A Minority Report: The Unregulated Business of Automating the Criminal Justice System

Larissa Tiller*

March 2019

The *Business, Entrepreneurship & Tax Law Review's*

B.E.T.R. White Paper

ABSTRACT

The following article examines the inherent issues with the current use of algorithms to assess risk in criminal sentencing. The design and use of these algorithms go unregulated. In addition, they are also protected by certain intellectual property provisions, placing them beyond not only an individual defendant's ability to review, but any sort of governmental review process, as well. This article asserts that the unregulated use of these algorithms in criminal sentencing violates a defendant's due process rights and should therefore be banned from use across the nation. In addition, this article suggests that algorithms used in other areas of society should be subject to regulatory oversight by a governmental agency to ensure some measure of quality control and public safety protection.

BUSINESS, ENTREPRENEURSHIP, & TAX LAW REVIEW

I. INTRODUCTION

In 2002, Director Steven Spielberg released a sci-fi fantasy film called *Minority Report*.[1] The movie, set in the year 2054, centers around a police unit located in the District of Columbia called PreCrime, which is tasked with arresting people before they can commit murder.[2] The unit relies on the premonitions of three individuals, whose visions of future murders are projected onto a computer screen for the police and are then used to prevent the murders.[3] Just as the federal government is set to expand PreCrime across the nation, however, a flaw in the system is discovered: occasionally one of the three individuals receives a premonition that completely contradicts what the other two "saw."[4] As the movie unfolds, it is revealed that the director of the unit covered up this information to keep the American people believing in the infallibility of the system and to ensure its adoption on a national level.[5] Such a story might sound too far-fetched to ever happen in real life, but elements of what was meant as a fantasy are quickly becoming reality.

When Chief Justice John Roberts visited Rensselaer Polytechnic Institute in 2017, Shirley Ann Jackson, president of the college, asked the Chief Justice, "Can you foresee a day when smart machines, driven with artificial intelligences, will assist with courtroom fact-finding or, more controversially even, judicial decision-making?" His response was startling in its certainty: "It's a day that's here."[6]

---

* Larissa Tiller is a second-year law student at the University of Missouri School of Law. She would like to thank Ben Kweskin for being such an understanding editor.

1. MINORITY REPORT (Twentieth Century Fox 2002).
2. *Id.*
3. *Id.*
4. *Id.*
5. *Id.*
6. Adam Liptak, *Sent to Prison by a Software Program's Secret Algorithms*, N.Y. TIMES (May 1, 2017), https://www.nytimes.com/2017/05/01/us/politics/sent-to-prison-by-a-software-programs-secret-algorithms.html.

Several state criminal justice systems in the United States currently utilize computer algorithms to determine what is an appropriate sentence based on the defendant's risk of recidivism.[7] For instance, after a defendant is convicted of a crime in Wisconsin, a computer algorithm called Correctional Offender Management Profiling for Alternative Sanctions ("COMPAS") makes a prediction of the likelihood that the defendant will commit a crime in the future.[8] At the beginning of this process, a number is assigned to the defendant, which predicts their risk of becoming a repeat offender.[9] A judge then uses this number to compute the sentence and determine whether to place the defendant on probation, send them to a rehabilitation center, or, if prison time is recommended, determine the length of their sentence.[10] While these judges are not mandated to follow the recommendations that the system gives them, many do use the predictions to inform their decisions.[11] While this may sound like something out of a sci-fi movie, it is all too real.

In *State v. Loomis*, the presiding judge cited the COMPAS program as directly influencing his ruling when handing down his decision.[12] Addressing the defendant, he asserted the following:

> You're identified, through the COMPAS assessment, as an individual who is at high risk to the community. In terms of weighing the various factors, I'm ruling out probation because of the seriousness of the crime and because your history . . . and the risk assessment tools that have been utilized, suggest that you're extremely high risk to re-offend.[13]

---

7. Steven L. Chanenson & Jordan M. Hyatt, *The Use of Risk Assessment at Sentencing: Implications for Research and Policy* 5 (Villanova U. Charles Widger Sch. L., Paper No. 2017-1040, 2016).
8. State v. Loomis, 881 N.W.2d 749, 755 (Wis. 2015).
9. *Id.*
10. *Id.* at 767.
11. *Id.*
12. *Id.* at 755.
13. *Id.*

The court handed down this ruling in 2015[14] after the accused was convicted of driving a stolen car and fleeing from police.[15] Using the "risk score" generated by the COMPAS algorithm, the judge sentenced Mr. Loomis to eight years and six months in prison.[16] Although the risk assessment tool considered whether Mr. Loomis would benefit from rehabilitation alternatives,[17] he had such a high risk of reoffending that those were ruled out as viable options.[18] The score was generated using information from Mr. Loomis' criminal record along with responses to a questionnaire he filled out after his arrest.[19] The questionnaire asked questions such as "was your mother ever arrested?";[20] "what were your usual grades in school?";[21] and "in your neighborhood, have some of your friends or family been the victim of a crime?"[22] How the algorithm weighs these factors and comes to a conclusion is currently unknown, however, because of certain intellectual property law protections.

The algorithm used in Mr. Loomis' case, COMPAS, created by Northpointe, Inc., and sold to the state of Wisconsin, is protected under trade secret laws, making it impossible for the public, or even the government, to know how the program is arriving at its decisions.[23] The use of proprietary algorithms in criminal sentencing is suspect for many reasons, but the greatest issue lies in their lack of transparency. It is a violation of due process to deny defendants the ability to review the information that the state uses to decide their sentences.[24] Ultimately, given the nature of what is at stake, this article concludes that trade

14. *Id.*
15. *Id.* at 754.
16. *Id.* at n.18.
17. *Id.* at 771.
18. *Id.*
19. *Id.* at 754.
20. *Sample COMPAS "Core" Risk and Needs Assessment Form* 3, https://www.documentcloud.org/documents/2702103-Sample-Risk-Assessment-COMPAS-CORE.html (last visited Mar. 3, 2019) [hereinafter *Sample*].
21. *Id.* at 5.
22. *Id.*
23. *Loomis*, 881 N.W.2d at 760–61.
24. *Id.* at 760.

secrecy protection should not be granted to these types of systems. Instead, companies like COMPAS should only be permitted to file for protection under copyright law because it provides enough security to keep the creator's property rights safe while not conflicting with a defendant's due process rights.

This article does not assert that all algorithms are harmful or that they should be banned entirely. Algorithms are sometimes quite helpful, and it is difficult to imagine the modern world without them. They have become an integral part of everyday life as they are currently being used in the Google search engine,[25] as well as dating apps like Tinder.[26] While these types of systems are almost universally viewed as being beneficial, other systems, such as the risk-assessment systems, are not so benign. Although some individuals "applaud the removal of human beings and their flaws from the assessment process,"[27] there are many who would disagree with that decision,[28] while others view the use of the algorithms with complete mistrust.[29] There is no denying that, in general, algorithms are a great help to humanity. Certain steps must be taken now, however, to ensure that they continue to help us create a better future.

25. *The Google Algorithm*, N.Y. TIMES (July 14, 2010), https://www.nytimes.com/2010/07/15/opinion/15thu3.html.
26. Madeline Farber, *Tinder's New Algorithm Helps Users Get More Matches*, FORTUNE (Oct. 13, 2016), http://fortune.com/2016/10/13/tinder-smart-photos/.
27. Danielle Keats Citron & Frank A. Pasquale, *The Scored Society: Due Process for Automated Predictions*, 89 WASH. L. REV. 1 (2014).
28. Tiffany Dill, *Criminal Sentencing Algorithm No More Accurate Than Random People on the Internet*, PBS (Feb. 2018), http://www.pbs.org/wgbh/nova/next/tech/criminal-sentencing-algorithm-no-more-accurate-than-random-people-on-the-internet/.
29. Jason Tashea, *Courts Are Using AI to Sentence Criminals. That Must Stop Now*, WIRED (Apr. 17, 2017), https://www.wired.com/2017/04/courts-using-ai-sentence-criminals-must-stop-now/.

II. ALGORITHMS IN CRIMINAL SENTENCING

A. Background

Risk-assessment systems predict an individual's "statistically likely future criminal conduct."[30] Sentencing a defendant using risk assessment systems is not a new concept, and such an approach is common in almost every United States jurisdiction.[31] Judges often consider the possibility that the defendant might commit a similar crime in the future when handing down their judgments.[32] Although such a determination is usually based on the judge's experience and intuition.[33] Lately, however, judges increasingly rely on risk-assessment systems to determine how great a defendant's risk is and to therefore calculate what that defendant's sentence should be.

In order to fully understand how these systems are used, it is important to understand what prompted their use in the first place. Virginia, the first state to implement risk assessment in criminal sentencing, cited a desire to divert low-risk defendants from incarceration to alternative rehabilitation options.[34] In essence, it seemed the state wanted to reduce its prison population. Other proponents of the risk-assessment system listed a desire for uniformity, or a "consistent framework" for considering risk in sentencing.[35] In addition, there is fear that sentencing is currently too harsh on those who are not considered high-risk scorers.[36]

---

30. Chanenson & Hyatt, *supra* note 7, at 5.
31. *Id.* at 3.
32. *Id.*
33. *Id.*
34. *Id.* at 6.
35. *Id.* at 8.
36. *Id.*

Although the reasons listed above sound reasonable, the use of risk assessment has prompted considerable debate.[37] For instance, people who view sentencing as a means by which to punish individuals for the crimes they commit (retributivists), are more critical of these tactics;[38] perhaps because the focus is not on the crime that was committed, but on the crime that *could* be committed. Those that view sentencing as a means by which to protect the public from harm (utilitarians), however, are more accepting of risk-assessment tactics.[39] Regardless of their view of incarceration, however, there is concern as to the type of data used to generate the algorithm's decision—especially data that lends itself to perpetuating certain negative stereotypes.[40] The debate over these issues is currently waging, and how they are resolved could impact American society for generations. Therefore, how the issues are resolved calls for special care and attention.

B. Issues

i. Machine Learning

The algorithms that form the foundation of all artificial intelligence systems are considered computer programs and, as such, fall under the protection of the Copyright Act.[41] Computer programs are defined by the Copyright Act as "a set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result."[42] There are several different types of algorithms that are designed to perform a specific, narrow function or task.[43] There is a new iteration of algorithm that has recently arrived on the scene,

37. *Id.*
38. *Id.* at 4.
39. *Id.*
40. *Id.*
41. 17 U.S.C. § 101 (2010).
42. *Id.*
43. Andrew Tutt, *An FDA For Algorithms*, 69 ADMIN. L. REV. 83, 92 (2017).

which has broader capabilities. These systems utilize what is known as "machine learning."[44]

All algorithms take the set of instructions they are given and apply them to whatever data set they are fed.[45] The difference between the typical algorithm and those that are capable of machine learning, however, is the fact that machine learning algorithms are able to "learn from experience and thus improve their performance over time."[46] In addition, if the machine learning algorithms are performing correctly, they can produce "automated results that approximate those that would have been made by a similarly situated person."[47] Therefore, machine learning is often "considered a branch of artificial intelligence, since a well-performing algorithm may produce automated results that appear 'intelligent.'"[48] This development in the world of computer programming has received widespread acclaim, but lately issues have arisen when using these systems in certain contexts and for certain purposes, such as criminal sentencing.[49]

Essentially, machine learning, which refers to an algorithm that can "learn" or "improve in performance over time on some task,"[50] means that the algorithm processes information it encounters and adapts its thinking to conform with what it is taught is the "correct" way to assess something.[51] Therefore, an algorithm's analysis will reflect whatever biased interpretation of the information given by the writer or creator of the algorithm. If they insert their own personal bias into the system, whether intentionally or otherwise, the system will

---

44. *Id.* at 85.
45. *Id.* at 93.
46. Harry Surden, *Machine Learning and Law*, 89 WASH. L. REV. 87, 90 (2014).
47. *Id.*
48. *Id.*
49. Katherine Freeman, *Algorithmic Injustice: How the Wisconsin Supreme Court Failed to Protect Due Process Rights in* State v. Loomis, 18 N.C. J.L. & TECH. ON. 75 (2016).
50. Surden, *supra* note 46, at 88.
51. *Id.*

reflect that bias in the conclusions that it reaches or the way that it views a certain issue. Without clear governmental guidance or a set of regulations for what information the system can use to "learn," the algorithms are no better than a human agent at making decisions free from prejudice or bias.[52] In the context of the criminal justice system, this issue is particularly problematic.

ii. Trade Secrets

The alleged purpose of using these risk assessment systems is to prevent recidivism and to send more people into rehabilitation centers where they can get the help they need.[53] In addition, some individuals argue that the use of these systems curbs the ability of the presiding judge to render a decision based solely on their own personal prejudices and bias.[54]

While increasing efficiency and reducing unjust punishments are worthy objectives, there are several issues with implementing risk-assessment systems. First, there is some cause for concern with the way the systems determine who should be rehabilitated and who should go to prison. The process by which a risk assessment system arrives at its conclusion is usually hidden from the public and, in some instances, even hidden from scrutiny by the government relying on them.[55] The reason for this is that the systems are often proprietary, meaning that the government purchases them from private companies, but which have also claimed trade secrecy for some components, entitling them to certain legal protections.[56] These components of the systems are shielded from review, ostensibly so that their competitors cannot easily replicate the product. Yet, a consequence of this protection is that

52. Dill, *supra* note 28.
53. Chanenson & Hyatt, *supra* note 7, at 26.
54. *Id.*
55. State v. Loomis, 881 N.W.2d 749, 760–61 (Wis. 2015).
56. *Id.*

those using the system, and those subject to the system's decision, are unaware of how it conducted its analysis.[57]

iii. Black Boxed

In addition to concerns about machine learning and trade secrecy, another issue with relying on risk-assessment algorithms lies in the fact that the exact details of how the algorithms work can be "black boxed,"[58] making it impossible to subject the systems to review. When an algorithm is black boxed, the input and ultimate output of the system are observable, but how the system arrives at that outcome is unknown, even to those who created it.[59] The system is taught to search for patterns using the data provided, but as time goes by, new data sets prompt the system to adapt its way of analyzing these cases, causing the system to evolve in ways that its creators may not have anticipated.[60] This lack of predictability, coupled with the fact that these systems are not compelled to "show their work," puts a defendant's right to due process under the Fifth Amendment of the Constitution in jeopardy.[61] Denying defendants the ability to review and scrutinize information upon which the state decides the sentence violates an essential component of due process.[62]

iv. Bias

Another concerning component in the use of proprietary algorithms in criminal sentencing is that, instead of preventing judges from making decisions based on their own prejudices,

57. *Id.*
58. Nicholas Diakopoulos, TOW CTR. FOR DIGITAL JOURNALISM, ALGORITHMIC ACCOUNTABILITY: THE INVESTIGATION OF BLACK BOXES (2014), http://www.nickdiakopoulos.com/wp-content/uploads/2011/07/Algorithmic-Accountability-Reporting_final.pdf.
59. *Id.*
60. *Id.*
61. *Loomis*, 881 N.W.2d at 760.
62. *Id.*

it merely codifies those prejudices.[63] In 2016, a study released by ProPublica revealed that when risk assessment systems made an error in determining who was more likely to be a repeat offender, the error rate was greater when it involved a black defendant than a white one.[64] In essence, these systems are not removing bias or prejudice from the criminal justice system as asserted. The machines are not malicious, of course, and they are not asserting some form of will when they are analyzing a case. The reason they make flawed conclusions is because the data that is being used to "teach" them how to make decisions is suspect in the first place. For instance, some programs inquire as to the defendant's gender, educational background, and socioeconomic status, and then adjusts the risk assessment accordingly.[65] These factors are suspect because they do not speak to any element of the crime committed. Using these factors to determine a sentence is in effect judging the person for who they are, rather than what crime they have committed. Thus, the common saying in computer science "garbage in garbage out," has assumed a greater significance than ever before.[66]

v. Automation Bias

A major flaw in blindly relying on algorithms to govern the legal system, or the world in general, is the idea that these systems are somehow superior to their creators. This so-called "automation bias" is "the proposition that individuals tend to rely on the judgments of automated decisions as superior to their own, even when they have reason to believe the technology is flawed."[67] One study conducted at Dartmouth College recently revealed that

---

63. Lindsey Barrett, *Reasonably Suspicious Algorithms: Predictive Policing at The United States Border*, 41 N.Y.U. REV. L. & SOC. CHANGE 327, 341 (2017).
64. Julia Angwin, Jeff Larson, Surya Mattu & Lauren Kirchner, *Machine Bias*, PRO PUBLICA (May 23, 2016), https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing.
65. *Sample*, *supra* note 20.
66. *Garbage in, Garbage Out*, CAMBRIDGE DICTIONARY, https://dictionary.cambridge.org/us/dictionary/english/garbage-in-garbage-out (last visited Mar. 3, 2019).
67. Barrett, *supra* note 63, at 343.

the COMPAS system was no better than the study's human participants (who were pulled from Amazon's Mechanical Turk service) in assessing the risk that a defendant would reoffend.[68] In addition, "a larger proportion of black criminals were wrongly predicted to reoffend (37.1% humans, 40.4% COMPAS),[69] compared with white defendants (27.2% humans, 25.4% COMPAS)."[70] Furthermore, even though the study only relied on two features when making an assessment, it reached essentially the same conclusion as COMPAS, despite the latter relying on 137 features.[71] Therefore, the belief that algorithms will somehow remove the issue of racial prejudice or bias in the criminal justice system does not reflect reality. If the systems are equally as good at predicting recidivism as human agents but lack any sort of accountability or reviewing system that human judges are subject to, then there is little benefit to using algorithms. In fact, such reliance will only exacerbate the problems that we currently face.

Clearly, relying on biased or slanted information to learn patterns, make assessments, and come to conclusions does not remove the issue of bias or human prejudice from an algorithm's decisions. In fact, by granting these systems the appearance of scientific impartiality, it allows them a measure of protection from the scrutiny and appellate review that a judge's decision does not enjoy. This check is a necessary component of the American criminal justice system and removing the ability to assess the work of a decision maker when something so important as a person's life is on the line is dangerous to the principles of justice and fairness. Of course, deciding a person's fate based on certain criteria, such as the nature of the crime, is not a new concept. The entire criminal justice system is founded on the basic idea that the punishment handed out must match the offense

68. Dill, *supra* note 28.
69. *Id.*
70. *Id.*
71. *Id.*

committed.[72] Aggravating and mitigating factors are often considered when handing down a verdict, and later, a sentence.[73] Problems arise, however, when there is too little room for discretion in handing down a decision.

The obvious parallel to the use of the risk assessment systems is the federal minimum sentencing guidelines, which were created under the authority of the Sentencing Reform Act of 1984.[74] At first, the federal guidelines were "embraced as hallmarks of truth in sentencing and a certain means of incapacitating the criminally dangerous."[75] Originally, the guidelines only applied to individuals and their criminal offenses. However, in 1991, Congress extended the guidelines to cover organizations.[76] While the alleged purpose of the guidelines is different depending on the type of offender (retributive/punishment for an individual and utilitarian/deterrence for organizations), the goal is always the same: create uniformity within sentencing and "curtail discretionary sentencing."[77] In the years since their implementation, however, the guidelines are often criticized as "unthinkingly harsh and incompatible with a rational sentencing guideline system."[78]

One particularly troubling aspect of the original federal guidelines was that conformity with the guidelines was mandatory in determining a defendant's sentence.[79] In essence, a judge could not hand down a sentence less than the minimum required by the guidelines,

---

72. Donald W. Shriver, *Crimes and Punishments*, MOYERS (Mar. 31, 2017), https://billmoyers.com/story/condensed-crimes-and-punishments/.
73. *Aggravating and Mitigating Factors*, JUSTIA, https://www.justia.com/criminal/aggravating-mitigating-factors/ (last visited Mar. 3, 2019).
74. CHARLES DOYLE, CONG. RES. SERV., RL32040, FEDERAL MANDATORY MINIMUM SENTENCING STATUTES 6 (2013).
75. *Id.*
76. Diana Murphy, *The Federal Sentencing Guidelines for Organizations: A Decade of Promoting Compliance and Ethics*, 87 IOWA L. REV. 697, 701–02 (2002).
77. DOYLE, *supra* note 74, at 6.
78. *Id.* at 1.
79. *Id.*

unless the government cut a deal with the defendant in exchange for their "substantial assistance" with prosecuting another person.[80] In 2005, however, the Supreme Court handed down its decision in *United States v. Booker*, in which it held that construing the guidelines as mandatory when determining a sentence violated a defendant's right to trial by jury under the Sixth Amendment.[81] Thereafter, the guidelines are only used if judges are allowed some discretion in applying them.[82] The same type of analysis may return a similar result in this case. If these systems are used, then one obvious check is for judges to use them at their discretion.

One clear difference between the federal minimum sentencing guidelines and the risk-assessment systems is data disclosure. Under the guidelines, a judge uses a sentencing table that considers two factors to determine an appropriate sentencing range: (1) the conduct associated with the offense, and (2) the defendant's criminal history.[83] Under certain systems, such as the privately developed COMPAS, exactly how the algorithm determines what risk score to assign is obscured. Furthermore, as a form of intellectual property, algorithms used to generate a risk score can fall under the protective label of trade secret. As the Wisconsin Supreme Court noted in its appellate opinion in the *Loomis* case, "Northpointe, Inc., the developer of COMPAS, considers COMPAS a proprietary instrument and a trade secret. Accordingly, it does not disclose how the risk scores are determined or how the factors are weighed."[84] This form of protection makes it impossible to subject the systems to the proper review that must occur when a person's liberty is on the line.

The data that is used to train the algorithm how to recognize patterns and problem-solve is often labeled a trade secret to prevent other developers from replicating the system and

80. 18 U.S.C. § 3553(e) (2018).
81. U.S. v. Booker, 543 U.S. 220, 267 (2005).
82. *Id.*
83. U.S. SENTENCING COMMISSION, 2018 GUIDELINES MANUAL 406 (Nov. 2018).
84. State v. Loomis, 881 N.W.2d 749, 761 (Wis. 2015).

cutting into the original developer's profits.[85] This lack of disclosure is concerning as the system is not subject to review or examination by either the defendant or an appellate court.[86] In fact, not even the sentencing judge is aware of how the system arrived at the score it assigned a defendant, requiring them to blindly trust that the algorithm was correct in its assessment.[87] While no United States jurisdiction currently mandates that a judge abide by the score that a risk assessment system generates, the fact that such systems are being relied upon at all is troublesome. Additionally, as made clear in the *Loomis* ruling, judges are becoming reliant on the systems in their analysis and conclusions.[88] Therefore, regulatory oversight should be established now before total reliance on these obscured assessment tools becomes the norm. First, there are several legal hurdles to leap over before such a system could be implemented.

Besides trade secret, the algorithms the companies like COMAS design and create for state criminal justice systems are protected under various copyright laws.[89] This branch of intellectual property law has been cited as the reason for bias issues that have recently been discovered in various algorithms.[90] For instance, Google's word2vec toolbox came under critical fire last year when it was discovered that the word embedding program (essentially a program that tries to learn about the relationship between words) was making sexist connections such as that man is to computer programmer as woman is to homemaker.[91] Again, this goes back to issues with machine learning, but in this case the issue was easy to

85. Rebecca Wexler, *Code of Silence: How Private Companies Hide Flaws in the Software that Governments use to Decide Who goes to Prison and Who gets Out*, WASH. MONTHLY (2017), https://washingtonmonthly.com/magazine/junejul-yaugust-2017/code-of-silence/.
86. *Id.*
87. *Id.*
88. *Loomis*, 881 N.W.2d at 755.
89. 17 U.S.C. § 101 (2010).
90. Amanda Levendowski, *How Copyright Law Can Fix Artificial Intelligence's Implicit Bias Problem*, 93 WASH. L. REV. 579 (July 24, 2017).
91. *Id.* at 581.

identify. The output was clearly not what the programmer had intended, and once that flaw was identified, it could be worked out of the system.

In criminal sentencing, however, such a solution is unlikely. The defendants have already been convicted, and the only issue left is the appropriate sentence to assign them. The outcome is then predetermined to fall within a certain range (prison, probation, rehab), and, therefore, each outcome has already been predetermined as acceptable. Yet another glaring issue with rendering these sentences is that they will not be fairly applied in an individualized manner.

vi. Individualized Sentencing

Former Attorney General, Eric Holder, cautioned against relying on risk assessment tools when handing out sentences.[92] He was concerned that they focused on judging defendants based on which social and economic group they fell into, rather than the crimes they may have committed.[93] Holder cautioned that these tools, instead of alleviating the symptoms of an infected justice system, could merely insulate the disease from treatment:

Although these measures were crafted with the best of intentions, I am concerned that they may inadvertently undermine our efforts to ensure individualized and equal justice. By basing sentencing decisions on static factors and immutable characteristics—like the defendant's education level, socioeconomic background, or neighborhood—they may exacerbate unwarranted and unjust disparities that are already far too common in our criminal justice system and in our society.[94]

---

92. Joanna Brenner, *Transcript: Former Attorney General Eric Holder's Speech at the 2016 Democratic National Convention*, NEWSWEEK (Aug. 1, 2014), http://www.newsweek.com/transcript-eric-holder-democratic-national-convention-484294.
93. *Id.*
94. *Id.*

As Mr. Holder noted, one glaring issue with risk assessment tools is the lack of individualized sentencing.[95] Defendants are lumped together in groups and assigned sentences based off of membership in those particular groups, rather than what crime they have been convicted of committing.[96] Social factors are given weight in determining how long a defendant should serve time, and indeed, if they should even serve time in the first place.[97] Moreover, some of the factors utilized are not "bad" facts, but they are things that some people in certain areas of society condemn or view with disfavor. For instance, some of the questions asked in the COMPAS questionnaire focus on the defendant's socio-economic status and their upbringing.[98] In addition, some of the questions it asks are whether the defendant grew up in a single-parent household,[99] or if they lived in a neighborhood that was crime-heavy.[100] The first question (whether they were raised by only one parent), is suspect because it assumes that people raised by single parents were somehow disadvantaged; not only may they have had a perfectly stable upbringing, but single-parent households are now the majority.[101]

The second question (what neighborhood they grew up in) judges a person on their environment, not on their actions.[102] Looking at these two questions alone raises some serious concerns and obvious issues of fairness and individualized sentencing. In addition, by sentencing people who grew up with only one parent or in a bad neighborhood ensures that

95. *Id.*
96. *Sample*, *supra* note 20.
97. *Id.*
98. *Id.*
99. *Id.* at 1.
100. *Id.* at 4.
101. Gretchen Livingston, *Fewer Than Half of U.S. Kids Today Live in a 'Traditional' Family*, PEW RES. GROUP (Dec. 22, 2014), http://www.pewresearch.org/fact-tank/2014/12/22/less-than-half-of-u-s-kids-today-live-in-a-traditional-family/.
102. *Sample*, *supra* note 20.

racial and socio-economic disparities are programed into the justice system. It further ensures that racial minorities and the poor are imprisoned longer, or at least more so than wealthier white individuals. Thus, the way these risk assessment tools are used is inherently flawed and contributes nothing of value to curing the justice system of the infectious disease of bias, but merely ensures that these issues will continue to be an issue.

vii. Due Process

In the *Loomis* case, Mr. Loomis appealed his conviction up to the Supreme Court of Wisconsin, claiming that the use of the sentencing algorithm violated his Fifth Amendment right to due process as he was unable to review the algorithm.[103] In his initial appeal, the Supreme Court of Wisconsin held that there was no violation of his due process rights because the information the system relied upon—such as his criminal record and the crime committed—was public information[104] which would have informed the judge's own decision had he made a ruling independent of the risk assessment tool.[105] Furthermore, it held that a sentencing court "erroneously exercises its discretion" only when "its sentencing decision is not based on the facts in the record or it misapplies the applicable law."[106] Although Loomis appealed his case again to the United States Supreme Court, the Court denied certiorari.[107] This decision is concerning because the COMPAS algorithm used in Wisconsin courts is not made available for review, therefore, there is no way to know how it processed the facts of the case and the applicable law.[108] Moreover, the "output" of finding Mr. Loomis guilty is not clearly an error like that in the case of Google's word2vec toolbox, and there is no way to know if the system is operating properly or if it needs to be corrected.

---

103. State v. Loomis, 881 N.W.2d 749, 755 (Wis. 2015).
104. *Id.*
105. *Id.*
106. *Id.* at 757.
107. Loomis v. Wisconsin, 137 S. Ct. 2290 (2017).
108. *Loomis*, 881 N.W.2d at 755.

III. SOLUTION

Government regulations are needed in order to create a set of standards by which certain algorithms will be measured and evaluated before being unleashed on the public. Although some states have passed laws that deal with machine learning algorithm issues and iterations, such as Google's self-driving vehicles and the growing use of drones,[109] there is no single uniform federal system of regulations, only a number of proposals.[110] The areas mentioned are currently handled on a state by state basis,[111] which may be sufficient for the types of devices those algorithms are used to operate.[112] At the very least, the use of algorithms in the criminal justice system needs oversight by a central federal agency to ensure quality control and to reduce the amount of bias that may accidentally, or intentionally, shape the way an algorithm learns and conducts its analysis. Before passing such legislation, however, there are several legal hurdles to leap over.[113]

As stated, there is currently no regulatory agency or uniform set of laws that governs these systems or establishes a set of standards by which they should abide.[114] This article suggests that regulatory oversight of these systems is needed to ensure some measure of quality control as these new systems develop. If a state government uses these algorithms to inform sentencing, then these businesses should be forced to provide full disclosure of all pertinent information concerning the algorithm.

---

109. *State Regulation*, SYRACUSE U.: INST. FOR NAT'L SECURITY & COUNTERTERRORISM, http://uavs.insct.org/state-regulation/ (last visited Mar. 3, 2019) [hereinafter *State Regulation*].
110. *Id.*
111. *Id.*
112. Tutt, *supra* note 43, at 113.
113. *Id.* at 90.
114. Tashea, *supra* note 29.

Nothing can be gained in using these systems to determine what sentence is appropriate for a defendant. Even if the algorithms were published and their methods of analysis made transparent for all defendants to review, that would still not alleviate the issue of inherently flawed input factors.[115] In order to have even an ounce of credibility, the factors must be screened to reflect only what are already considered aggravating and mitigating factors. Since these factors are already used by human agents—subject to review and accountability—there is no point in using the risk assessment tools. The only benefit they may provide is speed and efficiency.[116] Moreover, if a person's sentence is simply reduced to a mathematical formula, there would be no room for human judgment or compassion.

Not all crimes or criminals are created equal. Therefore, handing down a sentence should reflect that individualism, just as due process requires.[117] It is this article's recommendation that these systems be banned from being used in criminal sentencing. If that solution is not accepted, then at the very least, full transparency regarding the way these algorithms form their conclusions must be required by each state before implementing such systems. Anything less than that means the defendant's Constitutional rights are violated and the American people as a whole are left vulnerable to unjust treatment.

IV. CONCLUSION

"I had a great time creating the future on 'Minority Report,' and it's a future that is coming true faster than any of us thought it would."[118]

---

115. *Id.*
116. Chanenson & Hyatt, *supra* note 7.
117. State v. Loomis, 881 N.W.2d 749, 764 (Wis. 2015).
118. Tom Huddleston, *Interview: Steven Spielberg on War Horse*, TIME OUT LONDON (Jan. 2012), https://www.timeout.com/london/film/interview-steven-spielberg-on-war-horse.

In *Minority Report*,[119] the hero and his adversary debate the use of a system eerily similar to those discussed here.[120] The protagonist, John Anderton, begins as a member of the fictitious "PreCrime" unit of the Washington D.C. police department, and initially believes wholeheartedly in the system it relies on to prevent crimes from occurring.[121] It is his antagonist, Danny Witwer, who seems suspicious of the PreCrime unit and what it does.[122] In one conversation between the two characters, Danny finally reveals the source of his suspicion:

> John Anderton: Why don't you cut the cute act, Danny boy, and tell me exactly what it is you're looking for?
> Danny Witwer: Flaws.
> John Anderton: There hasn't been a murder in six years. There's nothing wrong with the system, it is perfect.
> Danny Witwer: Perfect. I agree. But if there's a flaw, it's human. It always is.[123]

The use of risk assessment algorithms in criminal sentencing is a startling concept which has prompted numerous journalists and scholars to speak out against their use,[124] or at the very least, call for caution in their use.[125] Some view the use of these systems as blatantly

---

119. MINORITY REPORT (Twentieth Century Fox 2002).
120. *Id.*
121. *Id.*
122. *Id.*
123. *Id.*
124. Tashea, *supra* note 29; Ellora Thadaney Israni, *When an Algorithm Helps Send You to Prison*, N.Y. TIMES (Oct. 26, 2016), https://www.nytimes.com/2017/10/26/opinion/algorithm-compas-sentencing-bias.html.
125. Sam Corbett-Davies et al., *A Computer Program Used for Bail and Sentencing Decisions was Labeled Biased Against Blacks. It's Actually Not that Clear*, WASH. POST (Oct. 17, 2016), https://www.washingtonpost.com/news/monkey-cage/wp/2016/10/17/can-an-algorithm-be-racist-our-analysis-is-more-cautious-than-propublicas/?noredirect=on&utm_term=.6498be5999ae.

unjust.[126] What is perhaps the hardest part to rationalize is that the design and use of algorithms themselves goes largely unregulated.[127] These risk-assessment systems continue to be protected by intellectual property laws, which shields them from any sort of governmental oversight.[128]

This article presented the argument that the unregulated use of these algorithms in criminal sentencing violates a defendant's due process rights, and, therefore, should be banned from criminal sentencing processes. The arguments in favor of using these systems to decide who should, and shouldn't, go to prison fail to resolve the problem at the heart of the conflict—how to eliminate prejudice and bias from the justice system. Instead, the use of these systems merely ensures that this issue will become even further entrenched in American society. With regards to the use of algorithms in other areas of society, they should be subject to regulatory oversight by a government entity to ensure some measure of quality control and public safety protection, in hopes of guiding the development of a future better than our today.

126. Barrett, *supra* note 63.
127. *State Regulation*, *supra* note 109.
128. State v. Loomis, 881 N.W.2d 749 (Wis. 2015).