

UNDOING THE NEUTRALITY OF BIG DATA

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Both the legal and social architectures of the United States are rooted in a commitment to liberty and freedom.¹ The origins of this commitment are clear—many of those leaving Europe in the 18th century were determined to birth a nation free from the oppression of the aristocracy, complete with freedoms of speech, expression, and religion. Notwithstanding the horrific genocide of Native peoples and the enslavement of Africans, the beauty and irony of the American Constitution is that it has always latently held the potential to protect people that many of the signatories never imagined including in the public sphere—people of color, Muslims and Jews, women, LGBT-identified individuals, etc.² The battles for inclusion have been hard-fought and continue to this day, as systemic inequality runs rampant and prejudice continues to plague social life. If history tells us one thing, it is simple: Many of those in power will seek to abuse power through invoking values as varied as safety and morality, while other people continue to fight for liberty and freedom for all, in spite of the norms of the day.

Technology is reconfiguring public life and opening up new opportunities for communication, community, and information access. The networks that are made by and through technology reconfigure power structures and create new mechanisms to assert control over people.³ Old practices of surveilling and categorizing people take on new forms with new technologies.⁴ Digital blacklists, now a mainstay of government power over its citizenry, cloak a longstanding

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1. In discussing American values, de Tocqueville said, “But in America the sovereignty of the people is neither hidden nor sterile as with some other nations; mores recognize it, and the laws proclaim it; it spreads with freedom and attains unimpeded its ultimate consequences.” ALEXIS DE TOCQUEVILLE, *DEMOCRACY IN AMERICA* 36 (Isaac Kramnick ed., Gerald Bevan trans., 2003).

2. As Foner notes in his book description, “[f]rom the Revolution to our own time, freedom has been America’s strongest cultural bond and its most perilous fault line, a birthright for some Americans and a cruel mockery for others.” ERIC FONER, *THE STORY OF AMERICAN FREEDOM* (W. W. Norton & Company, 1999).

3. Manuel Castells offers a detailed analysis of power embedded in and made through networks in MANUEL CASTELLS, *COMMUNICATION* (Oxford University Press, 2009).

4. Geoffrey Bowker and Leigh Star describe how new technologies are regularly used to classify people for political agendas with serious social consequences. This is particularly well detailed in their chapter on racial classification under apartheid. GEOFFREY C. BOWKER & SUSAN LEIGH STAR, *SORTING THINGS OUT: CLASSIFICATION AND ITS CONSEQUENCES* (MIT Press, 1999).

discriminatory practice under new digital silk, while increasing and obfuscating the potential for harm.

The legal analysis that Margaret Hu sets forth in *Big Data Blacklisting* focuses on how due process—both procedural and substantive—fails to address the harms produced by big data blacklists.⁵ To make her case, she describes three types of contemporary blacklists and outlines how these blacklists have wrongfully classified and harmed numerous individuals, further noting the challenges that these people have faced in navigating a Kafka-esque system.⁶ She argues that the data-driven technologies that government agencies have access to allow them to have unprecedented power, producing new dynamics that are both legally and morally challenging.⁷ As a hybrid social scientist with a computer science foundation, I not only agree with her claims and conclusions, but also believe that what she's seeing has deeper roots and implications than she identifies. I want to take up a few of those in response to her article, not to undermine her claims, but to buoy them with additional perspectives.

The mythology surrounding “big data” rests on the notion that technical systems can increase efficiency and decrease bias.⁸ Such “neutral” systems are supposedly good for implementing legal logic because, like these systems, law relies on binaries in decision-making, removing the gray and fuzzy from the equation.⁹ The problem with this formulation is that efficiency is not necessarily desirable, bias is baked into the data sets and reified technically as well as through interpretation,¹⁰ and legal binaries are neither socially productive nor logically sound.¹¹

5. Margaret Hu, *Big Data Blacklisting*, 67 FLA. L. REV. 1735, 1741 (2015).

6. *See generally id.* at 1763–73.

7. *See id.* at 1745.

8. Angèle Christin, *From Daguerreotypes to Algorithms: Machines, Expertise, and Three Forms of Objectivity*, 46 ACM COMPUT. & SOC'Y 27, 27, 32 (2016).

9. “Legal decisions are typically binary, with the parties winning or losing, and with legal rules or precedents being applicable or not.” KEITH J. HOLYOAK & ROBERT G. MORRISON, *THE OXFORD HANDBOOK OF THINKING AND REASONING* 732 (Oxford University Press, 2013).

10. danah boyd & Kate Crawford, *Critical Questions for Big Data: Provocations for a Cultural, Technological, and Scholarly Phenomenon*, 15 INFO., COMM'N & SOC'Y 662, 668. (2012).

11. In *FEMINISM AND THE POWER OF THE LAW*, Carol Smart argues that with regards to the consent/non-consent binary employed in criminal cases involving rape, “neither begins to approach the complexity of a woman’s position when she is being sexually propositioned or abused.” CAROL SMART, *FEMINISM AND THE POWER OF LAW* 33 (Routledge, 2002). *See also* Katharine T. Bartlett, *Feminist Legal Scholarship: A History Through the Lens of the California Law Review*, 100 CAL. L. REV. 381, 397–98 (2012).

I. FORMALIZING THE FUZZY

Let's begin with legal formalities. Most of us break laws, knowingly and unknowingly.¹² Like many New Yorkers, I jaywalk on a daily basis. You may have driven over the speed limit or ignored the Terms of Service on your favorite website.¹³ What's at stake in society is not whether or not everyone conforms to each and every law perfectly—as they never do—but how a structured system of accountability can help society run smoothly and, ideally, fairly.¹⁴ Of course, in practice, fairness is rarely a part of the equation. As Michelle Alexander brilliantly details in *The New Jim Crow*, the law has long been used to exact racist logics and otherwise marginalize poor people.¹⁵ It doesn't matter that whites are more likely to use drugs; blacks are far more likely to pay the cost for violating the law.

This is where judgment comes in. As individuals within communities, we must judge our environment to determine whether or not there is wiggle room in any formal structure. This is the root of creativity, as well as the way in which laws are broken. In the context of our criminal justice system, prosecutors use judgment to decide what

12. While many of the laws that average citizens break are not tracked, many laws that are broken and tracked aren't even seen as illegal to some Americans. To provide one example, according to the National Institute on Drug Abuse, 6.1 million Americans in 2011 had used prescription drugs non-medically in the past month, mostly obtained from family and friends. *Popping Pills: Prescription Drug Abuse in America*, NAT'L INST. ON DRUG ABUSE, <https://www.drugabuse.gov/related-topics/trends-statistics/infographics/popping-pills-prescription-drug-abuse-in-america#1> (last updated Jan. 2014). A 2015 poll conducted by the National Safety Council found that nearly 70% of Americans surveyed were unaware that sharing opioid prescription painkillers with family or friends is a felony. NAT'L SAFETY COUNCIL, OPIOID PAINKILLER MEDIA BRIEFING (2015), <http://www.nsc.org/learn/about/Pages/NSC-Poll-Prescription-Painkiller-Sharing.aspx>.

13. Like “shrinkwrap” licenses and end-user license agreements (EULAs), Terms of Service are often contractually binding even though the typical user does not read the contract or know what is or isn't allowed. Media scholars have argued that this type of media law shifts regulatory power and undermines people's power. See Sandra Braman & Stephanie Roberts, *Advantage ISP: Terms of Service as Media Law*, 5 *NEW MEDIA & SOC'Y*, 422, 423 (2003). Most users simply hope that they will not get into trouble for doing something that they believe to be fair and appropriate.

14. Of course, fairness is often complicated when what is at stake concerns who is visible under the law and who is not. “Since the mid-1990s, police departments across the country have adopted tactics that intentionally increase the volume of citations and arrests for low-level offenses, flooding lower criminal courts with subfelony cases. Misdemeanor justice in the age of mass misdemeanors both upends standard notions of the purposes of criminal procedure and punishment and challenges our understandings about the social role of criminal law.” Issa Kohler-Hausmann, *Managerial Justice and Mass Misdemeanors*, 66 *STAN. L. REV.* 611, 613 (2014).

15. See generally MICHELLE ALEXANDER, *THE NEW JIM CROW: MASS INCARCERATION IN THE AGE OF COLORBLINDNESS* (The New Press, 2010).

violations are serious enough to prosecute and, if convicted, judges use a mix of judgment, guidelines, and requirements to issue a punishment. Yet, judgment is often imperfect, biased, and inconsistent. In the 1980s, in an effort to remove racial bias from judicial decision-making, Congress and many states passed mandatory minimum sentencing laws.¹⁶ Yet, as Alexander and other scholars have documented, this did nothing to remove bias from the system; it simply shifted the locus of judgment within the system while making accountability even more difficult.¹⁷

II. DIGITIZING BUREAUCRACY, AUTOMATING BIAS

Over the last 50 years, numerous sectors have attempted to rid themselves of discriminatory practices through formal procedure and law.¹⁸ Many believed that fairness could be a product of bureaucratic practice and so countless organizations and policymakers have turned to procedure to develop formal mechanisms to declare protected classes, implement anti-discrimination rules, and assess disparate impact and other forms of discrimination.¹⁹ Some of the legal standards held people and organizations accountable for failing to provide equal access and opportunity, while others focused on mechanisms to right historical wrongs (e.g., affirmative action).

While great strides have been made to address certain forms of discrimination, some inequalities and discriminatory practices are quite entrenched. This is, after all, what prompted mandatory minimum sentencing. Moreover, scholars began pointing to implicit bias, highlighting that people make biased and discriminatory decisions not

16. MICHAEL TONRY, SENTENCING MATTERS 7 (Oxford University Press, 1996).

17. ALEXANDER, *supra* note 15, at 139.

18. For example, some civil rights legislation addressed specific sectors such as housing. The Fair Housing Act (Title VIII of the Civil Rights Act of 1968) introduced enforcement mechanisms for ensuring fair housing rights in the sale, rental, and financing of dwellings, as well as other housing-related transactions. See *The Fair Housing Act*, 42 U.S.C. § 3601 (2012).

19. New protected classes were established with the Civil Rights Act of 1964 which outlawed discrimination based on race, color, religion, and national origin. Civil Rights Act of 1964, Pub. L. No. 88-352, 78 Stat. 241 (1964). With the Fair Housing Act, understandings of discriminatory practices were broadened with the concept of “disparate impact,” which asserted that a policy may be considered discriminatory if it has a “disproportionately adverse impact” on individuals within a protected class. *Disparate Impact*, NAT’L FAIR HOUS. ALL., <http://www.nationalfairhousing.org/PublicPolicy/DisparateImpact/tabid/4264/Default.aspx> (last visited June 22, 2016). Policies on an institutional level, such as the introduction of anti-discriminatory hiring guidelines, have become common practice as a result of the enforcement of civil rights legislation by the Equal Employment Opportunity Commission. *Prohibited Employment Policies/Practices*, U.S. EQUAL EMP’T OPPORTUNITY COMM’N, <https://www.eeoc.gov/laws/practices> (last visited June 22, 2016).

out of ill-will, but because they are entrenched in a prejudicial society.²⁰ This prompted advocates to ask how we can eliminate implicit bias in arenas like policing, education, housing, and healthcare.²¹ At the same time, technology offers a different route for change. Why not simply allow the machine to make decisions?

The introduction of computational decision-making emerged alongside the rise of “big data” and the publicly hyped possibility that, through large quantities of data, we can understand and predict countless types of human behavior, practice, and intent. Technology has long been seen as “neutral,” devoid of all of the biases of humans and able to produce outcomes that are seen as more fair.²² Furthermore, because the paperwork element of bureaucracy was quickly getting digitized,²³ it seemed only natural for the decision-making side of bureaucracy to be digitized too, especially if the resultant data would produce better outcomes.

Just as procedures and process are often introduced to stabilize and rationalize biased systems, so too are technologies that rely on data. And, just as procedures often entrench and systematize longstanding bias, so too do technologies that rely on data. Mandatory minimum sentencing didn’t eradicate biased judicial decision-making, which is why bureaucrats and advocates have turned to “risk assessment” tools.²⁴ Yet, already, we are seeing that these tools have simply encoded

20. See generally MAHZARIN R. BANAJI & ANTHONY G. GREENWALD, *BLINDSPOT: HIDDEN BIASES OF GOOD PEOPLE* (Delacorte Press, 1st ed., 2013) (discussing hidden biases).

21. Psychology research in a variety of sectors has sought to identify and correct for unconscious bias through the use of measures like the Implicit-Association Test (IAT). Chris Mooney, *The Science of Why Cops Shoot Young Black Men*, MOTHER JONES (Dec. 1, 2014), <http://www.motherjones.com/politics/2014/11/science-of-racism-prejudice>. For example, in areas like law enforcement, programs such as the Fair and Impartial Policing Program, funded by the U.S. Department of Justice, administer training curricula aimed at reducing unconscious racial bias within police forces. *Recruit and Patrol Officer Training*, FAIR AND IMPARTIAL POLICING, <http://www.fairimpartialpolicing.com/training-programs> (last visited June 22, 2016).

22. Tarleton Gillespie argues that one of the major promises of algorithms is that they act as “stabilizers of trust, practical and symbolic assurances that their evaluations are fair and accurate, free from subjectivity, error, or attempted influence” but that this claim is a “carefully crafted fiction.” TARLETON GILLESPIE, *The Relevance of Algorithms*, in *MEDIA TECHNOLOGIES: ESSAYS ON COMMUNICATION, MATERIALITY, AND SOCIETY* 179 (MIT Press, 2014).

23. BEN KAFKA, *THE DEMON OF WRITING: POWERS AND FAILURES OF PAPERWORK*, (Zone Books, 2012) (discussing the powers, failures, and complexities of paperwork).

24. Risk assessment software in criminal sentencing rates the likelihood that a defendant will commit a future crime. For a background primer on risk assessment tools, see Christin, Angèle, Alex Rosenblat, & danah boyd, *Courts and Predictive Algorithms*, in *DATA & C.R.* (Oct. 27, 2015), http://www.datacivilrights.org/pubs/2015-1027/Courts_and_Predictive_Algorithms.pdf.

prejudicial practices into judicial procedures by relying on biased datasets.²⁵

The beauty and limit of computation is that computers can automate countless processes. This can indeed produce efficiency, as computers can calculate complex mathematical equations faster than any human. Yet, when it comes to decision-making and judgment, computers do nothing more than they are asked to do.²⁶ So if they are fed a pile of data and asked to identify correlations in that data, they will return an answer dependent solely on the data they know and the mathematical definition of correlation that they are given. Computers do not know if the data they receive is wrong, biased, incomplete, or misleading. They do not know if the algorithm they are told to use has flaws. They simply produce the output they are designed to produce based on the inputs they are given.

It is the procedural nature of an algorithm that makes computational models so effective as bureaucrats. Unless you build the logic into the program, computers do not know to treat someone who runs a red light because they are drunk any differently than someone experiencing a medical emergency. All they know is that a traffic violation took place.

The problem with using technology to redress social inequities is that technical systems are typically designed by powerful actors to produce outcomes that address their interests, often at the expense of those who are less powerful. The data that is used in such systems are often deeply flawed, biased, incomplete, and inaccurate, for countless different reasons.²⁷ And when programs are designed to train on that data to “predict” outcomes, the biases get rooted deep into the system.²⁸ Systems are rarely designed to be prejudiced, but neither are they designed to combat prejudice.

25. Despite excluding race as a decision-making factor, Northpointe’s software, used in criminal risk assessment in Florida’s Broward County, was found in an investigation by ProPublica to inaccurately discriminate: Black defendants were almost twice as likely as white defendants to be wrongly rated with a high-risk score. Julia Angwin et al., *Machine Bias*, PROPUBLICA (May 23, 2016), <https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing>.

26. See Solon Barocas & Andrew D. Selbst, *Big Data’s Disparate Impact*, 104 CAL. L. REV. 671, 674 (2015).

27. For a discussion on this topic, see NEW AMERICAN FOUNDATION, DATA AND DISCRIMINATION: COLLECTED ESSAYS, (Seeta Peña Gangadharan et al., 2015).

28. For a broad collection of work on how this process affects criminal justice, see *A New Era of Policing & Justice*, DATA & C.R. (Oct. 27, 2015), <http://www.datacivilrights.org/2015/>.

III. DISLOCATING LIABILITY

In a bureaucratic system, identifying who is responsible and holding them accountable can be difficult and infuriating. Such is also the case when bureaucracy is digitized. Yet, because technology is seen as neutral, data are assumed to be accurate, and computational models are poorly understood; existing techniques to hold bureaucracies accountable are undone and shielded in new ways at the same time that technology automates and scales historically discriminatory and biased practices under the guise of technical perfection.

This distancing has been a source of inquiry in the social sciences for decades, most notably rooted in two controversial works published in 1963. In both Stanley Milgram's famous obedience-to-authority experiment and Hannah Arendt's accounting of the Adolf Eichmann trial, social theorists attempted to make sense of the Holocaust by looking for the roots of sadistic cruelty.²⁹ What they found, in the words of Arendt, was the "banality of evil" that is made possible through organizational and social structures.³⁰

Through this lens, we can see how Hu's contribution goes beyond law. Big data blacklists are nothing more than a bureaucratic tool to use data and computation to categorize and label people in order to feed the results back into a system that will procedurally determine the value of the person in relation to concerns articulated from a distance. These blacklists purposefully distance decision-makers from the humanity of those who are being labeled. This can only be justified morally through faith in computational systems and the accuracy of the data that are used. Due process forces a reckoning that undoes basic beliefs about the possibility of neutrality, a frame that is essential to the assertion of power. This is precisely why such an intervention is needed.

29. Stanley Milgram, *Behavioral Study of Obedience*, 67 J. OF ABNORMAL & SOC. PSYCHOL. 371 (1963); HANNAH ARENDT, EICHMANN IN JERUSALEM: A REPORT ON THE BANALITY OF EVIL (Penguin Classics, 1st ed., 2006).

30. ARENDT, *supra* note 29.