

Articles

The Impact of Artificial Intelligence on Freedom, Rationality, Rule of Law and Democracy: Should We Not Be Debating It?

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I. INTRODUCTION	108
II. THE IMPACT OF A.I. ON LIBERAL VALUES THAT UNDERPIN WESTERN LEGAL SYSTEMS	109
A. Big Data’s Impact on Freedom, Rationality and Equality: An Orwellian View	109
B. Big Data’s Impact on Freedom, Rationality and Equality: A Kafkaesque View	112
III. THE IMPACT OF AI ON THE RULE OF LAW	115
IV. DEMOCRACY IN THE MACHINE ERA.....	119
A. Is Democracy Still Here?	119
V. SHOULD WE DEMOCRATICALLY DEBATE OUR TECHNOLOGICAL FUTURE?.....	124

The neoliberal paradigm that glorifies technological advancement downplays the pernicious impacts of Artificial Intelligence (“AI”) on the foundational values of Western democracies. This essay reviews the current and near-future impacts of AI on values like freedom, rationality,

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and the rule of law, joining the efforts of academics, policy makers, and concerned citizens who in recent years have tried—not quite successfully—to raise awareness of the necessity of a genuine debate on our technological future. As such, the paper combines ontology and advocacy.

I. INTRODUCTION

A few years ago, renowned physicist Stephen Hawking warned that the development of full artificial intelligence (“AI”) “could spell the end of the human race.”¹ AI is “a set of computational technologies that are inspired by . . . the ways people use their nervous systems and bodies to sense, learn, reason, and take action.”² Hawking’s opinion about AI is shared by authors across diverse academic and professional backgrounds.³ Their concerns are grounded in the potential for AI to move from the current stage of artificial narrow intelligence to an indeterminate future of superintelligence.⁴

While superintelligent AI is concerning, that is a worry for the distant future; these concerns should not obscure the present risks of AI. AI has an increasing role in human decision-making in important policy areas today. This has troubling implications for the rule of law and, more broadly, for the liberal values on which Western society is built. This paper calls attention to these implications by examining the current impacts of AI on freedom, autonomy, equality, the rule of law, and democracy in Western society. This essay concludes with a call for a genuine debate on these matters.

¹ Rory Cellan-Jones, *Stephen Hawking warns artificial intelligence could end mankind*, BBC (Dec. 2, 2014), <https://www.bbc.com/news/technology-30290540> [<https://perma.cc/47VS-YB9K>].

² PETER STONE ET AL., ARTIFICIAL INTELLIGENCE AND LIFE IN 2030: ONE HUNDRED YEAR STUDY ON ARTIFICIAL INTELLIGENCE 4 (2016), https://ai100.stanford.edu/sites/g/files/sbiybj9861/f/ai100report10032016fnl_singles.pdf [<https://perma.cc/NU5P-SFXY>].

³ See NICK BOSTROM, SUPERINTELLIGENCE: PATHS, DANGERS, STRATEGIES 119 (2014) (“If the AI does not yet have a decisive strategic advantage, then the AI might temporarily conceal its canny new idea for how to instantiate its final goal until it has grown strong enough that the sponsor and everybody else will be unable to resist. In either case, we get a treacherous turn.”); see generally YUVAL NOAH HARARI, HOMO DEUS: A BRIEF HISTORY OF TOMORROWS (2016) (illustrating a future in which artificial intelligence has made humanity purposeless.).

⁴ See generally BOSTROM, *supra* note 4.

II. THE IMPACT OF A.I. ON LIBERAL VALUES THAT UNDERPIN WESTERN LEGAL SYSTEMS

A. Big Data's Impact on Freedom, Rationality and Equality: An Orwellian View

In his influential work *The Digital Person: Technology and Privacy in the Information Age*, Daniel Solove compares the state of the world at the turn of the 21st century with the world imagined in George Orwell's *1984* to show how the tremendous amount of personal information that governments and large businesses collect from us has transformed us into vulnerable and docile beings.⁵ In the dystopic future imagined by Orwell, "Big Brother," an all-knowing and repressive government spies on its citizens, controlling them with fear.⁶ According to Solove, our Big Brother—unlike Orwell's—has no interest in making us feel threatened in any way; but Solove also recognizes that "[t]he mere knowledge that one's behavior is being monitored and recorded certainly can lead to self-censorship and inhibition,"⁷ thus limiting freedom and autonomous decision-making.

An important distinction between today's world and the world of Orwell's *1984* is that the subjects of monitoring and recording today appear to willingly accept these activities. For example, we treat the overwhelming presence of closed-circuit television ("CCTV") as a fact of life and knowingly surrender private information on social media and when submitting forms like job applications. Since we have become the writers of our own digital dossiers, classical liberalism's distinction between the private and the public sphere and the insistence on protecting the former from unwarranted intrusion by governmental or private wrongdoers no longer make much sense.

Surveillance and monitoring also have dramatic impacts on notions of freedom, individuality, autonomy, and rationality that are so dear to Enlightenment thinkers. Self-censorship and inhibition work in many insidious ways in the online environment, such as inhibiting the exploration of taboo information on terrorists' websites out of the fear that this will turn Big Brother's eyes on us, or making people refrain from exploring a certain product in order to avoid being flooded with

⁵ See generally Daniel J. Solove, *The Digital Person: Technology and Privacy in the Information Age* (2004).

⁶ See generally GEORGE ORWELL, *1984* (1949).

⁷ SOLOVE, *supra* note 6, at 35.

unwanted advertisements. As Solove describes:

Digital dossiers do cause a serious problem that is overlooked by the Big Brother metaphor, one that poses a threat not just to our freedom to explore the taboo, but to freedom in general. It is a problem that implicates the type of society we are becoming, the way we think, our place in the larger social order, and our ability to exercise meaningful control over our lives.⁸

The above considerations start from the assumption that we willingly surrender our private data, but are we always aware of how much we “agree” to disclose via our smartphone or laptop settings? And do we really have a choice when we are presented with forms to fill out to apply for certain services? Some of us—for instance, people of low socioeconomic status who have no choice but to accept government oversight in exchange for social services—do not.⁹ That is, equality as a fundamental concept underlying liberal societies is also threatened by the works of the Big Brother of the digital age.

This stands not only for data collection itself, but for administrative decision-making based on analysis of this data, such as that employed in predictive policing. Predictive policing refers to “the application of analytical techniques—particularly quantitative techniques—to identify likely targets for police intervention and prevent crime or solve past crimes by making statistical predictions.”¹⁰ In large cities, where the often scarce law enforcement-resource has to be allocated efficiently across neighborhoods, methods for predictive crime have long been employed, relying on intelligence from the field, with “hot spot” focus, or with data-driven approaches.¹¹ Predictive policing in the machine age, however, is more complex and involves the use of algorithms; that is, a computer program follows instructions in the form of mathematical formulas which guide it to generate outputs based on inputted data.¹² In other words, predictive policing uses computer programs that have been taught how to sort, search, count, and classify.¹³ Risk-predictive

⁸ *Id.*

⁹ See BEN GREEN, *THE SMART ENOUGH CITY: PUTTING TECHNOLOGY IN ITS PLACE TO RECLAIM OUR URBAN FUTURE* 78-80 (2019) (describing a county’s data criminal justice data collection and assessment to determine the need for mental health services).

¹⁰ WALTER L. PERRY ET AL., RAND CORPORATION, *PREDICTIVE POLICING: THE ROLE OF CRIME FORECASTING IN LAW ENFORCEMENT OPERATIONS* xiii (2013), https://www.rand.org/content/dam/rand/pubs/research_reports/RR200/RR233/RAND_RR233.pdf [<https://perma.cc/4R6E-D9BX>].

¹¹ *Id.* at 3-4.

¹² See ETHEM ALPAYDIN, *MACHINE LEARNING: THE NEW AI* 16-17 (2016) (“An *algorithm* is a sequence of instructions that are carried out to transform the input to the output.”).

¹³ See Robert Sedgwick and Kevin Daniel Wayne, *Algorithms* 4, 10-14 (4th ed. 2011).

algorithms can indicate areas of high crime-risk by analyzing a wide array of variables deemed relevant, including historic crime data, CCTV-collected info, mortgage defaults, and social media profiles.¹⁴ An assumption underlying these algorithms is that they are neutral, and thus do not perpetuate bias as human predictions would.¹⁵ But research has found that disadvantaged communities are still targeted disproportionately, which reinforces segregation and discrimination.¹⁶ Indeed, data fed to an algorithm inevitably reflects the social contexts in which they were generated. Therefore the “software risks perpetuating an already vicious cycle, in which the police increase their presence in the same places they are already policing (or overpolicing), thus ensuring that more arrests come from those areas.”¹⁷

Under the mantle of science and objectivity, predictive tools of this type criminalize poverty. Predictive policing punishes people for who they are and where they live.¹⁸ The discriminatory impacts of Big Brother scrutinizing poor neighborhoods with a keener eye at the direction of the algorithm are easy to discern: from quantifiable disadvantages like higher number of arrests for minor crimes and subsequently lower private investment in those areas, to less quantifiable ones like reinforcement of stereotypes about poor communities.¹⁹

Finally, a question that should concern rich and poor alike: with Big Brother sitting comfortably on the couch in the living room of our lives, where will he move next? After all, our current reality indicates that we are just a small step away from the adoption of a system similar to China’s “Social Credit System,” launched in 2014 and expected to be

¹⁴ Lyria Bennett Moses & Janet Chan, Algorithmic Prediction in Policing: Assumptions, Evaluation, and Accountability, 28 POLICING & SOC’Y 806, 806-08 (2018).

¹⁵ *Id.* at 811 (“While different algorithms will have different limitations, it is important to understand that all will make assumptions, in some cases based on an assumed model of crime and in other cases based on general factors such as simplicity versus flexibility (with the associated potential of overfitting) and predictive power versus other goals such as comprehensibility, preservation of provenance or non-discrimination.”).

¹⁶ See Kate Crawford, *Artificial Intelligence’s White Guy Problem*, N.Y. TIMES (June 25, 2016), <https://www.nytimes.com/2016/06/26/opinion/sunday/artificial-intelligences-white-guy-problem.html> [<https://perma.cc/F7QA-TKTC>] (“Sexism, racism and other forms of discrimination are being built into the machine-learning algorithms that underlie the technology behind many “intelligent” systems that shape how we are categorized and advertised to.”).

¹⁷ *Id.*

¹⁸ CATHY O’NEIL, WEAPONS OF MATH DESTRUCTION: HOW BIG DATA INCREASES INEQUALITY AND THREATENS DEMOCRACY 97 (2017).

¹⁹ E.g. *Id.* at 84–91; Andrew D. Selbst, *Disparate Impact in Big Data Policing*, 52 GA. L. REV. 109, 129-137 (2017) (explaining how place-based predictive policies have disproportionate impacts on poor racial communities.); Sarah Brayne, *Big Data Surveillance: The Case of Policing*, 82 AM. SOCIOLOG. REV. 977, 998 (2017) (predictive policing based on quantitative data may “serve to exacerbate inequalities in stop patterns, create arrest statistics needed to justify stereotypes, and ultimately lead to self-fulfilling statistical prophecies”).

fully deployed on the country's 1.4 billion citizens in 2020.²⁰ The Social Credit System, which scores people on every aspect of their lives, from credit rating to “social sincerity,” involves surveillance and monitoring of the totality of individuals' lives; though, there is uncertainty about what contributes to social credit scores, how those scores are combined with the state system, and how individuals' data is interpreted and used.²¹ This is the supreme materialization of the Orwellian state—with a Kafkaesque flavour.

B. Big Data's Impact on Freedom, Rationality and Equality: A Kafkaesque View

The adjective “Kafkaesque” stems from the works of Czech novelist Franz Kafka and is noted by Merriam-Webster Dictionary as often used to describe “bizarre and impersonal administrative situations where the individual feels powerless to understand or control what is happening.”²² In *The Digital Person*, Daniel Solove explores the implications of Big Data for our lives via a discussion of Kafka's *The Trial*.²³ In *The Trial*, the hero, Joseph K., is unexpectedly visited by a group of officials who place him under arrest. A nightmarish story develops as Joseph K. struggles to discover the accusations against him. His quest reveals that a vast bureaucratic apparatus assembled a detailed dossier on him, but the nonsensical conducting his trial remains inaccessible, the accusations are never revealed, and, in the end, he is executed.²⁴ In explaining the impact of Big Data on liberal values, Solove sees Kafka's antibureaucratic satire as a complement to Orwell's Big Brother metaphor. While Orwell underlines the self-imposed restrictions to freedom and autonomy as a result of our lives being monitored and recorded, Kafka

. . . captures the sense of helplessness, frustration, and vulnerability one experiences when a large bureaucratic organization has control over a vast dossier of details about

²⁰ Evelyn Cheng, *China is building a 'comprehensive system' for tracking companies' activities, report says*, CNBC (Sep. 3, 2019, 9:12 PM), <https://www.cnbc.com/2019/09/04/china-plans-for-corporate-social-credit-system-eu-sinolytics-report.html> [<https://perma.cc/L2FN-2XJ4>].

²¹ Yongxi Chen & Anne Sy Cheung, *The Transparent Self Under Big Data Profiling: Privacy and Chinese Legislation on the Social Credit System*, 12 J. COMP. L. 356, 356-57 (2017) (“Individuals risk being reduced to transparent selves before the state in this uneven battle.10 They are uncertain about what contributes to their social credit scores, how those scores are combined with the state system, and how their data is interpreted and used.”).

²² *Kafkaesque*, MERRIAM-WEBSTER ONLINE DICTIONARY, <https://www.merriam-webster.com/dictionary/Kafkaesque> [<https://perma.cc/Q825-6TQG>].

²³ SOLOVE, *supra* note 6, at 36-38

²⁴ *See generally* FRANZ KAFKA, *THE TRIAL* (Willa and Edwin Muir trans., Penguin Books 1985) (1925).

one's life. At any time, something could happen to Joseph K.; decisions are made based on his data, and Joseph K. has no say, no knowledge, and no ability to fight back. He is completely at the mercy of the bureaucratic process.²⁵

Opacity in AI decision-making is sometimes intentional and done in an effort to protect intellectual property and corporate secrets.²⁶ However, such opacity can also be the result of technical illiteracy²⁷ or the complexity of processes like deep learning models.²⁸ A good illustration of Big Data's Kafkaesque impacts on liberal values—rooted in the sources of opacity described above—is the use of algorithms in recruitment decision making. The automatization of the hiring business has serious impacts on fairness, rationality, and legality.²⁹

These systems often weed out applicants using algorithms that incorporate criteria unknown to those applicants—and, indeed, unspecified in the listed eligibility criteria—to guess how they will perform for companies.³⁰ In this process, you could, for example, be found ineligible early on in the application process because the system finds that you do not post enough on LinkedIn, which it interprets as a lack of capability or interest in promoting your achievements, or that you are simply a withdrawn person. Or you could be removed because the system finds that you have too *many* posts on LinkedIn, which it interprets as you devoting too much of your time to social media.³¹ You could be removed because you missed some repayments on a student loan, or because someone posted on Facebook a picture of you dancing on a table at a party with a beer in your hand.³² For instance, “[t]echnologies such as HireVue promise to ease the hiring burden by using video intelligence to score candidates.”³³ Further, HireVue boasts

²⁵ SOLOVE, *supra* note 6, at 38.

²⁶ See Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the Protection of Natural Persons with Regard to the Processing of Personal Data and on the Free Movement of Such Data, and Repealing Directive 95/46/EC (General Data Protection Regulation), 2016 O.J. (L119) art. 22(1) (establishing an individual's right to an explanation as to automated decision-making).

²⁷ Jenna Burrell, *How the machine 'thinks': Understanding opacity in machine learning algorithms*, BIG DATA & SOC'Y, Jan. 2016, at 4 (“This second level of opacity stems from an acknowledgement that, at present, writing (and reading) code and the design of algorithms is a specialized skill. It remains inaccessible to the majority of the population.”).

²⁸ *Id.* at 5 (“[T]here are certain challenges of scale and complexity that are distinctive to machine learning algorithms. These challenges relate not simply to total number of lines or pages of code, the number of team members on the engineering team, and the multitude of interlinkages between modules or subroutines.”).

²⁹ See generally O'NEIL, *supra* note 19 at 97.

³⁰ *Id.*

³¹ *Id.*

³² *Id.*

³³ Sam Adler-Bell & Michelle Miller, *The Datafication of Employment: How Surveillance and Capitalism Are Shaping Workers' Futures without Their Knowledge*, THE CENTURY FOUNDATION 9 (Dec. 19, 2018), <https://production-tcf.imgix.net/app/uploads/2018/12/03160631/the-datafication-of-employment.pdf> [<https://perma.cc/MP8K-CT9D>].

that “data points are analysed with [their] proprietary machine learning algorithms to accurately predict future job performance.”³⁴ The problem is that you, like Solove’s Joseph K., will never know what hit you:

Verdicts from WMDs [*Weapons of Math Destruction, i.e. opaque algorithmic models informing governance decisions*] land like dictates from algorithmic gods. The model itself is a black box, its contents a fiercely guarded corporate secret. This allows consultants ... to charge more, but it serves another purpose as well: if the people being evaluated are kept in the dark, the thinking goes, they’ll be less likely to attempt to game the system.³⁵

Similarly opaque are algorithms that determine loan eligibility. This is problematic, as linking economic opportunities to digital profiling deeply impacts equality by reproducing existing patterns of discrimination. For example, research shows that in some cases, people identified by algorithms as financially desperate received targeted ads for predatory loan products and for-profit colleges, while those identified as affluent were targeted for high-paying jobs and low-interest banking products.³⁶

In Australia, a particularly relevant case of the Kafkaesque impact of AI on vulnerable people’s lives is “robodebt.” Robodebt is an automated system used to detect overpayments to people receiving social security payments through the government program Centrelink.³⁷ The system analyzes income information held by government agencies; If the system detects inconsistent income data, the system interprets that as evidence of unjustified social security payments, and Centrelink sends that individual a letter requesting further information about their income and advising them of potential debt.³⁸ Flaws in this system have resulted in 20% of robodebts being wrong or waived.³⁹ For example, in some cases, employers’ names were recorded differently by the Australian Taxation Office and Centrelink, which led the system to “believe” that a person had two jobs rather than one.⁴⁰ A human eye would have detected

³⁴ *Id.* (internal citations omitted).

³⁵ O’NEIL, *supra* note 19 AT 8 (discussing the case of Sarah Wysocki—a teacher highly appreciated by her principal and students’ parents—who was fired because she received a poor algorithmic score on criteria that remained unknown to her).

³⁶ *Id.* at 10. *See also* Solon Barocas & Andrew D. Selbst, *Big Data’s Disparate Impact*, 104 CAL. L. REV. 671 (2016) (discussing the importation of previous bias in algorithmic decision making in hiring and other gateways to economic opportunities, like loans).

³⁷ Cassandra Goldie, *Robodebt is an Abuse of Power. It should never have seen the light of day*, THE GUARDIAN (Aug. 27, 2019, 9:53 PM), <https://www.theguardian.com/commentisfree/2019/aug/28/robodebt-is-an-abuse-of-power-it-should-never-have-seen-the-light-of-day> [<https://perma.cc/2973-W96H>].

³⁸ *Id.*

³⁹ *Id.*

⁴⁰ LEGAL AID QUEENSLAND, HAVE YOU RECEIVED A DEBT NOTICE FROM CENTRELINK? (Oct. 2017), <http://www.legalaid.qld.gov.au/files/assets/public/publications/work-and-money/have-you->

an error like this, but the robot just “sees” two different employers. The main problem with these errors—as pointed out during a parliamentary hearing on robodebt in October 2019—is that the burden of proof is placed on the recipient to show that they are, in fact, errors.⁴¹ Imagine how it would feel to be notified that you owe thousands of dollars to the government on a matter from decades ago, and to be unable to disprove that debt simply because you but you cannot prove it because you lost your employment records! Purely Kafkaesque.

III. THE IMPACT OF AI ON THE RULE OF LAW

The previous section looked at the impacts of algorithm-based decisions on freedom and equality—values central to Western legal systems. This section examines an instantiation of this problem in judicial decision-making, in which predictive technologies have implications for the rule of law. Indeed, risk assessment algorithms affect freedom and liberty in criminal proceedings: these algorithms interpret information from criminal records along with contextual data—including psychological evaluations—and inform judicial decisions like sentencing.⁴² The deprivation of liberty via lengthy sentences of confinement may be seen as a punishment; but punishment can only be applied by courts for a breach of law—not for the mere risk that the accused will reoffend. That is, if punitive, the use of algorithm-based risk assessments in sentencing is arbitrary.

The argument that punitive (liberty-depriving) judicial decisions made using algorithm-based risk assessments are arbitrary is supported by two additional factors. First, judges often do not understand how such algorithms operate.⁴³ Second, these algorithms may not produce accurate or fair results. A recent study that compared recidivism predictions made by people with little or no criminal justice expertise and commercial risk assessment software found that the software was no more accurate or fair in predicting recidivism than were the non-expert study participants.⁴⁴ The authors of the study cautioned against using risk-assessment software “in making decisions that will significantly affect the lives and well-being

received-a-debt-notice-from-centrelink.pdf [https://perma.cc/VMB8-RBRY].

⁴¹ Sally Whyte, *Vulnerable people not challenging Centrelink debts, inquiry told*, THE CANBERRA TIMES (Oct. 4, 2019 9:00 PM), <https://www.canberratimes.com.au/story/6422287/robo-debt-word-causing-anxiety-not-centrelink-debt-system-liberal-senator/> [https://perma.cc/VL7E-J83K].

⁴² See generally Leah Wissler, *Pandora’s Algorithmic Black Box: The Challenges of Using Algorithmic Risk Assessments in Sentencing*, 56 AM. CRIM. L. REV. 1811 (2019).

⁴³ *State v. Loomis*, 881 N.W.2d 749, 774 (Wis. 2016) (Abrahamson, J., concurring).

⁴⁴ See generally Julia Dressel & Hany Farid, *The accuracy, fairness, and limits of predicting recidivism*, SCI. ADVANCES, Jan. 2018, at 1, <https://advances.sciencemag.org/content/advances/4/1/eaao5580.full.pdf> [https://perma.cc/GRP6-ZWVJ].

of criminal defendants.”⁴⁵

The most troubling implications of a judge denying parole or delivering a longer sentence based on a high risk score indicated by an algorithmic equation stem from the frequent denial to the accused of access to that equation under the guise of trade secrecy.⁴⁶ While in the previous section I described the opacity of algorithms that informs decisions affecting access to economic opportunities as Kafkaesque, the use of risk assessment algorithms in judicial decisions could be torn straight from the pages of *The Trial* itself: the algorithm is the real-life version of the mysterious and unaccountable entity that robs Joseph K. of his liberty.⁴⁷ This may violate the right to due process, an essential component of the rule of law in common law jurisdictions England as long ago as the mid-14th century.⁴⁸ Indeed, in recent years, the use of predictive algorithms in courts has been hotly debated in the United States, where the right to due process is protected under both the 5th and 14th Amendments to the Constitution.⁴⁹

The case that ignited the debate in the United States was that of Eric Loomis, a Wisconsin man convicted of attempting to flee a traffic officer and driving a car without the owner’s consent.⁵⁰ He was denied probation and sentenced to six years in prison plus five years of extended supervision, based *inter alia* on a prediction made by a secret computer algorithm called COMPAS (short for “Correctional Offender Management Profiling for Alternative Sanctions”), which determined that Mr. Loomis was at high risk of reoffending.⁵¹ At sentencing, Mr. Loomis was told by the judge:

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, your history on supervision, *and the risk assessment tools that have been utilized*, suggest that you’re extremely high risk to re-

⁴⁵ *Id.* at 3.

⁴⁶ Inigo de Miguel Beriain, *Does the Use of Risk Assessments in Sentences Respect the Right to Due Process? A Critical Analysis of the Wisconsin v. Loomis Ruling*, 17 LAW, PROBABILITY & RISK (2018) 45 (describing how in *Loomis*, the defendant was not permitted to assess in detail how the algorithm made the prediction on him being of high risk of reoffending, and how his challenge of the judge’s use of the opaque algorithm was unsuccessful); *see generally* Alyssa M. Carlson, *The Need for Transparency in the Age of Predictive Sentencing Algorithms*, 103 IOWA L. REV. 303, 319 (2017) (“Although these tools are routinely being used to make sentencing decisions, defendants cannot properly challenge their accuracy because they do not have access to the formulas.”).

⁴⁷ *See* KAFKA, *supra* note 25.

⁴⁸ FAITH THOMPSON, *MAGNA CARTA: ITS ROLE IN THE MAKING OF THE ENGLISH CONSTITUTION, 1300-1629* 92 (1948) (noting that the conception of “due process” is first mentioned in a 1354 statute founded upon *Magna Carta*).

⁴⁹ Wisser, *supra* note 43, at 1821.

⁵⁰ *State v. Loomis*, 881 N.W.2d 749 (Wis. 2016).

⁵¹ *Id.* at 756 n.18

offend.⁵²

Loomis challenged the sentencing in the Supreme Court of Wisconsin, arguing that the secrecy about how the algorithm weighs risk factors are weighed and determines risk scores made it impossible to dispute its accuracy, which infringed upon his right to due process.⁵³ The court ruled against Loomis, stating that “if used properly . . . a circuit court’s consideration of a COMPAS risk assessment at sentencing does not violate a defendant’s right to due process.”⁵⁴ The court came to this decision via two key lines of reasoning. First, the court found that although Loomis did not have the chance to understand the internal functioning of the algorithm, his procedural right to sentencing based on correct information was satisfied by (1) publicly available information about his criminal history and (2) Mr. Loomis’s access to a list of questions and answers regarding factors considered by COMPAS that was attached to his presentence investigation report.⁵⁵ Second, COMPAS is only a supportive tool, and the sentencing court considered other factors including the seriousness of the crime and Mr. Loomis’ history in assessing his risk of reoffending: “COMPAS is merely one tool available to a court at the time of sentencing and a court is free to rely on portions of the assessment while rejecting other portions.”⁵⁶

Despite the negative outcome for Mr. Loomis, the *Loomis* court did establish some limits to the use of algorithm based sentencing.⁵⁷ However, these limits have been criticized as ineffective; the *Harvard Law Review*, for example, explained that the Wisconsin Supreme Court cautioning against excessive reliance on algorithms will not reduce the impacts on a defendant’s right to due process, because “[i]ndividuals tend to weigh purportedly expert empirical assessments more heavily than non-empirical evidence—which might create a bias in favor of COMPAS assessments over an offender’s own narrative.”⁵⁸

This bias towards statistics-influenced data may also affect the right to an individualized sentence, especially when the algorithm is fed data such as race or sex. When these immutable traits and other traits like education status play a role in decisions affecting a person’s liberty, that person’s right to be treated as an individual under the law—a fundamental

⁵² *Id.* at 755.

⁵³ *Id.* at 761.

⁵⁴ *Id.* at 753.

⁵⁵ *Id.* at 762.

⁵⁶ *Id.* at 768 (quoting *State v. Samsa*, 859 N.W.2d 149 (Wis. 2015)).

⁵⁷ *Id.* at 763-64 (limiting the use of presentencing investigation reports containing a COMPAS risk assessment to those that inform the sentencing court about several cautions regarding a COMPAS risk assessment).

⁵⁸ Wisconsin Supreme Court Requires Warning Before Use of Algorithmic Risk Assessments in Sentencing—*State v. Loomis*, 881 N.W.2d 749 (Wis. 2016), 130 Harv. L. Rev. 1530, 1536 (2017).

premise of Western democratic legal systems—is at risk.⁵⁹ Indeed, when individualized considerations at sentencing are thrown to the wayside, a person is sentenced for who she is, not for what she has done.⁶⁰

The court's statement that Loomis had access to sufficient information because he had knowledge of the inputs used by COMPAS has also been criticized. Critics stress that this knowledge is not enough to protect due process; a defendant needs access to elements like the weight given to various factors in the algorithmic equation, and, more generally, how the algorithm "thinks," in order to prepare a proper defense.⁶¹

A more subtle criticism of the use of risk-predictive algorithms in sentencing is related to the gap between the interests of society and those of the companies that own the proprietary algorithms. The society's interests are well epitomised by Blackstone's famous "ratio": according to Blackstone, it is better that ten guilty persons escape, than that one innocent suffer.⁶² The commercial interests of the corporation that owns the algorithm go in the opposite direction, because

. . . if the mechanism makes a mistake by recommending custody or imprisonment for a defendant who does not need such measures, this mistake would hardly be detected and, even if it were, it is unlikely that any huge social scandal would be created. Therefore, the developers' commercial interests would remain safe. Instead, if the mistake consisted of a recommendation asking for an immediate release which is followed by a violent crime committed by the subject, strong criticism might be expected, and the image of the mechanism (and its commercial value) might suffer severe losses. Thus, the developers might feel tempted to introduce corrective mechanisms to prevent the occurrence of the second type of mistake, even if it necessarily involves a higher probability that the first type of error would be more prevalent.⁶³

All these drawbacks could perhaps be lived with if the tool had high predictive accuracy. However, as empirically demonstrated by the

⁵⁹ See Sonja B. Starr, *Evidence-Based Sentencing and the Scientific Rationalization of Discrimination*, 66 Stan. L. Rev. 803, 839 (2014) (noting that a "serious disadvantage is the expressive message sent by state endorsement of sentencing based on group traits.").

⁶⁰ See *id.*

⁶¹ See 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. 75, 83, 94 (2016); see also Leah Wisser, *Pandora's Algorithmic Black Box: The Challenges of Using Algorithmic Risk Assessment in Sentencing*, 56 AM. CRIM. L. REV. 1811, 1823 (2019).

⁶² Alexander Volokh, n *Guilty Men*, 146 U. PA. L. REV. 173, 174 (1997).

⁶³ Iñigo de Miguel Beriain, *Does the use of risk assessments in sentences respect the right to due process? A critical analysis of the Wisconsin v. Loomis Ruling*, 17 LAW, PROB. & RISK 45, 49 (2018).

reputable investigative journalism non-profit ProPublica, violent recidivism predictions made by COMPAS were accurate only 20 percent of the time, while overall reoffending was predicted correctly in 61 percent of cases.⁶⁴ These scores make algorithm use only “somewhat more accurate than a coin flip.”⁶⁵ The ProPublica report shows the bias of predictive technologies: COMPAS incorrectly predicted reoffending in 44.9 percent of cases with Black defendants—nearly twice the rate for white defendants.⁶⁶

One underlying idea of the rule of law is that no one is above the law, but predictive algorithms may represent a challenge to this accountability. As noted nearly a century ago by sociologist Ernest Burgess, “[p]arole, and in fact our whole system of criminal justice, must constantly be prepared to face trial in the court of public opinion.”⁶⁷ But with risk assessment passed on from a human being to an algorithm, the sentencing judge can wash their hands like Pontius Pilate: *it was not me who locked you up for five more years, but the algorithm!* The court of public opinion will thus be robbed of the motivation (being confident that the decision was made by “neutral” software) and the capacity (subjectively, given the trade secret, or objectively, given the algorithm’s complexity) to assess the quality of judicial decision-making.

IV. DEMOCRACY IN THE MACHINE ERA

A. Is Democracy Still Here?

In the 1990s, the prevailing attitude toward the advancement in communication technologies was positive. Society had high hopes about the use of these technologies as tools to facilitate information and participation; hence, high hopes that they could be used to strengthen democracy. The Internet in particular was predicted to be a force of democratization that would end the centralized control of information and introduce direct interaction between citizens and politicians.⁶⁸ These

⁶⁴ Julia Angwin et al., *Machine Bias: There’s Software Used across the Country to Predict Future Criminals. And It’s Biased against Blacks*, PROPUBLICA (May 23, 2016), <https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing> [<https://perma.cc/UZ7R-2AEJ>].

⁶⁵ Id.

⁶⁶ Id.

⁶⁷ Ernest W. Burgess, *Protecting the Public by Parole and by Parole Prediction*, 27 AM. INST. CRIM. L. & CRIMINOLOGY 491, 491 (1936-1937).

⁶⁸ See Peter Ferdinand, *The Internet, Democracy and Democratization*, 7 DEMOCRATIZATION 1, 12 (2000).

optimistic attitudes persisted into the new millennium for many commentators.⁶⁹ Transnationally, the fall of informational barriers created

[t]he possibility of both regulators and the public to compare and contrast laws from different countries [which] enable[d] lesson drawing not only in order to improve the efficiency of regulation, but also to learn how human rights [are] treated in other countries and aspire to adopt similar measures.⁷⁰

Further, the public used communication technology to mobilize even when regulators did not adhere to global democratic models; in most of the pro-democracy uprisings of recent decades, digital communication has played a role not only in providing access to models to follow, but also in networking and coordination against repressive regimes.⁷¹ The Arab Spring, enthusiastically—if not overzealously—termed the “Facebook Revolution” in Western media,⁷² is a good example of digital technology enhancing democracy.

These benefits are indisputable and should be celebrated, but we must recognize that this is only one side of the coin. The authors who adopt this positive view on technology are referred to as “the celebrants,” are in contrast with “the skeptics,” who often admit the benefits of technology, but also draw attention to its drawbacks.⁷³ The skeptics challenge the idea that the Internet will lead to democratic revolutions worldwide, and counter that those in power have the ability to manipulate or restrict access to digital communication enough to incapacitate its use by the public.⁷⁴ If the digital revolution was inseparable from democratic revolution, Russia and China would not have vowed to become global AI leaders.⁷⁵ Indeed, though the Arab Spring was in its initial stages

⁶⁹ For example, in 2011, one author noted that “[w]e have entered an amazing and exciting era in human history. We are fast acquiring the knowledge and technology to meet the challenges of poverty, malnutrition, child mortality, and the myriad social ills that blight our planet.” SIMON MAINWARING, *WE FIRST: HOW BRANDS AND CONSUMERS USE SOCIAL MEDIA TO BUILD A BETTER WORLD* 1 (2011).

⁷⁰ Nachshon Sean Goltz, Addison Cameron-Huff & Giulia Dondoli, *Rethinking Global-Regulation: world’s law meets artificial intelligence*, 28 INFO. & COMMS. TECH. L. 1, 2 (2018).

⁷¹ See Manuel Castells, *Communication Power* 361-64 (2009).

⁷² Maeve Shearlaw, *Egypt five years on: was it ever a ‘social media revolution’?*, THE GUARDIAN (Jan. 25, 2016 7:35 AM), <https://www.theguardian.com/world/2016/jan/25/egypt-5-years-on-was-it-ever-a-social-media-revolution> [<https://perma.cc/8MHK-2MAK>]. The regional uprisings referred to as the Arab Spring began with protests in Tunisia in December 2010 and spread during the spring of 2011 in Egypt, Libya, Syria, and other Arab countries. *Id.*

⁷³ ROBERT W. MCCHESENEY, *DIGITAL DISCONNECT: HOW CAPITALISM IS TURNING INTERNET AGAINST DEMOCRACY* 4, 8 (2013) (“[T]his Internet literature . . . [falls] into two broad camps, the ‘celebrants’ and the ‘skeptics.’ both camps continue to thrive, though the context and issues have changed. Some observers have been in both camps; there is no berlin Wall dividing the two sides. It is a schema that captures two distinct frames of mind as much as two distinct sets of individuals, although there are some individuals who fall squarely, even defiantly, in one of the two camps.”).

⁷⁴ See *id.* at 8-12.

⁷⁵ *Putin Calls For Breakthroughs in AI and Other High-tech Areas*, TASS (Jan. 15, 2020 4:15 AM),

facilitated to some extent by communication technology, it was, in the end, crushed by the very same tools. As Internet activist and computer engineer Wael Ghonim noted, “The Arab Spring revealed social media’s greatest potential, but it also exposed its greatest shortcomings. The same tool that united [people] to topple dictators eventually tore [people] apart’ through echo-chamber polarization, misinformation, and toxic hate speech.”⁷⁶

Skeptics also point to three ways in which artificial intelligence tools hinder rather than promote democracy in long established liberal democracies. The first is how ruling elites engineer voting; the second is how ruling elites govern in a manner that is not in the interest of the masses; and the third relates to AI creating, directly or via job loss, the conditions that amplify people’s disinterest in democratic processes.

With regard to the capacity of those in power to alter elections,

. . . the tools and tactics of public sphere manipulation we are witnessing today are unprecedented. The unethical use of Big Data and machine learning to “game” the public sphere in pernicious ways marks a new point of departure. For example, through the intense level of surveillance of voters afforded through digital tools, Artificial Intelligence (AI) allows political influence to move from public campaigns to private sentiment, a shift that repositions electoral politics from a spectacle that is overt to a script that is covert.⁷⁷

In this covert space, voter attitudes can be more easily manipulated through “weaponized AI” such as “microtargeted” propaganda and fake news, than would be normally possible in an overt space; the votes on Brexit and on the U.S. presidential elections in 2016 are a testament to that.⁷⁸ This pernicious effect is amplified by the fact that electoral “debate”—to the extent that it still exists on social media—takes place in “echo-chambers.” An echo chamber is created when people with similar views herd together and isolate themselves from contrary views, which creates a “filter bubble” where existing opinions and biases are

<https://tass.com/science/1108809> [<https://perma.cc/9GXS-SWS5>]; Charlotte Gao, *China Vows to Become an Artificial Intelligence World Leader*, THE DIPLOMAT (July 21, 2017), <https://thediplomat.com/2017/07/china-vows-to-become-an-artificial-intelligence-world-leader/> [<https://perma.cc/2KS4-2DNZ>].

⁷⁶ NATHAN GARDELS & NICOLAS BERGGRUEN, *RENOVATING DEMOCRACY: GOVERNING IN THE AGE OF GLOBALIZATION AND DIGITAL CAPITALISM* 28 (2019).

⁷⁷ Anita Gurumurthy & Deepti Bharthur, *Democracy and the Algorithmic Turn*, 27 SUR - INT’L J. J ON HUM. RTS. 39, 40-41 (2018) (internal citations omitted).

⁷⁸ Karl Manheim & Lyric Kaplan, *Artificial Intelligence: Risks to Privacy and Democracy*, 21 YALE J.L. & TECH. 106, 109, 133-34 (2019) (“Artificial intelligence challenges these core tenants in several ways. First and foremost is the use of ‘weaponized AI’ to disrupt and corrupt democratic elections.”).

simply reinforced, rather than exposed to a healthy exchange of ideas that may lead to an informed vote. As Anita Gurumurthy and Deepti Barthur explain:

The fact that we can choose which communities we want to be connected to means that the received wisdom of societies – the common knowledge and norms shared across communities – break down. In this flux, social and political sentiment of individuals and communities becomes vulnerable to manipulation and gaming.⁷⁹

Admittedly, not all voters remain constrained to the virtual echo chamber. Some are still willing to keep an open mind and engage in genuine debates, so as to cast an informed vote. But the general climate of distrust and demobilization created by AI-enabled manipulation and noise leaves little space for weighing reliable information in those debates. Fake news and anti-press rhetoric have weakened the credibility of mainstream media, paving the way for social media to assume the role of a news source. The free press, the most important lever of democracy, is kneecapped by the power of private sources of information; its voice is lost in the social media “cacophony of noise.”⁸⁰ Not a big loss, it would seem, when AI steps in to allow voters to sidestep reading and thinking about political questions: in Great Britain, millions of people have used the application iSideWith, which tells you who to vote for based on your answers to a quiz.⁸¹

The potentially corrosive influence of AI on democracy extends beyond its ability to make voting a meaningless act. It also threatens representativeness—another core tenet of liberal democracies. Representativeness presupposes that public authorities actually represent the views of those they govern, and that the governed know what is done by those governing.⁸² Modern surveillance technologies enabled by AI have disrupted this relationship “by giving the state unparalleled access to information about its citizens, while the citizens are not comparably informed about what the state is doing or what it knows.”⁸³ The myriad personal details available to the state—whether it be health records or travel history—create a mosaic which, when assembled by AI, can chill associational, expressive, and other types of freedoms that are at the core of democracy.⁸⁴

⁷⁹ Gurumurthy & Bharthur, *supra* note 78, at 41.

⁸⁰ Manheim & Kaplan, *supra* note 79, at 151.

⁸¹ Jamie Bartlett, *How AI could kill off democracy*, NEW STATESMAN (Aug. 15, 2018), <https://www.newstatesman.com/science-tech/technology/2018/08/how-ai-could-kill-democracy-0> [https://perma.cc/4LKN-CAVU].

⁸² Glenn Greenwald, No Place to Hide: Edward Snowden, the NSA, and the U.S. Surveillance State 208 (2014).

⁸³ Scott Robbins & Adam Henschke, *Designing For Democracy: Bulk Data and Authoritarianism*, 15 SURVEILLANCE AND SOC'Y 582, 583 (2017).

⁸⁴ See *U.S. v. Jones*, 565 U.S. 400, 416, 431 (2012) (noting these impacts, the U.S. Supreme Court

Perhaps, though, representativeness has lost meaning. Representation implies that the public has opinions on the matters those in power legislate on and administer, but paradoxically, the Internet may disincentivize or distract voters from forming those opinions. One author notes that young people today are the “dumbest generation,” utterly ignorant of civics, history, or literature, and that this ignorance stems from social media addiction that cuts them off from surrounding realities.⁸⁵ Surveys indicate that millennials in Western societies are not keen on democracy:

Only about 30% of Americans born in the 1980s think it’s “essential” to live in a democracy. That’s compared to 75% of Americans born in the 1930s. (Australia, New Zealand, Sweden, and Britain reported similar gaps.) In another study of European Millennials, only 32% selected democracy as one of their top five most important social values. And the share of young people who consider democracy a “bad” or “very bad” way to run the United States is growing, according to the World Values Survey.⁸⁶

The distraction of social media is only part of the story. Another factor in young people’s hesitance toward democracy may be economic hardships such as unemployment and an individual’s ability to improve their standard of living⁸⁷—another problem to which AI contributes, by replacing humans in the labor market. Robotic systems will soon become more reliable and more efficient than humans in almost any area of economic activity. This may sound like an old story, as machines kept replacing humans for two centuries, but the difference is that now, the process spreads from simple, routine, repetitive jobs to areas were human jobs felt safe: “with recent technological advances in artificial intelligence, user interfaces, and other fields, computerization is spreading to domains commonly defined as nonroutine, such as language translation and self-driving cars.”⁸⁸ If you are, say, a cab driver, a paralegal in a law firm, or a builder, your concern will not be with politics and elections, but with finding a way to earn money after driverless cabs, automatic legal office assistants, or 3D printing will

found that long-term surveillance can be considered a search in violation of the Fourth Amendment).

⁸⁵ See generally Mark Bauerlein, *The Dumbest Generation: How the Digital Age Stupefies Young Americans and Jeopardizes Our Future* 8-9 (2008).

⁸⁶ Neil Howe, *Are Millennials Giving Up On Democracy?*, FORBES (Oct. 31, 2017 3:48 PM), <https://www.forbes.com/sites/neilhowe/2017/10/31/are-millennials-giving-up-on-democracy/#1d46c5202be1> [<https://perma.cc/ERY4-9A5P>].

⁸⁷ See Richard Wike et al., *Many Across the Globe Are Dissatisfied With How Democracy Is Working*, PEW RES. CTR. (Apr. 29, 2019), https://www.pewresearch.org/global/wp-content/uploads/sites/2/2019/04/Pew-Research-Center-Global-Views-of-Democracy-Report-2019-04-29_Updated-2019-04-30.pdf [<https://perma.cc/9QDX-NCD2>] (showing how negative economic assessments are related to dissatisfaction with democracy).

⁸⁸ GARDELS & BERGGUEN, *supra* note 77, at 84–85.

make you jobless. You may find some temporary low wage job in a marginal industry, but you won't be a middle class person any longer. With the middle class squeezed out, democracy is meaningless, if the history of democratic societies in the 19th and 20th century is any indication.

The combination of the ever-increasing desire for domination on the part of political and economic elites and an ever-increasing apathy from the grassroots—both facilitated by AI—is creating a dangerous situation. Instead of society deliberating and directing those in power on important contemporary matters, we are at risk of becoming pawns in the hands of a data-empowered king equipped with a “digital scepter that allows one to govern the masses efficiently, without having to involve citizens in democratic processes.”⁸⁹ While some may say that this is for the best if the king is wise, given the negative impacts of AI on democracy described above, and the fact that “[b]y structure alone AI resists three of democracy’s main features: transparency, accountability, and fairness,”⁹⁰ it is legitimate to ask if democracy still exists.

V. SHOULD WE DEMOCRATICALLY DEBATE OUR TECHNOLOGICAL FUTURE?

Should our technological future be subject to democratic debate? The answer is, unequivocally, “yes.” Researchers from The One Hundred Year Study on Artificial Intelligence, a 100-year project convened to study and anticipate the effects of AI on society, suggest that “[a]s a society, we are now at a crucial juncture in determining how to deploy AI-based technologies in ways that promote, not hinder, democratic values such as freedom, equality, and transparency.”⁹¹ Further, academics in various fields have called for debate and action, suggesting that we must consider: (1) the unlikely, but not impossible, scenario that general AI will get out of control as in dystopian scenarios suggested in scientific fiction; (2) the creeping damage of the use of AI in surveillance and algorithm-based decision making; and (3) the catastrophic societal impacts of the massive job loss expected for the next decades.

The calls for debate on the first matter are often made with reference to science fiction scenarios: “inception of the general AI does

⁸⁹ Dirk Helbing et al., *Will Democracy Survive Big Data and Artificial Intelligence?*, SCI. AM. (Feb. 25, 2017), <https://www.scientificamerican.com/article/will-democracy-survive-big-data-and-artificial-intelligence/> [https://perma.cc/5BEZ-88SY].

⁹⁰ Manheim & Kaplan, *supra* note 79, at 133.

⁹¹ STONE, *supra* note 3, at 6.

not seem to be very far in the future [therefore] possible consequences, already extensively discussed in popular culture, should be seriously analysed, or it may be too late.”⁹² The possibility of AI taking control is for now discussed in fiction and in academia only, with opinions diverging as to the desirability of such scenario. Some researchers believe that given the shortcomings of democracy, this may actually be an improvement; besides, “if we trust expert systems (narrow AIs) of today with choosing music or movies for us, with diagnosing our illness, even with financial and tactical decisions, why wouldn’t we leave all policy decisions to more advanced AIs of tomorrow?”⁹³ Others disagree, showing that a super-intelligence can also make mistakes and be manipulated, and is in no way better than the collective intelligence of the entire population, channelled into political decisions through democratic deliberation.⁹⁴

As super-intelligent robots taking over is a rather unrealistic and distant scenario, more pressing is the need for a serious democratic debate on the assault of big data, surveillance and monitoring technologies on liberal freedoms, the rule of law, and democracy itself:

Collectively and individually, the threats to privacy and democracy degrade human values. Unfortunately, monitoring of these existential developments . . . has been mostly left to industry self-regulation. At the national level, little has been done to preserve our democratic institutions and values. There is little oversight of AI development, leaving technology giants free to roam through our data and undermine our rights at will. We seem to find ourselves in a situation where Mark Zuckerberg and Sundar Pichai, CEOs of Facebook and Google, have more control over [people’s] lives and futures than do the representatives we elect. The power of these technology giants to act as “Emergent Transnational Sovereigns” stems in part from the ability of AI software . . . to subvert or displace regulatory law. . . . Some have described the emerging AI landscape as “digital authoritarianism” or “algocracy”—rule by algorithm.⁹⁵

Do we want the business and the government to monitor all our physical and digital steps? Do we want people to be hired by algorithms, jailed by algorithms? Are we happy with the planetary brainwash and deep disconnect from reality, promoted by both mainstream and social media? Those who would answer in the negative should pressure their

⁹² Ivana Damjanović, *Polity Without Politics? Artificial Intelligence Versus Democracy: Lessons From Neal Asher’s Polity Universe*, 35 BULL. SCI., TECH. & SOC’Y 76, 76 (2015)

⁹³ *Id.* at 81.

⁹⁴ See generally Dirk Helbing, *supra* note 90.

⁹⁵ Manheim & Kaplan, *supra* note 79, at 110-11 (internal citations omitted).

representatives to adopt and enforce rules aimed at preventing digital authoritarianism and algocracy. Even Apple CEO Tim Cook criticized tech giants for abuse of user privacy, saying that personal information is being “weaponized against us” and admitting that government regulation is needed, as self-regulation is not enough.⁹⁶

Equally imminent is the danger of dramatic job loss coming with automation. We may say that, while the second area of debate mentioned above is on *how to preserve democracy* in the privacy-less world, the third—discussed below—is on *whether to preserve capitalism* in the workerless world.

Writing a quarter century ago, reputed economist Jeremy Rifkin predicted that technological displacement will bring humanity to a new historic phase, the near-workerless world, which will be the most challenging issue of the 21st century.⁹⁷ Recent data supports this prediction. While conservative politicians blame trade and offshoring for job loss in the manufacturing sector, 85 percent of jobs lost between 2000 and 2010 were eliminated in the U.S. by technological advances, and only 13 percent by trade.⁹⁸ In the same sector, some 20 million more (8.5 percent of the global manufacturing workforce) will be displaced across the globe by industrial robots by 2030, according to Oxford Economics.⁹⁹ The McKinsey Global Institute estimates that across all sectors, as many as 800 million individuals in the workforce could be displaced by automation by 2030.¹⁰⁰ In the United States, almost half of the existing jobs are at risk because of automation,¹⁰¹ while some technology experts expect the job loss in the next three decades to be as high as 70 percent.¹⁰²

⁹⁶ Sara Salinas & Sam Meredith, *Tim Cook: personal data collection is being ‘weaponized against us with military efficiency’*, CNBC (Oct. 24, 2018 6:22 AM), <https://www.cnbc.com/2018/10/24/apples-tim-cook-warns-silicon-valley-it-would-be-destructive-to-block-strong-privacy-laws.html> [<https://perma.cc/9ECK-R5AZ>].

⁹⁷ JEREMY RIFKIN, *THE END OF WORK: THE DECLINE OF THE GLOBAL LABOR FORCE AND THE DAWN OF THE POST-MARKET ERA* XV (1995).

⁹⁸ Ronald Inglehart, *The Age of Insecurity: Can Democracy Save Itself?*, FOREIGN AFF. (May/June 2018), <https://www.foreignaffairs.com/articles/2018-04-16/age-insecurity> [<https://perma.cc/YZQ2-4DX6>].

⁹⁹ OXFORD ECONOMICS, *HOW ROBOTS CHANGE THE WORLD: WHAT AUTOMATION REALLY MEANS FOR JOBS AND PRODUCTIVITY* 4 (June 2019).

¹⁰⁰ JAMES MANYIKA ET AL., MCKINSEY GLOBAL INSTITUTE, *JOBS LOST, JOBS GAINED: WORKFORCE TRANSITIONS IN A TIME OF AUTOMATION* 11 (Dec. 2017), <https://www.mckinsey.com/~ /media/mckinsey/featured%20insights/Future%20of%20Organizations/What%20the%20future%20of%20work%20will%20mean%20for%20jobs%20skills%20and%20Wages/MGI-Jobs-Lost-Jobs-Gained-Report-December-6-2017.ashx> [<https://perma.cc/GC2G-VEM6>].

¹⁰¹ Carl B. Frey & Michael A. Osborne, *The Future of Employment* 41 (Sep. 2013) (working paper, Oxford Martin Programme on Technology and Employment), https://www.oxfordmartin.ox.ac.uk/downloads/academic/The_Future_of_Employment.pdf [<https://perma.cc/PY68-F272>].

¹⁰² ROBERT W. MCCHESENEY & JOHN NICHOLS, *PEOPLE GET READY: THE FIGHT AGAINST A JOBLESS ECONOMY AND A CITIZENLESS DEMOCRACY* 20 (2016).

A comprehensive academic report in Australia on the impacts of technology on jobs found “no evidence to suggest technological change is a cause for long term decreases in employment.”¹⁰³ Just like in the debate on adopting a Bill of Rights, with Australia being the only democratic country lacking one, it seems again that the rest of the planet got it wrong! Admittedly, AI also creates jobs, and if these will turn out to be more numerous than those lost to automation, then the optimistic expectations of the Australians will have been confirmed, provided that education is accessible to those displaced, helping them make the transition towards newly created, high-skilled jobs. For now, however, predictions are in line with the intuitive assertion that the number of jobs created by AI will be significantly lower than that of the jobs destroyed.

After all, is efficiency not the whole idea of capitalism, and the digital revolution its ultimate bust? The function of the new technologies is, in the logic of capitalism, to save labor costs. Indeed, as Robert McChesney and John Nichols have noted:

[t]he “genius” of the digital revolution—with all of its apps and smart technologies and advances in automation, with all of its blurring of lines between humans and machines, with all of its progress—is its exceptional efficiency. The changes that define the future that is now *have nothing to do with job creation*. Why would they? They are being developed and implemented by behemoth corporations that seek to maximize profits, not employment.¹⁰⁴

Chesney and Nichols go straight to the heart of the problem, raising questions that the prevailing neoliberal order makes politically incorrect to put on the table, including, importantly: is capitalism the right system for the workerless age? For centuries, human societies went through successive transitions, cycles of “creative destruction”¹⁰⁵ that saw older orders replaced with new ones, with some people winning, and some losing in the process. But at least from the Enlightenment onwards, the losers have had their chance to catch up, in part because the state was there, fulfilling its obligations under the social contract. As the state is now actively encouraging—via tax and other incentives—the digitalization of the economy that is leading to the workerless world, this support no longer stands.

Obviously, the state should not impede technological progress. However, instead of ignoring the tragedy of the millions who are losing

¹⁰³ ROBERT C. WILLIAMSON ET AL., AUSTRALIAN COUNCIL OF LEARNED ACADEMICS, TECHNOLOGY AND AUSTRALIA'S FUTURE 146 (Sep. 2015), <https://acola.org/wp-content/uploads/2018/08/saf05-report-full-17sept.pdf> [<https://perma.cc/7ADU-VWJ8>].

¹⁰⁴ MCCHESENEY & NICHOLS, *supra* note 103, at 3 (emphasis added).

¹⁰⁵ See generally JOSEPH A. SCHUMPETER, CAPITALISM, SOCIALISM AND DEMOCRACY 81-85 (2003).

their jobs, the state should seek to renovate its governance models in ways that may be inimical to capitalism. In the most radical perspective, one may even think of a post-capitalist scenario involving an overhaul of corporate ownership over AI, which would then become public property. However, solutions exist within the current capitalist order. For example, one solution might be Universal Basic Income—a payment made, without any work, to all adult individuals, allowing them to meet their basic needs. The concept is not new, but it has returned to the policy agenda, even in Australia, in the context of massive job loss following digitalization.¹⁰⁶ Other solutions include job-splitting or government job guarantees.¹⁰⁷ More generally,

[r]edrawing the social contract to reduce inequality in the digital age has two main clauses. First, a labor market more adaptable to the fluid shift of tasks in the workplace, cushioned by a universal net that protects the welfare of workers instead of specific jobs—a policy pioneered in the Scandinavian countries called *flexicurity*. Unemployment and health benefits must be provided universally by the state and not tied to a specific job or company. Second, shifting focus from redistribution through taxation on wealth to *pre-distribution* policies that enhance the skills needed to navigate the steady disruptions of innovation and that bolster the capital assets of all citizens. Investment in public higher education to mend the main social fracture today—namely, the gap in education levels—is one key pillar of such a policy shift. The other is reducing inequality through a scheme in which all citizens own an equity share in the robots creating the new wealth of the future.¹⁰⁸

This paper does not suggest a particular path forward, but instead advocates for a serious democratic debate on our technological future. This debate should not pay lip service to mainstream neoliberal discourses glorifying markets and competition, as “[t]he crisis of our times is that capitalism undermines democracy. The choice we face is whether to expand democracy or let it continue to shrivel: Expanding it requires confronting really existing capitalism head-on.”¹⁰⁹ If we avoid facing this reality, we may have to deal with much more dramatic confrontations; the connection between the deep bitterness generated by mass unemployment, on the one hand, and fascism, on the other, is well-

¹⁰⁶ See generally DON ARTHUR, PARLIAMENT OF AUSTRALIA DEP’T OF PARLIAMENTARY SERVICES, RESEARCH PAPER SERIES, 2016-17 (Nov. 18, 2016), https://parlinfo.aph.gov.au/parlInfo/download/library/prspub/4941916/upload_binary/4941916.pdf [<https://perma.cc/45AN-NDRJ>].

¹⁰⁷ DANIEL BARNHIZER & DAVID BARNHIZER, THE ARTIFICIAL INTELLIGENCE CONTAGION: CAN DEMOCRACY WITHSTAND THE IMMINENT TRANSFORMATION OF WORK, WEALTH AND THE SOCIAL ORDER?, 230 (2019).

¹⁰⁸ GARDELS & BERGGUEN, *supra* note 77, at 82.

¹⁰⁹ MCCHESENEY, *supra* note 74, at 231.

documented.¹¹⁰

¹¹⁰ See generally DAVE RENTON, *FASCISM: THEORY AND PRACTICE* (1999).