second-hand information that police had no personal knowledge of (i.e., tips), the Court required an indicia of reliability on the part of the source in order to establish reasonable suspicion.¹⁴⁴ As technology has developed to allow police easier access to more and more information, be it information police can pull up within minutes from a database about people they stop on the road, or extensive surveillance information and detailed Internet searches, the

¹⁴² See B. Keith Payne, *Weapon Bias: Split-Second Decisions and Unintended Stereotyping*, 15 CURRENT DIRECTIONS IN PSYCHOL. SCI. 287, 290 (2006).

¹⁴³ See, e.g., FERGUSON, *supra* note 18, at 55.

¹⁴⁴ See *Illinois v. Gates*, 462 U.S. 213, 230 (1983); see also Ferguson, *supra* note 35, at 289–93.

Court has loosened its “specific” and “articulable” facts requirement in its reasonableness assessment. For example, the Court has allowed the “high crime area” designation—a broad, predictive assessment of a general area—to be a legitimate factor in the reasonableness calculus.¹⁴⁵

But there is still room for the Court to stop the loosening of the “specific and articulable facts” requirement. If the primary problem with predictive algorithms is that they synthesize specific facts to create an overbroad, general assessment of a person or place, the most direct solution is for the Court to come out explicitly in favor of keeping the facts in its analyses specific. In order to begin addressing the myriad of problems that come with higher-level generalizations that predictive policing algorithms provide, the Court can make bright-line rules around admitting such algorithmic assessment in court that would better ensure their reliability.

The Court should also raise the threshold amount of corroborative information required to establish reasonableness. Under such a system, courts should require, for example, that algorithmic assessments only be used if there are additional corroborative facts that are specific and articulable. Under such a rule, reasonableness could not be established solely by algorithmic assessments coupled with police observations of the suspect carrying out otherwise innocent activities. Rather, there would need to be additional reason to believe the suspect posed a threat. This would mean raising the threshold from what the Court established in its “high crime” line of cases and requiring more than what the Court did in *Illinois v. Wardlow*,¹⁴⁶ where it found reasonable suspicion based solely on the fact that an area was high-crime coupled with “unprovoked flight upon noticing the police.”¹⁴⁷ Such a doubling down on the individualized, particularized nature of the Fourth Amendment has been suggested in the context of predictive policing and reasonable suspicion.¹⁴⁸

¹⁴⁵ See Ferguson, *supra* note 35, at 300. The Court in *Illinois v. Wardlow* stated that while presence in a high-crime area is not sufficient by itself to support reasonable suspicion, “officers are not required to ignore the relevant characteristics of a location in determining whether the circumstances are sufficiently suspicious to warrant further investigation.” 528 U.S. 119, 124 (2000). It further noted that the “unprovoked flight” the police observed corroborated the defendant’s presence in a “high crime” area and amounted to reasonable suspicion. See *id.* at 124–25.

¹⁴⁶ 528 U.S. 119 (2000).

¹⁴⁷ *Id.* at 124–25.

¹⁴⁸ See Arcila, Jr., *supra* note 109, at 92–93.

This requirement can and should be applied to reasonableness in the context of use of force. The reasonableness of use of force is determined based on the totality of the circumstances,¹⁴⁹ including whether the suspect posed an immediate threat, the nature of the crime, and the suspect's behavior in resisting arrest or attempting to flee.¹⁵⁰ While officers determining whether to use force must make split-second decisions that officers assessing reasonable suspicion may often have more time to make, this should not authorize the police to act upon algorithmic information that is “*generalized and prospective*.”¹⁵¹ In fact, given that use of force situations often involve dire consequences for the target of police conduct, there is an even more pressing need to ensure that the information police are acting on justifies their response. The Fourth Amendment was largely adopted to prevent generalized searches and seizures,¹⁵² and by choosing to analyze use of force cases under the Fourth Amendment and not the Fourteenth Amendment,¹⁵³ the Court must double down on keeping generalized assessments of dangerousness from dictating police decision-making.

Such an approach would not require the Court to overturn prior case law or even substantially modify it. Even in the “high crime area” line of cases, the “high crime area” analysis was not conducted by an automated machine but by individuals analyzing crime data.¹⁵⁴ The

149 *Tennessee v. Garner*, 471 U.S. 1, 8–9 (1985).

150 *Graham v. Connor*, 490 U.S. 386, 396 (1989).

151 *See* Arcila Jr., *supra* note 109, at 90.

152 *See, e.g., Lo-Ji Sales, Inc. v. New York*, 442 U.S. 319 (1979). In *Lo-Ji Sales*, the court rejected a warrant that left part of the list of items to be seized at the premises to the police to fill out as they found items “similar[]” to the ones listed in the warrant. *Id.* at 325. In doing so, the Court noted that such a warrant was “reminiscent of the general warrant or writ of assistance of the 18th century against which the Fourth Amendment was intended to protect.” *Id.* The warrant therefore needed to particularly describe the objects that were going to be seized in order to be valid. *Id.* The Court thus reaffirmed that the Fourth Amendment was meant to protect against too high a level of generality in searches and seizures and therefore demanded particularity. *Id.*

153 *Graham*, 490 U.S. at 395.

154 In *Wardlow*, the Court went so far as to accept the police officer's uncontested testimony that the area in question was “high in narcotics traffic.” *See Illinois v. Wardlow*, 528 U.S. 119, 124, 137 (2000). When this case was decided, the predictive crime-mapping technology that exists today was only beginning to be developed, prior to which police generally would retrospectively map crime based on existing reports of criminal activity. *See* Ferguson, *supra* note 35, at 273–74 (describing how traditional hotspot analysis worked); Andrew Guthrie Ferguson, *The “High-Crime Area” Question: Requiring Verifiable and Quantifiable Evidence for Fourth Amendment Reasonable Suspicion Analysis*, 57 AM. U. L. REV. 1587, 1593 (2008) (“Neighborhood mapping systems and computer crime pattern technology currently exists with a sophistication that was only developing when the Supreme Court announced its adoption of the ‘high-crime area’ concept.”). Over time, courts have continued to struggle over how to define “high crime area” and what kind of empirical or statistical proof, if any, is required to define it. *See*

Court can easily distinguish between cases it decided in a “small data” world and those that incorporate big data technology because of how big data changes the equation.¹⁵⁵ This is not unlike what the Court did in *Carpenter v. United States*¹⁵⁶ where it declined to extend the third-party doctrine—which held that information voluntarily shared with a third party had no expectation of privacy attached to it for the purposes of the Fourth Amendment—because of the breadth and depth of information that cell-site location technology offered to law enforcement.¹⁵⁷ In distinguishing between the case at hand and earlier cases that also concerned privacy protections under the third-party doctrine, the Court noted how newly developed technology implicated “privacy concerns far beyond those considered” when the doctrine was first developed.¹⁵⁸

As the Court already acknowledged how advancing technology required an adaptation of existing Fourth Amendment doctrines in the context of searches, it can continue to do so for Fourth Amendment doctrines in other contexts, specifically in the context of police use of force. Accordingly, the Court could decline to extend its recent string of cases such as *Gates*, *Wardlow*, and others that loosened the particularized requirement and need for corroboration to apply to predictive policing cases on account of the “big data” nature of the technology. Similar to how the Court did not have to contend with the breadth and scope of information now available to the government when laying out the third-party doctrine, the Court arguably did not have to contend with algorithms that could synthesize discrete, particular facts into a prospective, generalized output when it decided to dilute the need for corroboration and particularity in favor of a “totality of circumstances” approach. And similar to how the Court recognized this in *Carpenter* and adapted the doctrine accordingly, it should recognize the unique challenge predictive policing algorithms present to the Fourth Amendment doctrine and do the same.

B. Efforts at Transparency and Independent Oversight of Algorithms Are Not Enough

One suggestion to the predictive policing problem has been to establish third-party, independent oversight agencies or boards to test

Ferguson, *supra*, at 1607–15 (summarizing the debate in federal and state courts over requirements and methods for proving whether an area can be labeled “high-crime”).

¹⁵⁵ See *supra* Section II.B.

¹⁵⁶ 138 S. Ct. 2206 (2018).

¹⁵⁷ *Id.* at 2220.

¹⁵⁸ *Id.*

the algorithms in order to address transparency issues and to confer a degree of reliability upon predictive policing algorithms.¹⁵⁹ Under such an approach, the Court can require that algorithmic outputs be accompanied with an explanation of how the algorithm works and what kind of information is regularly inputted. But however useful transparency could be, it is not sufficient in the face of fast-developing technology and is not a stand-in for a much-needed adaptation of existing Fourth Amendment doctrine.

There are multiple hurdles with making algorithms more transparent. More and more algorithms engage in machine learning, and for such systems, it may be next to impossible to reverse the process and boil a particular prediction or set of predictions down to specific, articulable facts.¹⁶⁰ Putting aside the technical hurdle, many of the algorithms are owned by private companies such as Palantir and IBM,¹⁶¹ meaning much of the information on the functioning of these algorithms is proprietary.¹⁶² Such algorithms are therefore likely subject to trade secrets protections, putting the option of transparency in the control of private companies.¹⁶³ Finally, the problem with independent oversight boards is that much of the push for transparency has come from a demand that local police departments be accountable to the general public and to the communities most impacted by predictive policing.¹⁶⁴ There is no guarantee that independent oversight boards will satisfy this local concern, incorporate community input into its assessment of policing algorithms, and be accountable to these local communities.

While ultimately the best solution is for the Fourth Amendment use of force doctrine to be adapted to accommodate for advancing technology, pushes for transparency should not be discouraged. Scholars have written on how courts could go about admitting evidence about privately developed algorithms without infringing heavily on intellectual property rights: for example, courts could be diligent about exercising discretion when approving discovery requests and subpoe-

¹⁵⁹ See Arcila, Jr., *supra* note 109, at 94.

¹⁶⁰ See Ferguson, *supra* note 56, at 512.

¹⁶¹ See ROBINSON & KOEPKE, *supra* note 37, at 14–17 (providing snapshots of predictive policing across U.S. cities).

¹⁶² Proprietary software usually refers to machine-readable codes that private companies or individuals own and control the redistribution, copying, and use of. See *Proprietary Software*, BLACK'S LAW DICTIONARY (11th ed. 2019).

¹⁶³ See Wexler, *supra* note 55, at 1368. For a more in-depth discussion, see *supra* Section I.B.1.

¹⁶⁴ See *supra* notes 58–59 and accompanying text.

nas and arranging for protective orders, limited courtroom closures, and sealing orders.¹⁶⁵ Moreover, setting a standard of requiring information about algorithms in order to use their assessments in courts could send a clear message to intellectual property holders that the judicial system values transparency, pushing these companies to then develop internal policies of transparency and compile ready-to-go information about their products. This would be a positive cultural shift away from privileging intellectual property rights over the rights of criminal defendants, which would be consistent with the fact that a trade secret privilege did not exist in the context of criminal law.¹⁶⁶

While any push for transparency will be a positive one, the nature of the technology, the existence of trade secret privileges, and the specific demand for transparency from local communities means that this push should come from outside of the judicial system. While academics and independent organizations can continue evaluating predictive algorithms and publishing their findings,¹⁶⁷ local community organizations can simultaneously continue pushing for accountability through legislation.¹⁶⁸ The best way for the courts to address the specific legal Fourth Amendment concerns would be through adapting legal standards as technology continues to develop. As such, the courts must double down on the original Fourth Amendment need for particularity in use of force cases in the face of generalizing technology.

CONCLUSION

In the case of *Garner*, imagine that Garner lived in Chicago and was on the Chicago Police Department's Strategic Subject List. Despite being only 15 years old,¹⁶⁹ Garner, a Black teenager, could easily have been one of the hundreds of Black teens and young adults on the SSL with high risk scores. Imagine Officer Hymon had a risk-assessment score for Garner of 500, the highest level of dangerousness. This

¹⁶⁵ See Wexler, *supra* note 55, at 1407–10.

¹⁶⁶ See *id.* at 1388 (“Prior to the 1990s, case law and legislative histories both evince a dearth of supporting authority for the application of a trade secret privilege in criminal proceedings. Early historical sources suggest that the privilege was unavailable in criminal proceedings.”).

¹⁶⁷ See *supra* notes 59–67.

¹⁶⁸ For example, on September 21, 2016, the ACLU in conjunction with local communities launched an effort to pass laws that would allow individuals in conjunction with their city councils to exert greater influence over their police force's use of surveillance and policing technology. *Community Control Over Police Surveillance*, ACLU, <https://www.aclu.org/issues/privacy-technology/surveillance-technologies/community-control-over-police-surveillance> [https://perma.cc/PYR7-6XRJ].

¹⁶⁹ *Tennessee v. Garner*, 471 U.S. 1, 24 (O'Connor, J., dissenting).

could tip the scale in favor of declaring Hymon’s actions reasonable—after all, the only thing Hymon really needed to show was the he had probable cause to believe Garner posed a threat of serious physical harm.¹⁷⁰ There have been cases where officers have used force against unarmed individuals and their conduct was found to be reasonable—or at least, it was not found to be unreasonable.¹⁷¹ The result in *Garner* may have been different even while Garner’s actions that night remained the same, based solely on a racially and socioeconomically skewed, generalized assessment that is considered to be an objective prediction of dangerousness.

Much of the Fourth Amendment doctrine was developed at a time when the Court could not have imagined the kinds of data and analytical tools that police have access to now—a mistake that the Court can easily be forgiven for. After all, the Court cannot predict the future. But neither can the algorithms police use today, even if that is what it seems like. Knowing what we know about implicit bias, racialized policing, and the dangers of assuming that technology is unbiased, it is imperative that the Court adapt that doctrine of reasonableness to accommodate advancements in technology. The lives of people of color, specifically young Black teenagers, depends on a more robust Fourth Amendment protection against police use of excessive force. And while the task of adapting constitutional doctrines is always a challenging one, as Justice Scalia put it in *Scott*, “in the end we must still slosh our way through the factbound morass of ‘reasonableness.’”¹⁷²

¹⁷⁰ The Court in *Garner* explicitly stated that “[w]here the officer has probable cause to believe that the suspect poses a threat of serious physical harm, either to the officer or to others, it is not constitutionally unreasonable to prevent escape by using deadly force.” *Id.* at 11 (majority opinion).

¹⁷¹ See, e.g., Eric Heisig, *Euclid Police Wins Lawsuit over Unarmed Man Shot by Officer; Judge Criticizes City’s Training*, CLEVELAND.COM (Jan. 30, 2019), https://www.cleveland.com/court-justice/index.ssf/2018/07/euclid_police_wins_lawsuit_fil.html [<https://perma.cc/VR69-LMWQ>]; Neal Simpson, *Judge: No Excessive Force in Fatal Police Shooting in Quincy*, PATRIOT LEDGER (Oct. 4, 2018, 6:05 AM), <http://www.patriotledger.com/news/20181003/judge-no-excessive-force-in-fatal-police-shooting-in-quincy> [<https://perma.cc/TQ8X-YMVA>]. Federal district courts in *Stewart v. City of Euclid*, No. 1:17-CV-2122, 2018 WL 7820181, at *11–14 (N.D. Ohio July 13, 2018), and *Justiniano v. Walker*, No. 15-CV-11587-DLC, 2018 WL 4696741, at *4–6 (D. Mass. Sept. 30, 2018), held that the officers’ actions in exacting deadly force were not unreasonable.

¹⁷² *Scott v. Harris*, 550 U.S. 372, 383 (2007).

