

Artificial Intelligence and the Heritage of Democratic Equity*

Professor David Leslie
The Alan Turing Institute and Queen Mary University of London
dleslie@turing.ac.uk

So let me start my intervention today with a provocation. I'll read the first lines from a recent report from the Kofi Annan Commission on Elections and Democracy in the Digital Age:

New information and communication technologies (ICTs) pose difficult challenges for electoral integrity. In recent years foreign governments have used social media and the Internet to interfere in elections around the globe. Disinformation has been weaponized to discredit democratic institutions, sow societal distrust, and attack political candidates. Social media has proved a useful tool for extremist groups to send messages of hate and to incite violence. Democratic governments strain to respond to a revolution in political advertising brought about by ICTs. (KACEDDA, 2020, p. 14)

Now, from one perspective (a view, in fact, supported both by the excellent work of the Venice Commission and by similar work of the European Commission on Democracy and Governance) these claims are almost indisputable—well-summarising the state of play in the current algorithmically supercharged ecosystem of democratic elections. There is, in fact, something very right about approaching the relationship between *information and communication technologies (especially AI or machine learning systems) and electoral integrity* as a response to the challenges being brought about by the explosive proliferation of these technologies over the past decade or so.

However (and here is the provocation) this perspective also has a significant limitation. This has to do with an often-unquestioned narrowing of the sociohistorical frame of reference that delimits the problem space we confront when thinking about the societal transformations that attend rapid technological change (Leslie et al., 2022). More specifically, much relevant research and policy analysis on the relationship of datafication and AI to electoral integrity has been characterised by a near-sighted focus on the so-called era of the ‘fourth industrial revolution’, the ‘second machine age’, or the meteoric rise of Big Tech, Big Data, and ‘platform capitalism’. Such an approach is symptomatic of what we might call AI epochalism.¹ This is the implicit assumption that, for better or worse, our own epoch of rapidly accelerating datafication, digitisation, and informatisation is unique, unparalleled, and thus worthy of concerted and undivided attention. From this standpoint, we must think about democracy and elections from the digital technologies outward—starting from and responding to the novel set of challenges they pose.

While there is undoubtedly virtue to interrogating the degree to which present day digital and AI innovation has brought democratic processes and electoral integrity to a dangerous ‘inflection point,’ a sense of AI epochalism can also lead to myopic modes of information-centrism and tech-centred short-sightedness that impair our visions of the past, present, and future. It can impair understanding of the past by concealing from plain sight longer term sociohistorical patterns of

* This lecture was delivered on 14 November, 2022, at the 19th European Conference of Electoral Management Bodies, "Artificial Intelligence and Electoral Integrity", organised by the Venice Commission of the Council of Europe.

¹ This idea of AI epochalism draws on Evgeny Morozov's (2013) notion of how internet “epochalism” led to tech-centrism as well as “technological amnesia and complete indifference to history (especially the history of technological amnesia)” in debates among internet pundits during the meteoric rise of online experience in the 1990s and 2000s. See Morozov 2013, p. 35-39

inequity, discrimination, and moral injury that have cascading effects on democratic norms and electoral processes and that therefore directly and indirectly influence the sociotechnical contexts of the digital transformations of modern democratic forms of life. It can impair understanding of the present by limiting levels of explanation and analysis to areas circumscribed by the narrow set of ethical and legal issues that are seen to surface specifically in current constellations of AI and data innovation practices—rather than embedding these practices in the complex social, cultural, political, and economic histories that have inexorably shaped them. And, it can impair visions of the future by creating a false sense of the insuperability of the revolutionary momentum of current technological and scientific change—leaving critics feeling disempowered in the face of a creeping technological determinism (Wyatt, 2008).

I want to take the short time I have today to sense check potential tendencies to this kind of short-sightedness by instead situating our understanding of the challenges posed by AI and data-intensive technologies to electoral integrity in the broader historical context of heritage of democratic equity. Now, what do I mean by this elusive phrase ‘the heritage of democratic equity’? In broad strokes, this is the range of contemporary practices, norms, institutions, and identity formations that ensure the full and equitable participation of citizens in collective life. It is predicated on the egalitarian principle that all people possess an intrinsic moral worth and a common dignity that entitle them to membership in a ‘moral community’ where every person can regard themselves as having equal value and can enjoy a parity of participation in democratic future-making (Anderson, 1999; Dworkin, 2000; Fraser, 2008, 2009; Giovanola & Tribelli, 2022; Miller 1994; Scheffler, 2003; Vlastos, 1984; Wolff, 2010). What a deep history of the heritage of democratic equity tells us is that, over the centuries-long course of societal modernisation, we have learned that the capacity for full and equitable participation in democratic forms of life is dependent upon the universal realisation of the interdependent elements of individual autonomy, social solidarity, and communal integration, which, taken together form the interlocking preconditions and normative anchors of democratic equity itself.

It is this history of the heritage of democratic equity—this story of the transformative entwining of autonomy, solidarity, and integration—that I want briefly to explore. For it is only in that broader context, I would claim, that we can begin to grasp the full scope of hazards now posed by AI and data-intensive technologies to the integrity of deliberative democracy and electoral processes in the digital age.

As the story first told by classical social theorists from Alexis de Tocqueville and Emil Durkheim to Max Weber goes, the commencement of Western modernity was occasioned by the advent of a set of transformative processes in the 16th and 17th centuries that functioned to overhaul the hierarchically organised societal forms that characterised pre-modern ways of life. Growing scepticism toward the pervasive religious and teleological order of things gave rise to novel pressures to cope with the hardships of contingent reality without recourse to the sway of theocratic law, divine commandment or cosmic purpose (Taylor, 1989).

Over time, these strengthening pressures to manage the difficulties and uncertainties of harsh existence by human lights alone yielded corresponding demands that individuals depend solely upon themselves and each other to collaboratively shape the meanings, values, and purposes by which they could come to both share experience and direct their common affairs. Whereas the attitudes, commitments and interaction-coordinating norms that typified pre-modern self-understandings were able to draw upon the presumptive authority of a holistically interconnected and religiously anchored framework of meanings to apprehend reality, to delimit social relations and to steer practical possibilities, modernising processes shattered such a schema by resituating the legitimate sources of objective knowledge and social order ever more exclusively in humanity's

collective capacity to rationally redress the manifold challenges of existence through the exercise of open-ended and consensus-based problem solving (Habermas, 1992).

Such an open-ended challenge to collaboratively shape a world of shared meanings, goals, and values through unrestrained communication would hence give rise to the burdens of a new way of interacting whereby the reciprocal exchange of rationally-accessible beliefs became a condition of possibility for the intersubjectivity of understanding itself. It gave rise, that is, to the unprecedented modes of rational justification, interpretation, and interpersonal accountability that would eventually manifest in the universal and inclusive character of egalitarian reciprocity which structures the post-conventional moral perspective. Such a perspective lies behind the basic rights and freedoms instantiated in modern democratic legal orders and human rights regimes.

What is more, this challenge to cooperative world-making would manifest normatively as a kind of ethical pressure to individuate—to become fully autonomous and to assume the full station of one's individual authority—through social processes of everyday discursive engagement. That is, as participants in the budding age of experience, the modern age, were increasingly stripped of communicative recourse to theologically fixed systems of beliefs and social statuses, they were progressively more obliged to bear responsibility for the symbolic reproduction of their shared human world. They were compelled to exercise their individual authority in forming and sharing the beliefs that fostered these social reproductive processes simultaneously as they were obliged to take responsibility in justifying and defending those beliefs to others. The emergence of the equal and inviolable moral status of individuals (on which so much of the normative self-understanding of contemporary social, political, and legal institutions is predicated) first arose, in fact, out of such a formative pressure placed on dialogically implicated interactors, who were individually called upon in their everyday communications to count as offering and demanding reasons and were held to be accountable for those reasons in turn (Apel, 1998; Brandom, 1994/2001, 2000, 2013; Habermas, 1990/2001, 2008).

It is in this interdependent relationship of individuation, intersubjective communication and collaborative social reproduction that we find the wellspring of the heritage of democratic equity. The dynamics of modernisation place the burdens of symbolically producing and reproducing the world ever more exclusively on the interactive relationships forged by mutually accountable individuals who are thereby able to form their identities as rational, autonomous and responsible agents through precisely such communicative processes of shared problem-solving, creative self-expression and consensus building. Keeping the ship of society afloat through the unique contributions of each to the sustenance and advancement of all becomes the common project here. And the potential for self-realisation and individual flourishing likewise comes to be intertwined with the equitable and unencumbered integration of every person into such a cooperative social endeavour.

With this reconstruction of the normative underpinnings of modern identity formation, socialisation and integration in mind, I want to conclude here by providing a more comprehensive picture of the full scope of hazards now posed by AI and data-intensive technologies to the integrity of deliberative democracy. We are now seeing multiple warning signs that such ethical anchors of democratic equity will wane rather than reign.

At the level of identity formation, we see these warning signs in the way that the broad-scale proliferation of individual-targeting algorithmic curation is already impoverishing autonomy and reflective agency across a range of human activities.² For instance, in the domain of e-commerce,

² This section on warning signs draws directly from Leslie (2022).

strengthening regimes of consumer surveillance have fuelled the use of “large-scale behavioural technologies” (Ball, 2019) that have enabled incessant practices of hyper-personalised psychographic profiling, consumer curation, and behavioural nudging. Such technologies have tended to exploit the emotive vulnerabilities and psychological weaknesses of targeted people instrumentalising them as monetisable sites of behavioural surplus and treating them as manipulable objects of prediction rather than as reflective subjects worthy of decision-making autonomy and moral regard (Zuboff, 2019; Yeung, 2017). Analogous postures have spurred state actors and other public bodies to subject their increasingly datafied citizenries to algorithmic nudging techniques that aim to obtain aggregated patterns of desired behaviour which accord with government generated models and predictions. Some scholars have characterised such an administrative ambit as promoting the paternalistic displacement of individual agency and the degradation of the conditions needed for the successful exercise of human judgment, moral reasoning, and practical rationality (Fourcade & Gordon, 2020; Spaulding, 2020). In like manner, the nearly ubiquitous scramble to capture behavioural shares of user engagement across online search, entertainment, and social media platforms has led to parallel feedback loops of digital surveillance, algorithmic manipulation, and behavioural engineering (von Otterlo, 2014). The proliferation of the so-called “attention market” business model (Wu, 2019) has prompted digital platforms to measure commercial success in terms of the non-consensual seizure and monopolisation of focused mental activity. This has fostered the deleterious attachment of targeted consumer populations to a growing ecosystem of “distraction technologies” (Syvertsen, 2020; Syvertsen & Enli 2020) and compulsion-forming social networking sites and reputational platforms, consequently engendering, on some accounts, widespread forms of surveillant anxiety (Crawford, 2014), cognitive impairment (Wu 2019), mental health issues (Banjanin et al., 2015; Barry et al., 2017; Lin et al., 2016; Méndez-Díaz et al., 2022; Peterka-Bonetta et al., 2019), and diminished adolescent self-esteem and quality of life (Scott & Woods, 2018; Viner et al., 2019; Woods & Scott, 2016).

Over and above these threats to basic individual dignity, human autonomy, and identity-formation, the proliferation of data-driven behavioural steering at the collective level has also generated risks to communicative processes of socialisation and social integration. In current digital information and communication environments, for example, social media and search engine platforms have mobilised opaque computational methods of relevance-ranking, popularity-sorting, and trend-predicting to produce calculated digital publics devoid of any sort of active participatory social or political choice (Gillespie, 2014; Ziewitz, 2016; O’Neil, 2016; Bogost, 2015; Striphas, 2015; Beer, 2017; Cardon, 2016). Rather than stewarding informational plurality and the deliberatively achieved political will of interacting citizens, this vast meshwork of connected digital services shapes these computationally fashioned publics in accordance with the drive to commodify monitored behaviour and to capture user attention (Carpentier, 2011; Carpentier & De Cleen 2008; Dean 2010; Fuchs, 2021; John, 2013; Zuckerman, 2020). And, as this manufacture of digital publics is ever more pressed into the service of profit-seeking by downstream algorithmic mechanisms of hyper-personalised profiling, engagement-driven filtering, and covert behavioural manipulation, democratic agency and participation-centred social cohesion will be increasingly supplanted by insidious forms of social sorting and digital atomisation (Vaidhyanathan 2018; van Dijck, 2013; van Dijck et al., 2018). Combined with complimentary dynamics of wealth polarisation and rising inequality, such an attenuation of social capital, discursive interaction, and interpersonal solidarity is already underwriting the crisis of social and political polarisation, the widespread kindling of societal distrust, and the animus toward rational debate and consensus-based science that have come to typify contemporary post-truth contexts (Cosentino, 2020; D’Ancona 2017; Harsin, 2018; McIntyre, 2018).

Indeed, as these and similar kinds of computation-based social sorting and management infrastructures continue to multiply, they promise to jeopardise more and more of the formative modes of open interpersonal communication that have enabled the development of crucial relations of mutual trust and responsibility among interacting individuals in modern democratic societies. This is beginning to manifest in the widespread deployment of algorithmic labour and productivity management technologies, where manager-worker and worker-worker relations of reciprocal accountability and interpersonal recognition are being displaced by depersonalising mechanisms of automated assessment, continuous digital surveillance and computation-based behavioural incentivisation, discipline, and control (Ajunwa et al., 2017; Akhtar & Moore, 2016; Kellogg et al., 2020; Moore, 2019). The convergence of the unremitting sensor-based tracking and monitoring of workers' movements, affects, word choices, facial expressions, and other biometric cues, with algorithmic models that purport to detect and correct defective moods, emotions, and levels of psychological engagement and wellbeing may not simply violate a worker's sense of bodily, emotional, and mental integrity by rendering their inner life legible and available for managerial intervention as well as productivity optimisation (Ball, 2009). These forms of ubiquitous personnel tracking and labour management can also have so-called "panoptic effects" (Botan, 1996; Botan & McCreadie, 1990), causing people to alter their behaviour on suspicion it is being constantly observed or analysed and deterring the sorts of open worker-to-worker interactions that enable the development of reciprocal trust, social solidarity, and interpersonal connection. This labour management example merely signals a broader constellation of ethical hazards that are raised by the parallel use of sensor- and location-based surveillance, psychometric and physiognomic profiling (Barrett et al., 2019; Chen & Whitney, 2019; Gifford, 2020; Hoegen et al., 2019; Stark & Hutson, 2021; Agüera y Arcas et al. 2017) and computation-driven technologies of behavioural governance in areas like education (Andrejevic & Selwyn, 2020; Pasquale, 2020), job recruitment (Sanchez-Monedero et al., 2020; Sloane et al, 2022), criminal justice (Brayne, 2020; Pasquale & Cashwell, 2018) and border control (Amoore, 2021; Muller, 2019). The heedless deployment of these kinds of algorithmic systems could have transformative effects on democratic agency, social cohesion, and interpersonal intimacy, preventing people from exercising their freedoms of expression, assembly, and association and violating their right to participate fully and openly in the moral, cultural, and political life of the community.

I want to close, then, with a simple observation: What these instances of ethical peril at individual, social, and societal levels tell us is that the fragile but indispensable heritage of democratic equity is itself now under subtle but relentless assault—and we must center and draw upon its history to recognize the full picture of what, if we fail to intervene effectively, might be lost.

Bibliography

- Agüera y Arcas, B. A., Mitchell, M., & Todorov, A. (2017, May 7). *Physiognomy's new clothes*. Medium. <https://medium.com/@blaisea/physiognomys-new-clothes-f2d4b59fdd6a>
- Ajunwa, I., Crawford, K., & Schultz, J. (2017). Limitless worker surveillance. *California. Law Review*, 105, 735, <https://dx.doi.org/10.15779/Z38BR8MF94>
- Akhtar, P., & Moore, P. (2016). The psychosocial impacts of technological change in contemporary workplaces, and trade union responses. *International Journal of Labour Research*, 8(1/2), 101-131. <https://www.proquest.com/openview/88122c05cd24e4431f3dc0936317aa19/1?pq-origsite=gscholar&cbl=226543>

- Amoore, L. (2021). The deep border. *Political Geography*. Advanced online publication: <https://doi.org/10.1016/j.polgeo.2021.102547>
- Anderson, E. (1999). What is the point of equality? *Ethics* 109: 287–337.
- Andrejevic, M., & Selwyn, N. (2020). Facial recognition technology in schools: Critical questions and concerns. *Learning, Media and Technology*, 45(2), 115-128. <https://doi.org/10.1080/17439884.2020.1686014>
- Apel, K.-O. (1998). *Towards a transformation of philosophy*. Marquette University Press.
- Ball, K. (2009). Exposure: Exploring the subject of surveillance. *Information, Communication & Society*, 12(5), 639-657. <https://doi.org/10.1080/13691180802270386>
- Ball, K. (2019). Review of Zuboff's *The age of surveillance capitalism*. *Surveillance & Society*, 17(1/2), 252-256. <https://doi.org/10.24908/ss.v17i1/2.13126>
- Banjanin, N., Banjanin, N., Dimitrijevic, I., & Pantic, I. (2015). Relationship between internet use and depression: Focus on physiological mood oscillations, social networking and online addictive behavior. *Computers in Human Behavior*, 43, 308-312. <https://doi.org/10.1016/j.chb.2014.11.013>
- Barrett, L. F., Adolphs, R., Marsella, S., Martinez, A. M., & Pollak, S. D. (2019). Emotional expressions reconsidered: Challenges to inferring emotion from human facial movements. *Psychological Science in the Public Interest*, 20(1), 1-68. <https://doi.org/10.1177%2F1529100619832930>
- Barry, C. T., Sidoti, C. L., Briggs, S. M., Reiter, S. R., & Lindsey, R. A. (2017). Adolescent social media use and mental health from adolescent and parent perspectives. *Journal of Adolescence*, 61, 1-11. <https://doi.org/10.1016/j.adolescence.2017.08.005>
- Beer, D. (2017). The social power of algorithms. *Information, Communication & Society*, 20(1), 1-13. <https://doi.org/10.1080/1369118X.2016.1216147>
- Bogost, I. (2015, January 15). *The cathedral of computation*. The Atlantic, <https://www.theatlantic.com/technology/archive/2015/01/the-cathedral-of-computation/384300/>
- Botan, C. (1996). Communication work and electronic surveillance: A model for predicting panoptic effects, *Communication Monographs*, 63(4), 293-313, <https://doi.org/10.1080/03637759609376396>
- Botan, C. H., & McCreadie, M. H. (1990). Panopticon: Workplace of the information society. *Paper presented at the International Communication Association Conference, in Dublin, Ireland*
- Brandom, R. (2000). *Articulating reasons: An introduction to inferentialism*. Harvard University Press.
- Brandom, R. (2001). *Making it explicit: Reasoning, representing, and discursive commitment*. Harvard University Press. (Original work published 1994)
- Brandom, R. (2013). *Reason in philosophy: Animating ideas*. Harvard University Press.
- Brayne, S. (2020). *Predict and surveil: Data, discretion, and the future of policing*. Oxford University Press.

- Cardon, D. (2016). Deconstructing the algorithm: Four types of digital information calculations. In R. Seyfert & J. Roberge (Eds.), *Algorithmic Cultures: Essays on meaning, performance and new technologies* (pp. 95-110). Routledge.
- Carpentier, N. (2011). *Media and participation. A site of ideological-democratic struggle*. Intellect.
- Carpentier, N., & de Cleen, B. (2008). Introduction: Blurring participations and convergences. In N. Carpentier & B. de Cleen (Eds.), *Participation and media production* (pp. 1–12). Cambridge Scholars.
- Chen, Z., & Whitney, D. (2019). Tracking the affective state of unseen persons. *Proceedings of the National Academy of Sciences*, 116(15), 7559-7564. <https://doi.org/10.1073/pnas.1812250116>
- Cosentino, G. (2020). *Social media and the post-truth world order: The global dynamics of disinformation*. Palgrave Pivot. <https://doi.org/10.1007/978-3-030-43005-4>
- Crawford, K. (2014, May 30). *The anxieties of big data*. The New Inquiry, <https://thenewinquiry.com/the-anxieties-of-big-data/>
- D’Ancona, M. (2017). *Post-truth: The new war on truth and how to fight back*. Ebury Press.
- Dean, J. (2010). *Blog theory: Feedback and capture in the circuits of drive*. Polity Press.
- Dworkin R (2000) *Sovereign virtue: the theory and practice of equality*. Harvard University Press.
- Fourcade, M., & Gordon, J. (2020). Learning like a state: Statecraft in the digital age. *Journal of Law and Political Economy*, 1(1), 78-108, <https://doi.org/10.5070/LP61150258>
- Fraser, N. (2008). Reframing justice in a globalizing world. In K. Olson (Ed.), *Adding insult to injury: Nancy Fraser debates her critics*. London: Verso.
- Fraser, N. (2009). *Scales of justice: Reimagining political space in a globalizing world*. New York: Columbia University Press.
- Fuchs, C. (2021). *Social media: A critical introduction*. Sage.
- Gifford, C. (2020, June 15). *The problem with emotion-detection technology*. TheNewEconomy.com. <https://www.theneweconomy.com/technology/the-problem-with-emotion-detection-technology>
- Gillespie, T. (2014). The relevance of algorithms. In T. Gillespie, P.J. Boczkowski & K. A. Foot (Eds.), *Media Technologies: Essays on Communication, Materiality, and Society* (pp. 167-194). MIT Press Scholarship.
- Giovanola, B., & Tiribelli, S. (2022). Beyond bias and discrimination: redefining the AI ethics principle of fairness in healthcare machine-learning algorithms. *AI & society*, 1-15.
- Habermas, J. (2001). *Moral consciousness and communicative action*. MIT Press. (Original work published 1990)
- Habermas, J. (1992). *Postmetaphysical thinking: Philosophical essays*. MIT Press.

- Habermas, J. (2008). *Between naturalism and religion: Philosophical essays*. Polity Press.
- Harsin, J. (2018). Post-truth and critical communication. In *Oxford research encyclopedia of communication*. Oxford University Press.
<https://doi.org/10.1093/acrefore/9780190228613.013.757>.
- Hoegen, R., Gratch, J., Parkinson, B., & Shore, D. (2019). Signals of emotion regulation in a social dilemma: Detection from face and context. *2019 8th International Conference on Affective Computing and Intelligent Interaction (ACII)* (pp. 1-7). IEEE.
- John, N. A. (2013). Sharing and web 2.0: The emergence of a keyword. *New Media & Society* 15 (2): 167–182. <https://doi.org/10.1177%2F1461444812450684>
- Kofi Annan Commission on Elections and Democracy in the Digital Age*. (2020). Protecting Electoral Integrity in the Digital Age. https://www.kofiannanfoundation.org/app/uploads/2020/01/f035dd8e-kaf_kacedda_report_2019_web.pdf
- Kellogg, K. C., Valentine, M. A., & Christin, A. (2020). Algorithms at work: The new contested terrain of control, *Academy of Management Annals*, 14(1). <https://doi.org/10.5465/annals.2018.0174>
- Leslie, David, Katell, Michael, Aitken, Mhairi, Singh, Jatinder, Briggs, Morgan, Powell, Rosamund, Rincón, Cami, Chengeta, Thompson, Birhane, Abeba, Perini, Antonella, Jayadeva, Smera, & Mazumder, Anjali. (2022a). *Advancing Data Justice Research and Practice: An Integrated Literature Review*. The Alan Turing Institute in collaboration with The Global Partnership on AI. <https://doi.org/10.5281/zenodo.6408304>
- Lin, L. Y., Sidani, J. E., Shensa, A., Radovic, A., Miller, E., Colditz, J. B., Hoffman, B. L., Giles, L. M., Brian, B. S., & Primack, B. A. (2016). Association between social media use and depression among US young adults. *Depression & Anxiety*, 33(4), 323-331. <https://doi.org/10.1002/da.22466>
- McIntyre, L. (2018). *Post-truth*. The MIT Press.
- Méndez-Díaz, N., Akabr, G., & Parker-Barnes, L. (2022). The Evolution of social media and the impact on modern therapeutic relationships. *The Family Journal*, 30(1), 59-66.
<https://doi.org/10.1177%2F10664807211052495>
- Miller, D. (1994). Complex equality. In David Miller and Michael Walzer (Eds.) *Pluralism, justice and equality*, (pp.197–225). Oxford: Oxford University Press.
- Moore, P. V. 2019. E(a)ffective precarity, control and resistance in the gigitalised workplace. In D. Chandler & C. Fuchs (Eds.), *Digital objects, digital subjects: Interdisciplinary perspectives on capitalism, labour and politics in the age of big Data* (pp.125–144), University of Westminster Press.
<https://doi.org/10.16997/book29.j>.
- Morozov, E. (2013). *To save everything, click here: The folly of technological solutionism*. Public Affairs
- Muller, B. J. (2019). Biometric borders. In *Handbook on Critical Geographies of Migration*. Edward Elgar Publishing.
- O’Neil, C. (2016). *Weapons of math destruction; How big data increases inequality and threatens democracy*. Crown.

- Pasquale, F. (2020). *New laws of robotics*. Harvard University Press.
- Pasquale, F., & Cashwell, G. (2018). Prediction, persuasion, and the jurisprudence of behaviourism. *University of Toronto Law Journal*, 68(supplement 1), 63-81. <https://doi.org/10.3138/utlj.2017-0056>
- Peterka-Bonetta, J., Sindermann, C., Elhai, J. D., & Montag, C. (2019). Personality associations with smartphone and Internet use disorder: A comparison study including links to impulsivity and social anxiety. *Frontiers in Public Health*, 7(127). <https://doi.org/10.3389/fpubh.2019.00127>
- Sanchez-Monedero, J., Dencik, L., and Edwards, L. (2020). What does it mean to solve the problem of discrimination in hiring? Social, technical and legal perspectives from the UK on automated hiring systems. ArXiv.191006144 Cs. <https://doi.org/10.1145/3351095.3372849>.
- Scheffler, S. (2003). What is egalitarianism?. *Philosophy & Public Affairs*, 31, 5–39.
- Scott, H., & Woods, H. C. (2018). Fear of missing out and sleep: Cognitive behavioural factors in adolescents' nighttime social media use. *Journal of Adolescence*, 68, 61-65. <https://doi.org/10.1016/j.adolescence.2018.07.009>
- Sloane, M., Moss, E., & Chowdhury, R. (2022). A Silicon Valley love triangle: Hiring algorithms, pseudo-science, and the quest for auditability. *Patterns*, 3(2). <https://doi.org/10.1016/j.patter.2021.100425>
- Spaulding, N. (2020). Is human judgment necessary?: Artificial intelligence, algorithmic governance, and the law. In M. K. Dubber, F. Pasquale & S. Das (Eds.), *The Oxford handbook of ethics of AI* (pp.375-402). Oxford University Press.
- Stark, L., & Hutson, J. (2021). Physiognomic artificial intelligence. [Fordham Intellectual Property, Media & Entertainment Law Journal, Forthcoming](https://dx.doi.org/10.2139/ssrn.3927300). <https://dx.doi.org/10.2139/ssrn.3927300>
- Striphas, T. (2015). Algorithmic culture. *European Journal of Cultural Studies*, 18(4-5), 395 – 412. <https://doi.org/10.1177%2F1367549415577392>
- Syvertsen, T., & Enli, G. (2020). Digital detox: Media resistance and the promise of authenticity. *Convergence*, 26(5-6), 1269-1283. <https://doi.org/10.1177%2F1354856519847325>
- Syvertsen, T. (2020). *Digital detox: The politics of disconnecting*. Emerald Group Publishing.
- Taylor, C. (1989). *Sources of the self: The making of the modern identity*. Harvard University Press.
- Vaidhyanathan, S. (2018). *Antisocial media: How Facebook disconnects us and undermines democracy*. Oxford University Press.
- Van Dijck, J. (2013). *The culture of connectivity: A critical history of social media*. Oxford University Press.
- Van Dijck, J., Poell, T., & De Waal, M. (2018). *The platform society: Public values in a connective world*. Oxford University Press.
- Viner, R. M., Gireesh, A., Stiglic, N., Hudson, L. D., Goddings, A. L., Ward, J. L., & Nicholls, D. E. (2019). Roles of cyberbullying, sleep, and physical activity in mediating the effects of social media

use on mental health and wellbeing among young people in England: A secondary analysis of longitudinal data. *The Lancet Child & Adolescent Health*, 3(10), 685-696.
[https://doi.org/10.1016/S2352-4642\(19\)30186-5](https://doi.org/10.1016/S2352-4642(19)30186-5)

Vlastos, G. (1984). "Justice and Equality" [1962]. In *Theories of Rights*, ed. Jeremy Waldron, pp. 141–176. Oxford: Oxford University Press.

von Otterlo, M. (2014). Automated experimentation in Walden 3.0.: The next step in profiling, predicting, control and surveillance. *Surveillance & Society*, 12(2), 255-272.
<https://doi.org/10.24908/ss.v12i2.4600>

Wolff, J. (2010). Fairness, respect and the egalitarian ethos revisited. *The Journal of Ethics*, 14(3), 335-350.

Woods, H. C., & Scott, H. (2016). # Sleepyteens: Social media use in adolescence is associated with poor sleep quality, anxiety, depression and low self-esteem. *Journal of Adolescence*, 51, 41-49.
<https://doi.org/10.1016/j.adolescence.2016.05.008>

Wu, T. (2019). Blind spot: The attention economy and the law. *Antitrust Law Journal*, 82, 771-806.
https://scholarship.law.columbia.edu/faculty_scholarship/2029

Wyatt, S. (2008). Technological determinism is dead: long live technological determinism. In E. Hackett, O. Amsterdamska, M. Lynch, J. Wajcman (Eds.), *The Handbook of Science and Technology Studies* (pp. 165-180). MIT Press

Yeung, K. (2017). 'Hypernudge': Big Data as a mode of regulation by design. *Information, Communication & Society*, 20(1), 118-136. <https://doi.org/10.1080/1369118X.2016.1186713>

Ziewitz, M. (2016). Governing algorithms: Myth, mess, and methods. *Science, Technology, & Human Values*, 41(1), 3-16. <https://doi.org/10.1177/0270162243915608948>

Zuckerman, E. (2020). The case for digital public infrastructure. *Knight First Amendment Institute*, Columbia University.

Zuboff, S. (2019). The age of surveillance capitalism: The fight for a human future at the new frontier of power. Public Affairs.