Exploring the Implications of Artificial Intelligence

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EXPLORING THE IMPLICATIONS OF ARTIFICIAL INTELLIGENCE

Kristin N. Johnson* and Carla L. Reyes**

Abstract: Emerging technologies promise to play a transformative role in our society, enabling driverless cars, enhanced accuracy and efficiency in disease mapping, greater and less expensive access to certain consumer services, including consumer financial services. Discussions regarding the role of emerging technologies increasingly center on the development and integration of artificial intelligence technologies or AI—an assemblage of technologies that rely on a variety of computational techniques. This Essay offers a modest primer outlining a general understanding of the contours and contributions of AI, as well as introducing the articulated benefits and limits of these technologies.

This Essay examines the increasingly pervasive use of artificial intelligence in society through two key areas of ethical and policy concerns: (i) privacy, surveillance and the appropriate boundaries for machine-human interaction, and (ii) bias and discrimination. As we assess the merits of AI, this Essay embraces the robust and lively debate and raises probing questions initiated by scholars, activists, industry participants, and governments regarding the ethical implications of embracing AI. This Essay encourages adopters of AI to carefully consider the impacts of integrating AI on vulnerable and marginalized groups. To accomplish this goal, this Essay advocates for affected stakeholders to engage in a collaborative, interdisciplinary colloquy examining the consequences of incorporating AI technologies.

Finally, this Essay serves as an introduction to a Special Issue dedicated to sharing novel thinking and approaches to address underexplored challenges posed by AI. Addressing a range of issues discussed in the debate regarding the promises and perils of AI, the contributors to this volume offer critical insights, frameworks, and tools for evaluating the issues from the perspectives of diverse stakeholders. This Special Issue seeks to shed light on some of the

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hidden implications of artificial intelligence on the values, institutions, and structures that form the foundation of a just society.

**Keywords:** artificial intelligence, ethics, values, policy framework, privacy, bias

I. Introduction

On March 11, 2021, the Director-General of the World Health Organization issued a statement confirming that more than one hundred thousand individuals in more than one hundred countries had contracted COVID-19. The somber statement acknowledged a grim fact—reports indicated evidence of more than four thousand deaths associated with transmission of the virus. Responding to alarm regarding the rapid transmission and severity of the virus, the Director-General acknowledged that “[t]housands more [were] fighting for their lives in hospitals.” In a foreboding tone, the announcement warned that epidemiologists expected the number of cases, the number of deaths, and the number of affected countries to climb even higher” in the coming days, weeks, and months.

In the statement, a single, transformative sentence—fourteen words marked a historic moment in local, national, and international governance, the global economy, and the lives of citizens in nations around the world. Within

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1 This Article refers to severe acute respiratory syndrome coronavirus 2 as “SARS-CoV-2,” “COVID-19,” the “coronavirus” and the “virus.” This Article uses each of these terms to describe the disease and uses the terms interchangeably.


4 More specifically, the statement indicated the World Health Organization’s determination that transmission rate COVID-19 and other conditions established that the disease met criteria for classification as a “pandemic.” A pandemic is defined as an epidemic occurring worldwide, or over a very wide area, crossing international boundaries and usually affecting a large number of people. *WHO Director-General’s opening remarks at the media briefing on COVID-19—11 March 2020*, (n. 2). While there were still a number of questions regarding the virus transmission rate, a number of countries confirmed rapidly increasing and significant numbers of cases. On January 21, 2020, the Center for Disease Control announced the first confirmed case of the coronavirus in the United States in the State of Washington. First Travel-related Case of 2019 Novel Coronavirus Detected in United States. By March 31, 2020, there were more than 10,000 confirmed cases in the United States and more than 750,000 confirmed cases globally. *World Health Organization, Coronavirus Disease 2019 (COVID-19) Situation
weeks, countries around the world witnessed exponential growth in the number of confirmed cases.\textsuperscript{5} A deluge of critically-ill patients inundated short-staffed and undersupplied emergency rooms.\textsuperscript{6} Teeming with patients, intensive care units spilled into hospital hallways;\textsuperscript{7} COVID-19 related deaths paralyzed emergency and mortuary services.\textsuperscript{8}

In parallel to the exponential rise in confirmed COVID-19 cases, scientists, epidemiologists, researchers, and technologists accelerated efforts to integrate artificial intelligence ("AI")\textsuperscript{9} in each phase of disease transmission mitigation.\textsuperscript{10} These professionals adopted and adapted artificial intelligence-oriented technologies to assist in the expedited development of therapeutic treatments, clinical vaccine trials, and diverse testing methodologies.\textsuperscript{11} Using AI to leverage existing technology altered the pace of COVID-19 disease mitigation campaigns adopted by governments, employers, and private institutions.\textsuperscript{12} Alongside these developments, AI enabled the aggregation of data streams generated by community testing dashboards, digital thermometers, thermal cameras, programmable cleaning or disinfecting robots, and web-based toolkits that measured the allocation and distribution

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\textsuperscript{6} Jay Reeves, “Patients Lying In Hallways, Nurses Working Extra Shifts: As Coronavirus Surges In Some US States, Emergency Rooms Are Being Swamped,” Chicago Tribune (18 July 2020) (explaining that “[p]atients struggling to breathe are being placed on ventilators in emergency wards since intensive care units are full”).

\textsuperscript{7} Ibid.


\textsuperscript{9} The term AI refers to a “broad assemblage of technologies” that deploys computerized algorithms designed to—among other tasks—aggregate large volumes of data, identify and predict patterns in the data, and, according to proponents, replicate human reasoning and cognitive abilities.


of personal protective equipment and vaccines. Moreover, AI facilitated novel digital contact tracing apps. The adoption of innovative disease mitigation technologies in response to the coronavirus pandemic revealed entrenched inequalities in access to healthcare and disheartening disparities in access to other resources and as well as the protections of well-established rights, such as privacy protections.

Enthusiasts declare that AI is no longer a matter of science fiction and contend that recent events offer an apt illustration of the promise of nascent adaptations of sophisticated algorithmic systems, programs, and protocols. Proponents point to the integration of AI in pandemic responses as evidence of its social, economic, and public health (as well as many other) benefits. And, indisputably, algorithms have long-occupied a central role in sophisticated modeling in the mathematics, computer science, and finance disciplines as well as diverse public and private institutions including research laboratories, pharmaceutical companies, hospitals, health care services businesses, raw materials supply chains, and agricultural, energy, and manufacturing firms. The development of supercomputers and AI-driven programs and protocols incorporated in popular apps, personal devices, and widely-adopted software programs contributes to the continued proliferation of AI.

Increasingly pervasive and arguably ubiquitous, AI-powered platforms perform important gatekeeping functions, including: assessing strategic plans for the production, distribution and consumption of food and energy, determining access to critical government services, influencing policies, processes, and procedures related to policing in our communities, establishing the contours of consumer

13 Ibid.
retail and finance transactions, and even permeating the most intimate private spaces in our lives. World leaders increasingly acknowledge the salience and continuous evolution of AI. In response, many propose integrating AI as a central component in the global policy agenda. As society places increasing importance on the potential efficiency, accuracy, and speed enabled by AI, the technological shift introduces urgent questions regarding the relationship between long-established values relating to ethics, equity, and inclusion. The adoption of AI in social, economic, and governance contexts challenges existing understandings of relationships, obligations, access, and opportunities and important and universally recognized rights. Setting aside the complexity of the technology and the arguably impenetrable jargon, novice readers may justifiably find the debate on the merits of AI dizzying. The arguments in favor of AI and those seeking to ensure that embedded values are consistent with or advancing adopted norms often point to the same technology as producing antithetical outcomes. When assessing these technologies, advocates may contend AI reduces the likelihood of human bias or prejudice because platforms rely on neutral data and machine learning—which they argue is free from human bias—to process the data. At the same time critics argue that AI compounds and reinforces historically entrenched biases and inequalities because the design of AI systems and even the data may reflect embedded biases. As Rashida Richardson


20 For an important discussion regarding the potential for AI to embed values see Harry Surden, “Values Embedded in Legal Artificial Intelligence” (13 March 2017) <https://ssrn.com/abstract=2932333> or <http://dx.doi.org/10.2139/ssrn.2932333> (visited 14 October 2021). Surden explains, Technological systems can have values embedded in their design. This means that certain technologies, when used, can have the effect of promoting or inhibiting particular societal values over others. Although sometimes the embedding of values is intentional, often it is unintentional and, in either case, when it occurs it can be difficult to observe or detect. The embedding of values in technological systems becomes increasingly significant when these systems are used in the application of law. Ibid. 

21 See Mirko Bagaric & Gabrielle Wolf, Sentencing by Computer (n. 6), p. 654. 

explains, the data that programmers perceive to be neutral may reflect biases based on the collection, cleaning, processing, and integration of the data or broader social inequalities that influence practices and policies that may lead to overrepresentation of marginalized subjects in certain contexts or the underrepresentation of the same data subjects in other contexts.\(^\text{23}\)

According to proponents who seek to expand the reach of artificial intelligence in society, AI relies on machines, eliminating or reducing the role of humans (limited by cognitive biases). Consequently, proponents argue, AI reduces the threat of discrimination.\(^\text{24}\) Others focus on the potential of AI and automation to improve society through cost savings and efficiencies.\(^\text{25}\) Meanwhile, skeptical scholars, activists, commentators, legislatures, judges, and regulators offer compelling evidence that challenges these claims and underscores the underexplored impact that these technologies may have on marginalized communities. Simply stated, critics argue, achieving the promise of AI may engender benefits; yet, on balance, it may also result in technology that embeds or replicates concerning values or displaces established, central protections for members of vulnerable groups. In other words, in a just society, we may seek to affirm that AI is, in fact, beneficial; but the inquiry would not end there, as this conclusion merely begs the question—beneficial for whom?

The debate prompts probing questions regarding the ethical implications of embracing AI and encourages adopters, government authorities, and affected stakeholders to engage in a collaborative, interdisciplinary colloquy examining the consequences of incorporating AI technologies. To that end, this Special Issue encourages an even-handed, yet comprehensive assessment of AI, with emphasis on a few identified challenges. The contributions introduce novel thinking and approaches to address some of the underexplored challenges posed by AI.\(^\text{26}\)

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\(^{24}\) See, e.g., Mirko Bagaric & Gabrielle Wolf, “Sentencing by Computer: Enhancing Sentencing Transparency and Predictability, and (Possibly) Bridging the Gap Between Sentencing Knowledge and Practice” (2018) 25:3 George Mason Law Review 653, 654 ("This Article concludes that [alleged bias] problems can be overcome and that computers could determine sentences more effectively and fairly than human judges. The application of a properly designed algorithm that incorporates all relevant sentencing variables and confers appropriate weight on sentencing objectives and considerations could lead to sentences that are transparent and fair.”).


\(^{26}\) Concerns about privacy, surveillance, bias, discrimination and the boundaries of machine-human interaction are not new. This Special Issue seeks to add to the existing scholarly discussion by purposefully integrating interdisciplinary voices, connecting international threads, and putting underexplored concerns and populations in the forefront of the discussion. For a deeper dive into some of the existing scholarly discussion of these issues, see, e.g., Sherley E. Cruz, “Coding for Cultural Competency: Expanding Access to Justice with Technology” (2019) 86:2 Tennessee Law Review 347, 350; Shoshana
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Specifically, the contributions in this Special Issue discuss important methods of assessing these technologies. Addressing a range of issues discussed in the debate regarding the promises and perils of AI, the contributors to this volume offer critical insights, frameworks, and tools for evaluating the issues from the perspectives of diverse stakeholders. Indeed, the contributors move the literature forward towards tangible policy approaches that can mitigate harm from existing uses of artificial intelligence.

Ultimately, this Special Issue seeks to shed light on some of the hidden implications of artificial intelligence on the values, institutions, and structures that form the foundation of a just society. To that end, the Special Issue examines the increasingly pervasive use of artificial intelligence in society through two key areas of ethical and policy concerns: (i) privacy, surveillance and the appropriate boundaries for machine-human interaction, and (ii) bias and discrimination. In this introductory Essay, we briefly examine the core questions that motivated this Special Issue in each of these areas and then outline each contribution’s response, highlighting the advocacy undertaken by the authors on behalf of voices that traditionally experience marginalization in artificial intelligence and law discussions.

II. Understanding Algorithms, AI, and Machine Learning

At the most general level, the term AI refers to “a set of techniques aimed at approximating some aspect of human or animal cognition” relying on a system of algorithms to simulate human learning and a machine to execute the correlated activity.27 Aside from this general sketch, a generally agreed-upon definition of AI remains elusive.28 Instead, the term AI refers to a large set of information or computer sciences.29 Professor Harry Surden points out, “[h]owever, AI is truly an interdisciplinary enterprise that incorporates ideas, techniques, and researchers from multiple fields, including statistics, linguistics, robotics, electrical engineering, mathematics, neuroscience, economics, logic, and philosophy, to name just a few.”30 Irrespective of the definitional difficulty surrounding the term “AI,” recent advances in computer processing speed, algorithms, and the rise of big data have


28 Ibid. at 403–04; see also Matthew U. Scherer, “Regulating Artificial Intelligence Systems: Risks, Challenges, Competencies, and Strategies” (2016) 29:2 Harvard Journal of Law & Technology 353, 359 (“Unfortunately, there does not yet appear to be any widely accepted definition of artificial intelligence even among experts in the field, much less a useful working definition for the purposes of regulation.”).


30 Harry Surden, Artificial Intelligence and the Law (n. 20), p. 1310.
made machine learning the most popularly known AI technique. In machine learning, computers compute data using an algorithm to perform an assigned objective function, make predictions, and automate certain tasks.

Machine learning algorithms can rely on a variety of computational techniques, including supervised, unsupervised, and reinforcement learning. In supervised learning, "the algorithm is given inputs and desired outputs with the goal of learning which rules lead to the desired outputs." In unsupervised learning, "the learning algorithm is left on its own to determine the relationships within a dataset." Reinforcement learning, for its part, involves providing feedback to the algorithm regarding how well it makes connections between inputs and outputs as the algorithm navigates the dataset. Upon discovering patterns, machine learning can be programmed to apply these patterns to predict future outcomes. However, as used in this context, the word "learning" does not refer to "the more holistic concept referred to when people speak of human learning." Indeed, "machine learning does not require a computer to engage in higher-order cognitive skills like reasoning or understanding of abstract concepts." This leaves AI methods vulnerable to underperforming values-centered analysis that focuses on principles such as equity, justice, transparency, and ethics. As a result, the increasing pervasiveness of AI throughout society gives rise to new concerns about the implications of AI for a just society.

AI promises to be more efficient and effective, and less biased than humans in making data-driven, accurate decisions. However, evidence demonstrates that AI may not always live up to this promise. For example, biases can be encoded in...

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33 Cary Coglianese & David Lehr, “Regulating by Robot: Administrative Decision Making in the Machine-Learning Era” (2017) 105:5 Georgetown Law Journal 1147, 1157 (explaining that machine learning algorithms “‘optimize a performance criterion using example data or past experience.’ In other words, these algorithms make repeated passes through data sets, progressively modifying or averaging their predictions to optimize specified criteria.” (footnote omitted) (quoting Ethem Alpaydin, Introduction to Machine Learning 3 (Cambridge: Massachusetts, MIT Press, 2d ed., 2010)).
36 See generally Ethem Alpaydin, Introduction to Machine Learning (n. 28).
38 Ibid.
39 Ibid.
42 Ibid.
the datasets on which machine learning algorithms are trained. One of machine learning’s core dilemmas, therefore, centers on how to map inputs to outputs with a high degree of accuracy, but without also producing discriminatory classifications. As a result, although many believe that the advances in machine learning and other sophisticated emerging technologies “have the potential to help address some of the biggest challenges that society faces,” that potential also raises the challenge of ensuring AI’s equitable development and ethical use. The contributions to this Special Issue create an important dialogue around whether and how law can nudge society toward more equitable and ethical design and use of AI, rather than allowing AI to nudge core societal values toward what is technologically convenient.

III. Privacy, Surveillance, and the Changing Nature of Machine-Human Interaction

Because AI relies on enormous amounts of data, issues of privacy and surveillance take on heightened priority. Scholars increasingly point out the dual-edged sword presented by AI: each potential use has as much power to harm as to benefit society. And because AI tools improve performance as they acquire additional data, “AI exacerbates and exponentially multiplies the existing trends to over collect data and use data for unintended purposes not disclosed to users at the time of collection.” As AI models improve, they draw increasingly accurate but non-intuitive and unverifiable inferences about individuals that “create new opportunities for discriminatory, biased, and privacy-invasive profiling and decision-making.” Thus, as lawmakers and regulators place increased scrutiny on the methods used to obtain the data that fuels AI, a third issue is drawn to the foreground—namely, the changing nature of machine-human interaction.

43 See Amanda Levendowski, How Copyright Law Can Fix Artificial Intelligence’s Implicit Bias Problem (n. 17).
45 Carla L Reyes & Jeff Ward, Digging into Algorithms (n. 15), p. 333.
47 Ibid., p. 121–122 (“The more data the higher the quality of your learned algorithm will be. The more variables or features, the more complex and potentially accurate the model can be. Thus the companies that succeed will be the ones not with the best algorithm, but with access to the best data. The more data collected the smarter, faster and more accurate the algorithms will be.”).
48 Ibid., p. 121.
People increasingly rely on machines in every aspect of their lives. Those machines collect data, not all of which is obvious to the person who purchased and used the machine. Further, the data collected, including important and revealing metadata, is often sold without the knowledge of the data subject. In this way, the increased prevalence of machine-human interaction directly intertwines with AI-related privacy and surveillance concerns. The increased prevalence of machines in society also, however, changes the nature of machine-human interaction in both subtle and not-so-subtle ways. For example, children begin interacting with technology, including algorithms and AI earlier than generations past. Some of machine-child interactions benefit learning, while others threaten mental health and expose children to new forms of bullying and abuse. Companies require employees to use machines in new or more frequent ways, or replace employees with machines altogether. Consumer reliance on machine-based, or AI-fueled tools has shifted entire industries. Each of these AI-driven changes raises new challenges to the existing legal framework.

The legal services industry offers a core example of the challenges to the existing legal framework posed by the changing nature of machine-human interaction.

50 Surya Mattu & Kashmir Hill, The House that Spied on Me (n. 8); Charlotte A. Tschider, "Regulating the Internet of Things: Discrimination, Privacy, and Cybersecurity in the Artificial Intelligence Age" (2018) 96:1 Denver Law Review 87, 90–91.
52 Karl Manheim & Lyric Kaplan, Artificial Intelligence: Risks to Privacy and Democracy (n. 55), p. 108 ("Millions of terabytes of data about the real world and its inhabitants are generated each day. Much of that is noise with little apparent meaning. The goal of AI is to filter the noise, find meaning, and act upon it, ultimately with greater precision and better outcomes than humans can achieve on their own.").
53 Ibid., pp. 118–119.
55 Children, Privacy, and the New Online Realities (n. 59), p. 245 ("Increasing numbers of children in elementary and middle school are either provided with or assumed to have a tablet or laptop for work in class or at home.").
56 Ibid., p. 246 (describing research that finds AI-power toys can be "toxic" and detrimental to a child’s emerging ability to converse and make sense of the world.").
In the face of increasing price pressures from clients, the legal industry increasingly turns to the use of legal technology powered by artificial intelligence to increase efficiencies and cabin costs. Doing so requires attorneys to navigate a difficult landscape of new machine-human interaction. Understanding an attorney’s duties under the rules of professional conduct in this changing legal practice landscape can pose thorny issues. One particularly controversial issue is where to draw the line between a lawyer’s use of artificial intelligence in the practice of law and the unauthorized practice of law by artificial intelligence. The resolution of this issue impacts efforts to increase access to justice using technology and core questions around the appropriate work conditions for an emerging class of contract attorneys.

For example, David Lola challenged what he called the exploitative work conditions under which he was employed as a contract attorney involved in “document review projects that do not in any way resemble the practice of law.” Although Mr. Lola lost at the trial court level, the United States Court of Appeals for the Second Circuit ultimately ruled that Mr. Lola was entitled to overtime pay because only those practicing law can be denied overtime, and “an individual who, in the course of reviewing discovery documents, undertakes tasks that could otherwise be performed entirely by a machine cannot be said to engage in the practice of law.” This decision fueled further consideration around the role of a lawyer’s duty of technological competence and duty of confidentiality with regard to client information and data. In other words, the Lola case, and others like it, shine a light on the subtle ways that the use of artificial intelligence in the legal industry pushes at the fabric of what society expects of law practice, lawyers, and the justice system. The use of AI in the legal industry offers just one of many illustrations of such challenges to society’s core values.

Indeed, more generally, the constant collection, use, and sale of data to fuel AI, and the changing nature of machine-human interaction quietly and subtly nudge the
fabric of our common vision of a just society. The contributors in this volume call for increased examination and critical assessment of the implications of AI for a just society. In particular, the contributors to this Special Issue propose legal frameworks that force us to confront the key question of whether the core values in an AI-dependent society are the core values that should be embraced by a just society.

IV. Fairness and Bias in the Age of Artificial Intelligence

Over the last several years, AI and other emerging technologies have contributed to a fundamental shift in the financial market ecosystem, creating a new class of financial institutions—fintech firms. Fintech is a catch-all term used to refer to the digital platform or internet-based financial services firms that engage in digital transfers, storage, payments systems, digital asset origination (such as cryptocurrency) and secondary market trading, investment advising and digital credit scoring and origination. To capitalize on economic efficiencies, reduce transaction costs and mitigate commonly-identified enterprise risks, fintech firms integrate AI or distributed ledger technologies into their business models. While the inclusion of data crunching algorithms in finance is nothing new—investment banking firms, for example, have long relied on sophisticated algorithms to predict timing, pricing, risk, and other factors that influence investment and trading decisions—the rapid adoption of learning algorithms that interpret alternative data in consumer credit markets presents significant risks.

Three contributions in this volume focus expressly on questions arising as a result of the integration of AI in finance. In addition to these contributions, celebrated scholars increasingly interrogate these claims. Specifically, supplementing traditional credit underwriting data inputs and processes, fintech firms employ newer modeling techniques and consider a broader range of source data including alternative data. These new inputs include information regarding consumers' financial transactions, recurring payments history and a behavioral score based on social networking and digital-interface.

According to proponents, the development of nascent methodologies and alternative data enables fintech firms to expand access to credit to consumers historically deemed invisible or unscorable. Further, proponents contend that removing human underwriting agents and their biases reduces the likelihood of intentional discrimination. AI-based credit scoring methodologies may enhance consumer default predictions and lead to better credit classification and possibly lower-priced credit than

72 The discussion presented here appears in forthcoming academic journal manuscripts.
traditional credit scoring methodologies. Together these process-oriented improvements enhance efficiency and accuracy, improve pricing, reduce operating and loan origination costs and enable fintech firms to offer credit to a greater diversity of consumers, in particular those who have struggled to obtain credit. Ultimately, proponents argue that alternative data may assist historically marginalized (credit invisible and unscorable consumers) to gain access to conventional credit markets. Beyond simply browsing preferences, fintech firms are also integrating highly-personalized reputational data. For example, fintech firms are assessing consumers’ social network status, screen-scraping data from consumers’ financial transactions and social media activities and ranking consumers based on relational social connections (consumers’ status as “social influencers”) through analysis of exchanged messages and friends tagged in social media posted photos.

The fintech trend in using AI and alternative data sources to make credit decisions highlights some of the core fairness and bias concerns raised by the pervasive use of AI. What is the basis and have we determined the accuracy of claims that AI will reduce human bias in decision-making? When AI attempts to mitigate bias in traditional sources of data, what steps should be taken to ensure new and additional data do not merely replicate old, historic patterns of discrimination? Do existing laws enable those harmed by AI-powered inequity or discrimination to obtain a sufficient remedy or deter further harm? How would a consumer even assess whether to trust new AI-powered services? The contributors to this Special Issue contribute to a dialogue seeking to answer these and other related core questions about the implications of AI for a just society.

V. Outline of the Special Issue

This Special Issue asks whether and how more pervasive use of AI in business, government, and the private sphere threatens to cabin or reshape the core values considered foundational to a just society. Contributors confront key questions about the impact of AI, including: How might the risk of harm from AI-bias be mitigated? Is it possible to obtain better data to fuel AI without subjecting data subjects to deeper loss of privacy and more extensive surveillance? Should law shape the design of AI so as to reduce the type and severity of harm caused by the changing nature of machine-human interaction? Should the power of AI be harnessed for good, or will the realities of technological design tradeoffs force society to loosen its expectations for equity and ethics?

Jeffrey Ritter starts the Special Issue with “Digital Justice in 2058: Trusting Our Survival to AI, Quantum and the Rule of Law”. Ritter challenges law-makers, legal reformers, and legal scholars to work with technologists to address fundamental societal challenges raised by the increasing use of AI within a global society. Ritter uses current developments in quantum computing to imagine a future where rule of law transforms into AI-dominated quantum law. Doing so brings to life the questions at the core of this volume—how to ensure human-centric values for a just
society remain central to the rule of law in an increasingly technology-dominant age. Reinforcing the meaning of justice in an AI-dominated world, Ritter argues, will require fundamentally shifting the analytical approach that currently dominates law and technology discussions. Instead of trying to bend technology to fit existing legal systems, an approach that seems to fail to provide just outcomes at nearly every turn, Ritter’s approach would start from within the technology infrastructure. Indeed, Ritter argues that integrating the rule of law and the meaning of justice into the very technological infrastructure of AI systems may be the only way to future proof our AI-enhanced society against erosion of the rule of law.

Several contributors answer Ritter’s call for new analytical approaches to law and technology discussions in the realm of privacy, surveillance, and human-machine interaction. First, Dr. Jasmine McNealy’s “Hoarder, Handler, Bricoleur, Spy: An Explication of Information Distribution Organizations”, in which she uses information processing theory to propose a categorization of information distribution organizations as a tool for making policy decisions about how such organizations create, use, and store data. Dr. McNealy uses an interdisciplinary methodology to construct this policy evaluation tool—applying information processing theory to understand caselaw in both the United States and the European Union, and finding that the cases hinged on the way the organizations handle data. She ultimately finds four categories of information distribution organizations: hoarders, handlers, bricoleurs, and spies. Hoarders are organizations which collect and store information to license its use by other organizations. Handlers aim to help the transfer of information to make this information accessible to others. They are not concerned with informing others about the content of the information, but with providing access. Bricoleurs create information from other sources for the sake of increasing knowledge about a subject. Finally, spy organizations collect information to use for other purposes without the owner of the information understanding the nature of the collection and use. Dr. McNealy uses this categorization to shine light on organizational motivations for collecting and using data, and argues that such insight should be used to evaluate which privileges to grant such organizations, and when to restrict data access and use via regulation in the future.

Dr. Qureshi and her co-authors introduce questions regarding the integration of AI in financial technology (“fintech”). In “(Dis)crediting Financial Inclusion: The Integration of Artificial Intelligence In Consumer Credit Markets In The United States And Kenya”, Qureshi and her co-authors evaluate the rapid adoption of AI intended to integrate vulnerable individuals who enter into “short term” financially disadvantageous credit arrangements to overcome situations of financial distress. Focusing on MPESA—a Kenyan money transfer platform that has enabled millions of unbanked Kenyans to facilitate personal and commercial financial transactions—their contribution acknowledges the transformative power of technology platforms and the potential for these platforms to significantly alter points of access to financial markets. Bypassing the paper trail, brick-and-mortar structures, and human agent focused tools of legacy financial institutions, fintech firms answer the
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call for less expensive, faster, and more accessible payment, mobile banking, and credit services. Citing the 33 million unbanked and underbanked households in the United States as a fraction of the nearly two billion individuals and families globally who lack access to financial services (a group disproportionately composed of women and people of color), Qureshi and her co-authors applaud those committed to the incorporating the millions of underserved individuals who have historically been excluded. As this Essay emphasizes and the co-authors’ contribution notes, there are noteworthy costs associated with these gains.

“(Dis)crediting Financial Inclusion” deconstructs some of the costs touted by enraptured enthusiasts of fintech firms and contends that the efficacy of mobile money and micro-lending or alternative credit scoring—cannot be assumed. Rather, Qureshi and her coauthors argue, fintechs must generate evidence that their practices are not, in fact, simply rewriting the terms of financial exclusion in their outcomes through an alternative means.

The contributions related to bias and discrimination also pick up Ritter’s call for re-examining prior regulatory and policy assumptions at the intersection of artificial intelligence and the law—first by considering new paradigms through which to consider ethics and regulation, and second by emphasizing the particularly pernicious role algorithmic discrimination plays for persons with disabilities. Emile Loza de Sillès considers the potential integration of technical standards requiring anti-discrimination and anti-bias by design with law, asking whether law can pull both the technical design and the human uses of artificial intelligence toward justice. Loza de Sillès sees an opportunity to capitalize on the growing consensus in the technical community through contract and regulatory requirements to reduce or eliminate bias and discrimination as a technical matter. This, she distinguishes from the problem of discrimination and bias in organizational artificial intelligence governance. Ultimately, Loza de Sillès calls on law makers to consider the development and integration of technical anti-bias standards as a model on which to consider building legislation to combat human uses of artificial intelligence for biased and discriminatory purposes. Ultimately, Loza de Sillès remains hopeful that the law can “help to bend the moral arc of artificial intelligence toward justice.”

Sebastian Benthall and Salome Viljoen consider whether borrowing principles from financial market regulation can open a new paradigm for data governance. Benthall and Viljoen argue that a parallel can be drawn between the functioning of financial markets and of data markets. In particular, the authors point out that financial and data markets deal with assets that share certain relevant features. Namely, both securitized financial assets and data assets derive their social value from how they relate to other individual assets; both may generate systemic risk; and both generate value in highly complex networks, whose full workings are obscured to most actors involved. As a result, Benthall and Viljoen argue that the tools used by financial regulators to augment the protections given to individual investors via private agreements may serve as important tools for heightened consumer privacy protection in data markets. Indeed, the authors call for heightened urgency-
in providing greater measures of privacy protection because, in their view, strong privacy and data protection amounts to a new way of mitigating financial risk.

Jennifer Chapman considers the role of regulation in curbing discrimination in the provision of fintech services. Chapman evaluates the social justice and ethical issues relating to fintechs and the services they provide to consumers. Fintechs can help consumers by increasing access to banking services and lowering prices. However, they can also reinforce discrimination based protected classes such as race and gender through the use of AI which is scarcely regulated because of a perception that AI data use is neutral. In addition, fintechs can more easily use unfair and predatory lending practices due to less strict regulation schemes as regulatory bodies are unsure of how to govern these new companies. In light of both the regulatory regime in the U.S. and international banking and fintech regulations, Chapman argues that for the U.S. to mitigate the risk posed by fintech services, the U.S. Office of the Comptroller of the Currency and state regulatory bodies should be more collaborative in their approach to regulating fintechs. Doing so would, Chapman argues, protect consumers, promote innovation, and preserve state sovereignty.

Meanwhile, Nizan Packin directs attention to a population often overlooked in the policy and scholarly discussions on artificial intelligence, discrimination, and bias: persons with disabilities. Packin examines the threat that artificial intelligence may entrench and enhance discrimination against persons with disabilities. In order for artificial intelligence to deliver on its promise to enable more inclusive online and physical spaces, and expand access for persons with disabilities to a variety of domains previously reserved for the able, Packin argues for the inclusion of persons with disabilities at the artificial intelligence design stage. Packin theorizes such inclusion at the design stage as an ethical issue. Packin points out that the design of artificial intelligence, including the design of the ethical principles guiding artificial intelligence, reflect the assumptions, ethical priorities, and moral judgments of those that designed the artificial intelligence. In theorizing the inclusion of persons with disabilities at the design stage as an ethical issue, Packin’s contribution to the Special Issue stands as a call to her fellow contributors and the scholarly community broadly to consider the assumptions underlying the frameworks, policies, and regulatory frameworks proposed in light of the relative inclusivity of disadvantaged groups in the methodology used to arrive at those frameworks.

Finally, in “Are There International Rules Governing Cyberspace?”, Dr. Guiguo Wang examines the role of international law in regulating cyberspace. In many ways, his exploration of cyberspace—an open universe that operates across-borders—serves as a capstone for the Special Issue. Unlike the other contributions that focus on the law of a single jurisdiction or compare the laws of different jurisdiction, Dr. Wang situates discussion of the backdrop for AI and other technologies in cyberspace and notes that, while the UN has adopted resolutions calling for using cyberspace in accordance with the UN Charter and set up a government expert group to deal with cyberspace issues, there is no consensus regarding international regulations for cyberspace.
As Dr. Wang notes, the rapid integration of cyberspace into our lives necessitates regulation of its operation. In his contribution, Dr. Wang emphasizes that UN expert group’s reports and underscores its conclusion that agreements reached by states at regional and bilateral level, customary international law and existing rules of international organizations such as the WTO constitute a body of cyberspace governance rules. International accord regarding cyberspace regulation across borders, however, remains elusive and illustrates another frontier that necessitates a governance solution.

VI. Conclusion

Ultimately, this Special Issue calls for heightened scrutiny of the relationship between law and AI. The contributors explore the extent to which the societal values that underpin core legal doctrines have shifted to accommodate the expansion of AI-powered tools into nearly every area of society. In doing so, the contributors call upon the legal system to consider whether and how it can mitigate these shifts until society can critically investigate and collectively consider whether the current trajectory of AI benefits justice or detracts from it. Throughout the Special Issue, the contributors make clear that those benefiting from AI-powered tools are not always those that technology companies promise will receive the benefit. The contributors also make clear that even in the circumstances in which the benefits of an AI use case line up with values of justice, inclusion, and equity, dangers continue to lurk. The Special Issue shines a light on the trade-offs inherent in expanding the reach of AI in society—every benefit comes at a price.

This Special Issue seeks to contribute to an evaluation of whether the benefits of AI are worth that price. Some of the authors achieve this by offering new frameworks through which to better identify what benefits AI actually offers (as opposed to what AI promises to offer) and to better identify the trade-offs required to realize those benefits (Jeffrey Ritter, Jasmine McNealy, Kristin Johnson, Farah Qureshi, Stephen Rea, Nizan Packin, and Guiguo Wang). Others offer paradigms for using the law to navigate, mitigate, or redefine the trade-offs necessary to achieve the societal benefits of AI (Emile Loza de Siles, Sebastian Benthall, Salome Viljoen, and Jennifer Chapman). Ultimately, the Special Issue identifies both detrimental and beneficial impacts of AI on society, and then offers new tools for navigating those tensions in hopes of harnessing technology for good, rather than technology mutating societal good into profit for a few.