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International Law as a Cyborg Science

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Abstract

International law academics have increasingly turned to engage deliberately engage computer-oriented technologies. There is little work in the literature that reflects on how this engagement itself takes place, what it tells us about the state of the discipline, and the consequences of concentrating on the phenomena of digital technologies. This paper shares some possible conceptual taxonomies and theoretical concerns in disciplinary self-reflection about our digital futures.

Keywords

capitalism – cyborg – formal rhetorical economy – international law – political economy – sensibility – transhumanism

1 Introduction

In recent years, international legal scholars began to overtly engage with computer-oriented technologies. While this concentration intimates a more general trend by professionals in academia, government and industry to understand the possibilities of digital technologies, international law literature also occupies its own specific genre characteristics. What are these external genealogies and internal taxonomies at play across this literature? Where might we find innovation and where do we see familiar disciplinary concerns? What sort of claims do these different perspectives have on our criteria of competency and value? Are there more and less fruitful directions for future study implicit in the literature and what does the current phenomena of digital technology within the disciplinary conscience tell us about our communities? The aim of

this essay is to adopt a self-reflective approach to try and to make some sense of these kind of questions when we engage the phenomena of digital technology as international law academics.¹ In particular, the hunch I wish to explore is that academics working within the broad field of public international law

- 1 The 'disciplinary conscious' is a complicated term that inaugurates a set of perceived tensions and styles of debate. It is difficult to think of it serving as an object with some institutionalised agency or heuristic value before the turn into the interiority of the mind, of psychology and its widescale application to individuals and society. Similarly, it is linked closely with the world of struggle between cadres of experts, to concerns with professionalisation studies and the sociology of decision-making across layers of distributed governance. What exactly it is or how to get at it though or how it operates as one of many layers within institutions and forms of thought is complicated and contested. To openly discuss these difficulties is usually associated with more 'critical' voices within the international law academy. Some more or less canonical texts include Duncan Kennedy's monograph *The Rise and Fall of Classical Legal Thought* (Beard Books 1975) pp. 7–36; David Kennedy's article 'When Renewal Repeats: Thinking Against the Box', 32 *N.Y.U. J. Int'l L. & Pol.* (1999–2000) p. 335; Akbar Rasulov's book chapter 'What is Critique: Towards a Sociology of Disciplinary Heterodoxy in Contemporary International Law', in J. d'Aspremont, T. Gazzini, A. Nollkaemper and W. Werner (eds), *International Law as a Profession* (Cambridge University Press 2017) pp. 189–221. For some authors, this indicates something that resembles a system, which sits between power and outcomes to complicate understanding the changes of history. "This approach", writes Duncan Kennedy, "denies the importance neither of ideologies like laissez-faire, nor of concrete economic interests, nor of the underlying structure of political power. It insists only that legal consciousness, which has its own structure, mediates their influence on particular legal results." D. Kennedy, 'Toward an Historical Understanding of Legal consciousness: The Case of Classical Legal Thought in America, 1850–1940', 3 *Res. L. & Soc. Sci.* (1980) p. 4. For Kennedy, this means elaborating "the language necessary to describe the form and content of a consciousness". In my own thinking, the consciousness is emerged somehow in today's metaphoric sensitivities that resist implications of being fixed or static, but made up of certain predictable tendencies that are distinct enough to identify an association of experts, which may themselves have all sorts of competing alliances. These tendencies operate not as a structure per se, but are related to institutional arrangements, broader relationships and interpersonal contexts, and which takes place at various layers in distinct ways: conceptual, technical, and so forth. The question is: what does an analysis of the conceptual and interpretative lines of formal public-facing argument look like within international legal academia and what does this lay out help us understand about the context the discipline finds itself and its priorities? And not in a spirit of critique but comradarie. My argument is that computer oriented technologies are changing the institutional configuration of authority and pervading the cultural imagination of the population and across disciplines, and at the same time, international law academics largely apply existing paradigms and institutionalised styles of engagement, at least within its literary engagement. At best, this is a gamble – that maybe its existing repertoire will weather the storm of digital technology and find a meaningful role in global governance, or at least academia. But things could go another way and there may be alternative paths forward, beginning with an understanding of the ways we currently find ourselves conceptually constrained.

are faced with two simultaneous phenomena when engaging the spectre of computer-oriented technologies: on the one hand, the very real though often opaque influence of computers across the spectrum of lay and professional life, and, on the other hand, the difficulty for international law academics to escape long-standing conceptual practices when seeking to make sense of our digital futures. Our experience today is wandering a maze of new and old dispensations, all too familiar and yet somehow also foreign.²

2 Technology as Historical Incident

The call bringing us together in this journal issue prompted authors to explore the impact of artificial intelligence on decision-making in international law.³ The suggestion here is that something is afoot, but exactly what needs to be examined. A common proposition in the literature is digital technologies fragment and obscure the traditional landscape and players, unbundling the pretensions of territorially bound jurisdictions and the best efforts of state institutions to monopolise the legal design of political life.

– Speaking to constitutional interpretations of data protection: “[M]odern technology challenges basic assumptions about where is ‘here’ and ‘there’. It challenges the centrality of territoriality within the relevant statutory and constitutional provisions governing the search and seizure of digitized

2 There are any number of empirical and methodological difficulties with speaking of an ‘our’ or ‘we’, aligned with ‘academics in public international law’. Does this include academics working outside the English language? Are there not many regimes within public international law, each with their own intellectual genealogies and institutional markers? Is it even possible to make a clear cut distinction between public and private international law – or conversely, by focusing on public international law, are we not missing out on important trends within fields of international economic and financial law? For purposes of this article, I assume that there currently exists a cohort of English-speaking academics that self-identify as working (‘with’ or ‘on’ or ‘in’) something called international law, who were trained and teach classes primarily in what is perceived by administration and students as ‘public’ international law, and who have certain agreed received source materials and traditions of what is canonical within the mainstream, or official, identify of their profession (e.g. the *American Journal of International Law*, the Statutes of the ICJ, figures such as Hirsch Lauterpacht).

3 The term, artificial intelligence, is coined by J. McCarthy, M. Minsky, N. Rochester, and C.E. Shannon, ‘A Proposal for the Dartmouth Summer Research Project on Artificial Intelligence: August 31, 1955’, 27:4 *AI Magazine* (2006) p. 12. In the mid-20th century, artificial intelligence encompassed a heady multi-disciplinary field of inquiry and possible application, at once linked to existing orientations toward electrical machines but also aware that there was something new at play in emerging technologies. This paper approaches artificial intelligence in this spirit.

information ... [T]he ease, speed, and unpredictability with which data flows across borders make its location an unstable and often arbitrary determinant of the rules that apply ... [and] challenges ... territoriality's twentieth-century companion criteria – citizenship and national ties ...”⁴

- Examining how international law scholars, military lawyers and civil society activists should construct regulation to confront new weapons technologies: “[D]evelopments in communications and travel technologies have ... expanded the number and kinds of entities involved in the process of creating new international law. International organizations, multinational industries, non-state armed groups, non-governmental organizations, and even individual norm entrepreneurs now have a seat at a table once reserved to state policymakers.”⁵
- Drawing on theoretical insights from intellectuals such as Foucault and Latour to examine the governance capacities of disaster risk management strategies adopted by the UN and national governments: “[W]e contend that algorithmic regulation is ... understood to entail the interaction of both state and non-state regulatory authority ... [W]e further ask that our readers relax attachment to an idea of jurisdiction as a capacity necessarily conferred upon a state-sanctioned legal institution or official ... [J]urisdiction is not meted out only in formal institutions of national, regional or international law ... [R]egulatory ramifications may only be grasped in the hybrid jurisdictional settings...”⁶

Another common proposition is that these digital futures accelerate the directions and patterns of global governance, though authors debate whether these developments are the next iteration of long technology evolution or a relatively novel social paradigm and whether technological innovation ushers in chaos and exploitation or control and progress. Exploring ways that computer-led technologies will facilitate the universalising ambitions of international law: “Today’s electronic systems at their best seem to move with the grace and speed of human thought... Ultimately, I believe that computers and the global networks they drive will produce the most profound changes to international law since Grotius.”⁷

4 J. Daskal, ‘The Un-Territoriality of Data’, 125 *Yale Law Journal* (2015) pp. 328, 329–330.

5 R. Crootof, ‘Regulating New Weapons Technology’, in E. Talbot Jensen and R. Alcalá (eds.), *The Impact of Emerging Technologies on the Law of Armed Conflict* 6–7 (Oxford University Press, 2019) pp. 6–7.

6 F. Johns and C. Compton, ‘Data Jurisdictions and Rival Regimes of Algorithmic Regulation’, *Regulation and Governance* (2020) pp. 6, 9.

7 J. Gamble, ‘International Law and the Information Age’, 17 *Michigan Journal of International Law* (1996) p. 799.

- Laying out a normative argument for harmonising national legislation to manage transborder data flows: “The rapid growth and proliferation of new technologies has had pervasive effects, both desired and uninvited, on international politics. In recent years, the technology of computer communication has covered the globe ... across national frontiers ... [R]apid data communication is now essential for conducting military operations, for transacting international commerce, for managing multinational business, and for disseminating scientific data ... Establishing ... binding legal arrangements ... [and] cooperation between states... unfolds in an untidy and irregular fashion.”⁸
- Here, a former judge on the International Court of Justice: “[An] important phenomena and processes that to an ever-growing degree have played an important part in relations between persons and nations. These are science and technology. Did they burst upon us unexpectedly? ... A deeper analysis makes it clear that there were many stations on the road, many strange and unforeseen events ... The horseless carriage now moving on the world’s roads transformed gasoline from a waste product into a richly required fuel. The discovery of petrochemicals gave birth to powerful industries on all continents. The way led to internal combustion engines, aero-engines and the jet, which opened a new age in air traffic ... It can scarcely be doubted that the great scientific adventures of today are only one chapter in a great saga ... We are fortunate to have witnessed one of the most significant inventions... the digital computer ... Technology has become an all-important factor of our age and decisive in its development.”⁹
- Cataloguing diverse attempts toward digital constitutions at the global level: “[I]t has become exponentially more difficult to distinguish between our digital and material lives ... Increasingly, the need for government intervention, protection of vulnerable groups, and international cooperation in the realm of Internet governance has become a source of consensus ... In particular, we see marked overall increases in the occurrence of the right to

8 E. Novotny, ‘Transborder Data Flows and International Law: A Framework for Policy-Oriented Inquiry’, 16 *Stanford Journal of International Law* (1980) pp. 142–143, 146. Some 35 years later after the previous quote, the description and normative vision is largely unchanged: “Cyberspace lacks geographic boundaries and does not map neatly onto the traditional system of territorial jurisdiction... Meanwhile cyber threats have proliferated, accentuating the need to regulate cyber activity and to impose sanctions for cyber offenses.... Without accountability measures, cyberspace risks becoming a Hobbesian state of nature in which victims engage in self-help and cyber-vigilantism.” A. Perloff-Giles, ‘Transnational Cyber Offenses: Overcoming Jurisdictional Challenges’, 43 *Yale Journal of International Law* (2018) pp. 191–192.

9 M. Lachs, ‘Views from the Bench: Thoughts on Science, Technology and World Law’, 86:4 *American Journal of International Law* (1992) p. 673.

data control ... now being articulated in much more specific, sophisticated and nuanced ways than they have been in the past.”¹⁰

A third common proposition is that the trajectory of digital technologies poses an existential threat to the rule of law writ large, and more specifically to the legal profession.

“The world view of the modern capitalist is the same as that of the industrial proletarian, as if the one were the twin brother of the other... The big industrialist has no other ideal than that of Lenin – an ‘electrified earth’. They disagree essentially only on the correct method of electrification. American financiers and Russian Bolsheviks find themselves in a common struggle for economic thinking, that is, the struggle against politicians and jurists.”¹¹

Here we see all three propositions coming together, with the new technologies fragmenting existing identities, at ever-increasing speed, to the peril of jurist culture. This “electrification” inaugurates a new earth where the communist lies down with the capitalist under a shared ideological faith, what Schmitt calls “mechanization, technicization, and termitization”.¹² The ratcheting pace and escalating complexity to societal organisation, in part due to technical acceleration, forces legislative design to adopt ever-shorter term horizons and abdicate careful ethical consideration in favour of a reactive, pseudo-pragmatic posture: a “growing motorization of the legislative machinery ... The process of legislation ever faster and more summary, the path to realizing legal regulation ever shorter, and the role of legal science ever smaller.”¹³ Technology

10 L. Gill, D. Redeker, and U. Gasser, ‘Towards Digital Constitutionalism? Mapping Attempts to Craft an Internet Bill of Rights’, 80:4 *International Communication Gazette* (2018) pp. 317–318.

11 C. Schmitt, *Roman Catholicism and Political Form* (Greenwood 1923, translated 1996) p. 13. For an interesting discussion around these themes in Schmitt’s work, see W. Rech, ‘Eschatology and existentialism: Carl Schmitt’s historical understanding of international law and politics’, in M. Arvidsson, L. Brannstrom, and P. Minkinen (eds), *The Contemporary Relevance of Carl Schmitt: Law, Politics, Theology* (Routledge 2016) pp. 147–152.

12 C. Schmitt, ‘The Motorized Legislator [1950]’, in H. Rosa and W. Scheuerman (eds), *High-speed Society: Social Acceleration, Power, and Modernity* (Pennsylvania State University Press 2009) pp. 65–71. For an interesting discussion around these themes in Schmitt’s work, see C. Heidegren, ‘Social acceleration, motorized legislation and framework laws’, in Arvidsson et al. (eds), *supra* note 11, pp. 91–97. One additional take away here is how Schmitt is not so much a Nazi lawyer or a legal theorist but makes up part of the rhetorical economy and lore of contemporary scholars in specifically relatively recent and distinct contexts.

13 *Ibid.*

seeks to extinguish not only the social, but specifically the politician and the jurist, those established institutions so wrapped up in our worlds of culture and identity and governance. Dystopia haunts our futures, even while jurists still have room to do something about it.

If Schmitt is too divisive an intellectual figure, the sentiment found in his work cuts across politics, theme, and style when legal scholarship engages computer technologies.¹⁴ In a conservative philosophical approach, Hildebrandt warns, “[l]awyers must get their act together” in the wake of the “rise of computational infrastructures and the ubiquity of the internet challenge”. In contrast to the “brute jurisdictions” of cyberspace, “legal effect is neither a matter of brute force nor one of mechanical application”, but a matter of democratic deliberation, that upholds the “moral imperatives” and “fundamental rights” of property and human dignity.¹⁵ Or another measured appeal, this time to “doctrinal scholarship” grounded in “irreducible subtlety ... irrespective of [one’s] jurisprudential politics” that might allow lawyers to enact “our situated moral intelligence” that might animate “the discretion, emotion, imagination, passion in the rules and their application”, in order that the profession does not become “slaves of stupid computers” and an algorithmic-led humanitarian regime of “intellectual and moral impoverishment”.¹⁶ In a similar register, from an openly “critical” theorist perspective confronting the encroachment of “algorithmic demands” and “machine-learning-driven process,” Fleur Johns warns the potential loss of “analog means of self-cultivation through training and introspection”.¹⁷ The shift to technological management, for each author, signals a shift toward “regulatory instrumentalist” or “technocratic” decision-making, which obscures normative commitment and distributional consequences claimed to be central to international legal reasoning.¹⁸ As such, the

14 My reference to Schmitt is deliberate. It is not meant to invoke his canon and the secondary literature, but rather choosing his quotation because it is an eloquent expression of a tension that this paper is analysing.

15 M. Hildebrandt, ‘Text-Driven Jurisdiction in Cyberspace’, 2:8 *Theoretical and Applied Law* (2021) pp. 7, 18.

16 I. Kalpuozos, ‘Double Elevation: Autonomous Weapons and the Search for an Irreducible Law of War’, 33:2 *Leiden Journal of International Law* (2020) pp. 31–32.

17 M. Fourcade and F. Johns, ‘Loops, ladders and links: the recursivity of social and machine learning’, 49 *Theory and Society* (2020) p. 809. “The data hunger of machine learning ... [produces] addictive designs ... to develop a new attitude ... [a] machine-learning self ... [who] internalizes the injunction to produce herself through the machine learning process itself ... [whereby] ‘permanent self-examination’ crucial to self-crafting’ [but instead] ... one must both feed and reproduce a hunger for data on and around the self.” *Ibid.* pp. 810–812.

18 See, for example, M. Maas, ‘International Law Does Not Computer: Artificial Intelligence and the Development, Displacement or Destruction of the Global Legal Order’, 20 *Melbourne Journal of International Law* (2019) pp. 47–48.

stakes of algorithmic governance seem not only to threaten the legal profession, but its disciplinary cohorts in the humanities and social sciences – and by extension, quite possibly the human capacity itself to understand and shape our collective futures:

[T]he growing power of the algorithm... Accelerated like intensifying storm winds that seem ... to be propelling us toward a menacing future. We also knew, or felt intuitively, that in spite of the increasing speed with which things were moving – or, rather, because of this – our thinking and writing needed to be slow, to slow down, in order not to be carried away by the intoxicating velocity with which things were progressing and instead, to carve out alternative ways of reflecting and speculating about these developments ... [O]ur joint inquiry is fuelled by three fears, emerging from each of our particular academic backgrounds. One is the fear of the philosopher: there will be nothing left to be understood ... Another is that of the lawyer: there will be nothing and no one left to be judged. The third is the fear of the art historian: there will be nothing left to see and nothing to interpret ... [R]eflection on an emerging world ... cannot be restricted to certain specialised disciplines.¹⁹

If scholars often present this electrified earth to inaugurate a chaotic regime of accelerated complexity and mechanical calculation without the failsafe of human judgment or empathy, the literature also commonly elaborates how digital technologies entrench existing political inequalities and compound ongoing patterns of production and distribution. To focus on technology is to reveal the actual working of power in the world and to begin to confront its logics of exploitation and oppression – or at the very least, a sense of inescapable routine where one is solicited without consent to participate. The threat of digital technology leans from chaos to enclosure.

At the most abstract level, some authors shy away from attempting to name this digital-oriented assemblage, characterising problems to be about lack of equality or inclusivity. “The aim here is not to disclose some underlying structure or logic to international law ... nor tools for making the world more right-ful”, explains Johns. Instead, focusing on the “sensory economy”, she hopes to

19 M. Liljefors, G. Noll, and D. Steuer (eds.), ‘Introduction: Our Emerging World of War’, in *War and Algorithm* (Rowman and Littlefield 2019) pp .2–3. The sentiment here is not specifically that digital modes of governance are inherently stultifying to the human person (though this may well be in the minds of many authors), but that expertise and decision-making are the (regrettably and unnecessarily) exclusive jurisdiction of a narrow cadre of professionals.

gain insight into the “quiet exercise of power that occurs when data are converted into scales, ranks and indices” and creates “profoundly unequal distribution of eligibility to sense, and to be sensed”.²⁰ Other authors focus in on how data is reimagined as an economic resource to commodify “the so-called natural person” to define “social and economic winners and losers ... who wins and who loses, and ... the stakes of winning and losing”, which thereby amplifies “unjust social relations” and “exacerbates economic inequality”.²¹ Scholarship will often target authoritarian states, or more commonly the digital platform companies that increasingly broker oligarchic control over economic, political and social governance.

These concerns cut across political ideology. In a more conservative register, for instance, Benvenisti pines for the “heyday of trust in international organizations” when “humanity at large” assigned “national decision makers and those to whom they delegate authority” to act as “trustees of humanity ... to manage public affairs”, promote “the rights of all human beings and their interest in the sustainable utilization of global resources”.²² The breakdown of public faith in the accountability of the international legal order is due, in significant measure, to the “[n]ew technologies of governance” and the “new entrants (primarily social media companies)” who are “polluting or clogging the available channels of communication”, fostering “information asymmetries and ... unequal treatment of users”, and following “business models that seek profit maximization through expansion of market share and advertising revenue”, lacking “commitment” to “conform with public goals” or conform to “national and international regulation”.²³ Other scholars agree, but read these dynamics of data surveillance and extraction through a more progressive political lens. “An important context” for understanding “the accountability deficits associated with the structures of governance of the social media age” is the “encroachment of neoliberal structures of governance around the world, including processes of privatization, financialization and the protection of capital from democratic demands for social redistribution and protection”.²⁴

20 F. Johns, ‘Data, Detection, and the Redistribution of the Sensible in International Law’, 111:1 *American Society of International Law* (2017) pp. 60, 65, 68.

21 J. Kall, ‘The Materiality of Data as Property’, 61 *Harvard International Law Journal Frontiers* (2020) pp. 1, 3; S. Viljoen, ‘Democratic Data: A Relational Theory for Data Governance’, 131 *Yale Law Journal* (2021) pp. 7–10.

22 E. Benvenisti, ‘Upholding Democracy Amid the Challenges of New Technology: What Role for the Law of Global Governance’, 29:1 *European Journal of International Law* (2018) pp. 53–54.

23 *Ibid.* pp. 73–74.

24 B. Sander, ‘Democratic Disruption in the Age of Social Media: Between Marketized and Structural Conceptions of Human Rights Law’, 32:1 *European Journal of International Law* (2020) p. 161.

This encroachment often passes under labels, such as ‘informational’ or ‘surveillance’ capitalism, or some blended version of the two. “The vast and growing extent of commercial surveillance facilitates a pervasive entanglement of public and private power, producing a practical reality within which each feeds off the other and neither can be effectively constrained”, explains Julie Cohen.²⁵ “The problem is not simply that the biopolitical public domain facilitates commodification (though it does) or that it enables discrimination (though it does that to), but more fundamentally that it subordinates considerations of human well-being and human self-determination to the priorities and values of powerful economic actors.”²⁶

3 New Words; Old Doxas

To engage these digital futures, international law scholars tend to fall back on tactical repertoires within the discipline (which serve as approximate analytical, or aesthetic, modes of ‘doing scholarship’).²⁷ One popular style of scholarly engagement, less pronounced in relation to technology, is the adoption of a technical posture as if writing an amicus brief to the court or an advisory opinion to the government. And here I am with Duncan Kennedy when he describes this posture as expressing a view where the expert is expected to apply “the application of a single, distinctively legal apparatus to the job of policing the boundaries of these spheres”.²⁸ Texts of this sort are closest to what one might want to call ‘mainstream’ international law practice: emphasis on canonical texts, doctrines, rules, with categorical definitions and relatively bounded tests for discerning competing facts and interests.²⁹ Law tends to be juxtaposed to other social phenomena – such as ‘digital technology’ – with the mission of the legal scholar to ensure that, in the words of Langdell, everything “should be

25 J. Cohen, *Between Truth and Power: The Legal Constructions of Informational Capitalism* (Oxford University Press, 2019) p. 243.

26 *Ibid.* p. 73.

27 In an engineering mind set, we might remember that our concepts can be simultaneously open to error and useful.

28 D. Kennedy, ‘The Critique of Rights in Critical Legal Studies’, in W. Brown and J. Haley, *Left Liberalism/Left Critique* (2002) p. 180. The role of the judiciary in this thinking described by Kennedy is relatively analogous to the way international law experts treat a wider range of actors, from judges on international and regional courts to international agencies and various multi-jurisdictional organisation: they essentially are seen to possess possible technical expertise and a cultured sophisticated in dispute resolution to balance and co-ordinate a range of political interests, especially when they enter into conflict.

29 P. Schlag, ‘The Aesthetics of American Law’, 115 *Harvard Law Review* (2002) p. 1049.

found in its proper place, and nowhere else”.³⁰ The difficulty is that the pairing of law and technology are not synonymous dynamics: the law represents some form of order and stability, while technology intimates disruption and force.³¹ Of course, the law can change, and it should, in order to maintain its purpose as the custodians of societal movement, but its orientation is forever toward rationalising deviance and innovation into existing juridical classifications.³² This can be a challenge when it is felt that the facts (such as technologies) are ‘getting away’ or ‘racing ahead’ of the lawyers, or where there is the perception that the law is unpredictable and inconsistent.³³ In this situation, the role of the legal scholar is to reinstate the coherence of law and demonstrate its capacity to reign in disorder.

Though the form, function and scope of ... [t]he idea of an ‘Internet Bill of Rights’ ... has evolved ... [the] principles which were once radically aspirational have begun to crystallize into law. In this paper, we propose a unified term to describe these efforts using the umbrella of digital constitutionalism and conduct an analysis of thirty initiatives ... These initiatives have great differences, and range from advocacy statements to official positions of intergovernmental organizations to proposed legislation. However, in their own way, they are each engaged in the same conversation, seeking to advance a relatively comprehensive set of rights, principles, and governance norms for the internet ... They might turn out to be ... pre or proto-constitutional documents ... lacking any preeminent status within a hierarchy of legal rules. Even in this nascent stage, however, these initiatives have powerful political and symbolic value ... [and]

³⁰ C.C. Langdell, *A Selection of Cases on the Law of Contract* (Little, Brown and Co., 1871) p. ix.

³¹ See David Graeber’s discussion of Louis Dumont’s theory of value and the argument that any pairing or combination of terminology will always privilege certain notions over others. D. Graeber, *Toward an Anthropological Theory of Value: The False Coin of Our Own Dreams* (Palgrave 2001) pp. 16–17.

³² Describing the belief that “the many concepts of jurisprudence in their absolute purity” can be “logical” and “freed from all entangling alliances with human life”, safely boxed within doctrines such as “good faith and bad faith, property, possession, laches, and rights in rem” as if “a dialectica-hydraulic-interpretation press, which could press an indefinite number of meanings out of any text ... a hair-splitting machine that could divide a single hair into 999,999 equal parts and when operated by the most expert jurists, could split each of these parts into 999,999 equal parts,” see F. Cohen, ‘Transcendental Nonsense and the Functional Approach’, 35:6 *Columbia Law Review* (1935) p. 809.

³³ Example of where say tech is speeding ahead or driving international law ... “The ease and speed with which data travels across borders, the seemingly arbitrary paths it takes, and the physical disconnect between where data is stored and where it is accessed critically test these foundational premises [of international law].” J. Daskal, *supra* note 4, p. 326.

will tend toward legal formalization at all levels ... [W]e hope to offer a preliminary map of the landscape ... related to a full range of substantive rights, principles and themes proposed by these initiatives ...³⁴

To carry out this task, the author tends to identify some relevant canonical text, demonstrates that its scope encompasses any troubling set of supposedly non-legal facts, and then provides a new equilibrium or sense of predictability to future legal action. The performance is usually couched in language to suggest that the author's efforts are led by some objective rationality necessitated by the source material and relative doctrines. Thus, "while there are many uncertainties regarding the application of human rights treaties to intelligence gathering" and "provisions are broad and vague", we are told that when and how they apply "are not insurmountable", and in fact that the "only truly coherent approach" is that "human rights treaties should apply to virtually all foreign surveillance activities" and operate according to a "fact-specific examination on the merits of its compliance with the right to privacy".³⁵ Authors will go to seemingly great lengths to uphold the coherent embrace of legal rationality. "Although no one could have foreseen the Internet in 1950 ... the scope of Article 19(2) is both revolutionary and prescient", claims Molly Land. "Moreover, the ICCPR does so in a technologically neutral way, thus paving the way for the development (and protection) of new and improved means of expressing and communicating information in coming years ... [and is therefore] more than sufficient to handle the challenges of our current information age."³⁶ This claim despite noting "the precise import" of human rights legislation is "not yet clear", and "its meaning and scope as applied to technological developments" needs to "evolve and mature".³⁷ Authors adopt different rhetorical techniques to close the gap between the technological 'out there' and the grid of legal reason: drilling into the legislative minutes and draft protocols to discover the application of legal provisions,³⁸ mapping national strategies to find best practices that might crystalize into customary law,³⁹ or focusing on any other number of more 'official' materials that might otherwise be

34 Gill, *supra* note 10, pp. 1–2.

35 M. Milanovic, 'Human Rights Treaties and Foreign Surveillance: Privacy in the Digital Age', 56 *Harvard International Law Journal* (2015) pp. 83, 87.

36 M. Land, 'Toward an International Law of the Internet', 54:2 *Harvard International Law Journal* (2013) p. 457.

37 *Ibid.* p. 418.

38 *Ibid.*

39 S. Shackelford and A. Craig, 'Beyond the New Digital Divide: Analyzing the Evolving Role of National Governments in Internet Governance and Enhancing Cybersecurity', 50 *Stanford Journal of International Law* (2014) p. 119.

recognised in the drama of a court trial and subsequent judgment, from industry reports to cases to overlapping regulatory regimes.⁴⁰

All this activity relies on a substantial body of non-textual coordination to provide the grist and legitimacy of legal valuation. For the most part, scholarship adopting this more positivistic posture toward law and technology pass over these less formal characteristics of what it means to do international law.⁴¹ This is a somewhat ironic position for a genre imagining itself producing professionally relevant material for courts or government offices, when the decision making of those forums are “effects of sundry performances: recollections, statements, behaviours, affects, linguistic performances of clients, witnesses, experts, and more”.⁴² Sometimes, however, the veneer of objective rationality slips and more localised or partisan forms of reasoning surface. This is perhaps a more regular difficulty when international lawyers address digital technologies as opposed to other social phenomena because the computerised toolkits are simultaneously outside the expertise of most legal professionals and widely adopted by the traditional clients and audiences of international law. In these situations, the expert classes surrounding digital technology (e.g. computer engineers, statisticians) have more claim to empiricism, objectivity, rationality, efficiency and can often more easily claim to have predicted or influenced specific legal outcomes. The ‘value added’ by international legal expertise is now its ability to fuse the quantitative evidence produced by computerised statistical tools with its own qualitative, field specific knowledge. “Quantities do not tell us much about gravity, or why certain violations were committed, or how we are to assess them normatively even though in theory there is no end to what amount information can be coded”, explains Nouvet and Megret.⁴³ To be sure, quantitative methods are “welcome”, as they “often add a layer of breadth and understanding” to “evidentiary practices including

40 M. Erie and T. Streinz, ‘The Beijing Effect: China’s ‘Digital Silk Road’ as Transnational Data Governance’, forthcoming *New York University Journal of International Law and Politics* (2021).

41 The extent it is addressed is usually obscured in “ratio decidendi ... an entirely mysterious process ... the essential pattern, of a decided case (discarding the fact that the plaintiff had two Christian names or red hair and retaining the fact that he had had two large whiskies before entering the defendant’s premises) and they will relate that pattern to the essential pattern of the case before them ... [but] it will probably remain impossible ever to state all the elements which led to the formation of any such pattern.” P. Allott, ‘Method and the Nature of International Law’, 45 *British Yearbook of International Law* (1971) p. 104.

42 Schlag, *supra* note 27, p. 1089.

43 A. Nouvet and F. Megret, ‘Quantitative Methods for Human Rights: From Statistics to Big Data’, in M. Scheinin (ed.), *Research Methodologies in Legal Human Rights Scholarship*, p. 17.

burdens of proof, the nature of fact-finding, and even the very relationship of human rights enforcement with time and place”; but we are reminded that such methods “cannot be a substitute for qualitative methods” and the lawyer’s “aspirational” role to mitigate the prejudices of global governance.⁴⁴ International law is not only a profession of adjudication and power, it is a vocation grounded in ethical assessment and cosmopolitan sensitivity, cultivating the “coolness and passion” required for “full mastery of the grammar” of the discipline.⁴⁵

The importance of the culture’s sensibilities is a key (if often officially suppressed scholarly) component of a positivistic approach to international law, though intimated in techniques such as best practices, *opinio juris*, precedent, proportionality, and so forth. What I think is worth noting here is the wide license at least implicitly afforded legal scholars to explore what counts as legitimate discussion when confronting digital technologies. Studies that might be otherwise viewed as non-legal, or at best as ‘critical’ or ‘heterodox’ or socio-legal or philosophical approaches to international law, are now brought in from the margins of scholarly publication.⁴⁶ It is, at least for the moment, a site of professional struggle. Among these voices, Fleur Johns is currently perhaps the most successful ‘critical’-oriented international lawyer to make this transition to mainstream appeal through entanglement with algorithms and digital data – and what is so striking in this instance, is that Johns offers a self-reflective staging, or performance, of how to carry out these manoeuvres. Johns’ innovation is not her conceptual engagement with digital technology per se, though it offers sophisticated insights. What breaks from other efforts is Johns’ alertness to the role of the academic and how they stage their arguments not only to say something about the world out there, but to scrape together or hold on to professional authority and attentive to where there might be openings for new maneuver and alliances. Across a range of publications over the last

44 *Ibid.* p. 20.

45 M. Koskeniemi, *From Apology to Utopia: The Structure of International Legal Argument* (Cambridge University Press, 2006) p. 617.

46 “Fancy theory (that, for example, of Ronald Dworkin, Bruce Ackerman, Frank Michelman, Martha Minow, Margaret Radin, Drucilla Cornell, and Patricia Williams) is the project of the milieu of elite legal academic intellectuals self consciously concerned with universalizing the interests of various oppressed or disadvantaged groups”, explains Duncan Kennedy. “In the 1980s, they were joined by Central European theorists of ‘limited revolution’ under the banner of human rights. All show that philosophy, something at once higher than, more intellectually sophisticated than, and also more determinate than post-realist text-based constitutional argument, supports legalizing liberal rights claims.” See Kennedy, *supra* note 29, p180.

few years, her theory of the case is compelling for building out a new disciplinary footprint around digital data for more eclectic legal scholars. As such, this is a call for professional studies and to perceive the discipline wrapped up in worlds of struggle with other disciplines and its surrounding configurations of financial alignment and political conflicts of interest. Johns is exciting because she offers an insight into the limits of existing frameworks, pushing them as far as they can go, and also showing how irrespective of the substantive arguments, there is a way to situate an argument that provides social power and rhetorical space.⁴⁷

First, assert that digitized automation is central to understanding the dynamics of global governance. “Diffusion and digitization refer to the challenge of envisioning agency and enacting critique amid the incessant gleaning, eddying, blocking, processing and pooling of digital data – much of it automated – by which every dimension of global affairs is now informed.” Quoting from Kittler, Johns continues: “[I]t has become clear that real wars are not fought for people or fatherlands, but take place between different media, information technologies, data flows.”⁴⁸ These “techno-material conditions or patterns” orient “how and where resources, material aspirations, expectations and attention flow and the velocity and rhythms at which they do”.⁴⁹

Second, argue (with examples) that the profession at large is not equipped to make sense of this shifting global landscape, but offer the hope that this does not disqualify international lawyers in the future from taking more prominent roles. “Lawyers have a well-developed vocabulary ... [of] contracts; legislative instruments; constitutions; peer review and citation; consumer protection, tort, and human rights regimes; treaties; banking, finance, and investment regulation; labor law; intellectual property law; criminal law.”⁵⁰ The list here is provocative because not all these knowledge protocols were canonical to (at least public) international law until well into the 20th or even

47 See D. Kennedy, *A World of Struggle: How Power, Law, and Expertise Shape Global Political Economy* (Princeton University Press 2019), who develops a strategy for being alert to the ways metaphors stand in as facts and ideas are reified in expertise to narrow policy options.

48 F. Johns, ‘Critical International Legal Theory’, 44 *University of New South Wales Law Research Series* (2018) p. 18.

49 F. Johns, ‘On Dead Circuits and Non-Events’, 80 *University of New South Wales Law Research Series* (2019) pp. 26, 28.

50 F. Johns, ‘Global governance through the pairing of list and algorithm’, 34:1 *Society and Space* (2016) p. 144.

the 21st century.⁵¹ Somewhere by the 1950s-1970s, human rights fluency came on par with knowing sources and treaty provisions; but banking, finance, and investment regulation are much more recent to the story and (outside the still somewhat marginal attempts to bring ‘political economy’ into the field) largely confined to ‘private’ international law types or pushed into international trade law.⁵² “Far less developed is a prevailing legal sense for ... algorithms doing governance work globally and for ways that humans and nonhumans come to be legally related through that work.”⁵³ Johns qualifies law’s lack of know-how with algorithms, however, with the observation that digital governance is in fact a mystery to even the most specialised engineers. “[O]utcomes of automated inquiry ... will continue to emerge, in ways that may not always be explicable, even to those well versed in relevant data-mining techniques.”⁵⁴ As such, “the uninitiated”, those who cannot “plausibly claim to be ... specialists”, may still “engage politically with the technical terms and practices through which resources and authority are distributed on the global plane”.⁵⁵ If this seems far-fetched, Johns occasionally highlights – without any other real reason than to show capacity – that lawyers can navigate technical engineering jargon. At a workshop by the IAEA, she notes, participants “analys[ed] material of unknown composition, among them: active neutron interrogation (direct measurement of the fissile content of irradiated fuel using a large neutron source to induce fission); and x-ray fluorescence ... [which is the] measurement of the frequency, wavelength, energy, and intensity of electromagnetic radiation ...”⁵⁶ In other words, lawyers are in the algorithmic governance soup.

Third, resist the urge that might modulate computer technologies to traditional legal vernaculars, while at the same time identify hopeful legal traditions that help international law step into renewed expert relevance. “Perhaps it is time to suspend, for a while, our appetite for some way for the law to

51 Akbar Rasulov has developed this point in a number of private conversations and public talks: that there is a relatively limited menu of included thematic competencies allowed and required to be a public international law expert. See, for instance, A. Rasulov, ‘From the Wells of Disappointment: The Curious Case of the International Law of Democracy and the Politics of International Legal Scholarship’, 32:1 *European Journal of International Law* (2021) p. 17.

52 For an account of ‘political economy’ as a project among international law academics, see J. Haskell and A. Rasulov, ‘International Law and the Turn to Political Economy’, 31:2 *Leiden Journal of International Law* (2018).

53 Johns, *supra* note 46, p. 144.

54 F. Johns, ‘Data, Detection, and the Redistribution of the Sensible in International Law’, 111:1 *American Journal of International Law* (2017) p. 41.

55 *Ibid.* p. 47.

56 *Ibid.* p. 27.

resolve, decisively, the politics of lists-plus-algorithms or to bend the latter to existing doctrine”, suggests Johns. Instead, the algorithm “might yet be made a device of global juridical association with which to experiment ... [and] enable renewed reflection upon our own responsibilities and capacities”.⁵⁷ New waves of socio-legal studies that trace out human-nonhuman assemblages of digital governance are entertained, but the key academic beneficiary within the academy are critical international legal studies scholars, “well-positioned to respond, given prior work along this axis”.⁵⁸ On the one hand, the scholarship is already and “increasingly attentive to the significant role of nonhuman (or hybrid human-nonhuman) actants on the global plane and the collapse of nature/culture distinctions in an everywhere-already-impure world” in order to “call into questions” the “productive effects and material instantiations” of digital governance and law.⁵⁹ On the other hand, while “only in the early stages of tackling”, there is “much in the [critical international legal studies] repertoire likely to be helpful” in relation to a legacy of drawing “attention to the prevalence of glitches, automaticity and unintended consequences in the architecture of international legal work ... [which] can have purchase on digital lexica and infrastructure” and “drawing out ambivalence, sharpening awareness of stakes, and highlighting points of resistance amid the informational engorgement and complexity long typical of the global plane”.⁶⁰

Fourth, lay out the stakes for prioritising these interests. Governance cannot “be left up to the few whose interests and investments have shaped” the digital infrastructures up to this moment, explains Johns. “[It] is a task for society, in all its heterogeneity. It is up to society, in other words, to reassemble the machine.”⁶¹ Society, however, is itself a type of black box, which requires the aid of progressive international law scholars and friendly academic cohorts, who can “think about infiltrating and overloading some systems going forward”, not in a spirit of dictating a specific program but “to elucidate some of the social and automated conditions under which such action may be advanced”.⁶² As such, the hybrid human-nonhuman digital world “mark[s] important new

57 Johns, *supra* note 46, p. 144. For context into Johns’ normative agenda and theoretical orientation, see R. Joyce, ‘Anarchist international law(yers)? Mapping power and responsibility in international law’, 5:3 *London Review of International Law* (2017).

58 Johns, *supra* note 44, p. 20.

59 *Ibid.*

60 *Ibid.* p. 18.

61 Fourcade and Johns, *supra* note 16, p827.

62 *Ibid.*

fronts” in critical international legal studies “ongoing efforts” to ensure that “the snark [of critical legal scholars] is still very much at large”.⁶³

While the digital world opens up “important new fronts”, scholars can be seen here to draw deep from the well of existing predispositions – such as reacting against canonical legal treatment and prioritising non-legal dynamics driving international law and governance or drawing upon non-legal intellectual sources to compliment legal thought. One common technique is to show that some promise of digital technology (efficiency in production, emancipation from needless toil) actually instates new forms of exclusion, exploitation and repression, of human body and mind. “Today, far too many discussions of AI and robotics are dominated by a narrow focus on efficiency and optimization”, warns Frank Pasquale. “On this view, nearly all workers will eventually share the fate of elevator operators and horse-and-buddy drivers ... [and closes down our ability to] bring in a far greater range of goals and values ... [that] express and reflect our values.”⁶⁴ Another familiar intervention is to reveal that any supposedly individuated, natural or private phenomena (e.g. digital data) rely on background, institutionalised layers of political choices formalised through law.⁶⁵ “[T]o see data as a thing that springs from a person ... misapprehends what data is and obscures how it came to serve as a critical form of capital”, Amy Kapczynski observes. “If we are to intervene to democratize private power today, we must instead understand ... how law constructs private economic power in the informational age”.⁶⁶ A third trend, as intimated by Johns, is to find inspiration in philosophical-oriented writing associated with trying to think outside human-centric perspectives, often going by labels such as ‘new materialism’, ‘post-humanism’, ‘trans-individualism’, and so forth. The aim of these theories is to “de-thron[e] the human as a given or natural entity distinctly separate from other species and technologies” and to “recognis[e] that there can no longer be any pre-given boundary between a body and its environment, regardless of that environment consisting of other species,

63 Johns, *supra* note 44, p. 9.

64 F. Pasquale, *New Laws of Robotics: Defending Human Expertise in the Age of AI* (Harvard University Press 2020) p. 24.

65 This style harkens back to the legacy of the American Legal Realist tradition, revived by American Critical Legal Studies, and continued through critical international law studies originating out of Harvard Law School and, more recently, the institutional and literary trends toward political economy and law studies.

66 A. Kapczynski, ‘The Law of Informational Capitalism’, 129 *Yale Law Journal* (2020) pp. 1499, 1507.

digital platforms, or technology at large”.⁶⁷ As the world radically changes in the wake of technological innovation and new awakening to our planetary vulnerabilities, the argument goes, there is an ever-pressing “need to invent forms of ethical relations, norms and values worthy of the complexity of our times”.⁶⁸ This sentiment to invent new forms in the wake of unprecedented complexity itself a long running appeal that continues to rely on well-worn aesthetics of critique and reform.⁶⁹

4 Cyborg Futures

So what to make of our efforts as international law academics through our writing to discover some sort of harmony with the (now digital) creations of our times? A common strategy, which I think we should resist, is to locate some immanent logic embedded within digital technologies, more often than not suggesting these technologies are the medium of some overarching system, such as one of many variety of capitalisms (e.g. ‘digital capitalism’, ‘informational capitalism’, ‘surveillance capitalism’). Of course, there might very well be plausible arguments that one can identify a set of tendencies that are usefully described as some grand overarching framework and then usefully deploy that terminology for understanding aspects of law, or technology, or the world at large. But all too often it seems to me that these grand logics, such as capitalism, simply operate as a reified metaphor for our suffering, with digital technologies imagined as a program to transport us into its next upgrade.⁷⁰ Holding to this example of capitalism, I am struck by how descriptions often rely on the spectre of the computer (e.g. digital capitalism) and obscure what it is that specifically accounts for what we mean when we talk about capitalism itself. In parallel to the computer, the image of capitalism that comes to mind is the accounting book,⁷¹ and by extension, to think of capitalism as the accounting practice of capitalisation: assigning a pecuniary value to a legal asset in the present based on its expected future return minus any depreciation and

67 M. Arvidsson, ‘Targeting, Gender, and International Posthumanitarian Law and Practice: Framing The Question of the Human in International Humanitarian Law’, 44:1 *Australian Feminist Law Journal* (2018) pp. 9, 12.

68 *Ibid.* p. 12.

69 L. Tribe, ‘Technology Assessment and the Fourth Discontinuity: The Limits of Instrumental Rationality’, 46 *Southern California Law Review* (1972) pp. 617–619.

70 See E. Morozov, ‘Digital Socialism? The Calculation Debate in the Age of Big Data’, 116/117 *New Left Review* (March–June 2019) p. 39.

71 See L. Mumford, *Technics and Civilization* (University of Chicago 2010, originally published 1934) p. 23.

risks.⁷² What is considered a legal asset, the specific calculations to assign value, how depreciation is managed and risk mitigated, the terms of market entry to participate in these value exchanges – all this is outside the contours of capitalisation, and by extension, capitalism. In other words, capitalism is a necessary but not sufficient explanation of our experience. Nor does it seem useful to walk away from big-systems thinking and simply fall back on appeals to society, or professional good judgment, or human ingenuity or some power latent in our inventions (all so common among lawyers facing waves of technological advances); such moves feel equally transcendental and unhelpful for understanding the significance of our (so often quietly menacing) digital enclosures.⁷³ But if we resist these temptations, we are back again to this question: how might we discuss computer oriented technologies in relation to global governance without falling into the trap of assigning some historical essence that brings coherence to the static? My proposition is that one interesting direction would be for the literature to think about international law as becoming a cyborg science.

To speak of a cyborg science highlights a complex set of beliefs, predispositions, preferences, metaphors, things, and the like, which can be distinguished from other similar assemblages of knowledge but potentially capable of transgressing different cultural protocols.⁷⁴ First, the cyborg “depends on the existence of the computer as a paradigm object for everything from metaphors to assistance in research activities to embodiment of research projects”.⁷⁵ As such, to speak of the medium is also to indicate a specific embedded historical location. “I am adamant that the cyborg ... does not refer to all kinds of artificial, machine relationships with human beings”, explains Donna Haraway. “I am very concerned that the term cyborg be used specifically to refer to those kind of entities that became historically possible around World War II ... [associated with] militarization ... with ties to psychiatry and communications

72 See J. Nitzan and S. Bichler, *Capital as Power: A Study of Order and Creorder* (Routledge 2009). For a discussion of rethinking capitalism in international legal academia, see J. Haskell, ‘Modern Money Theory and International Law’, 2:1 *Journal of Law and Political Economy* (2021) pp. 1, 10–13.

73 In a series of conversations, Anuj Das Gupta has impressed upon me the quite literal menacing nature of these digital enclosures: the front door to our smart house as a Behemoth’s jaws, the data content monitored on our phone as a stalker standing next to us at all times, ever watching us as we sleep and eat, manipulating our physical and psychic lives.

74 I am particularly influenced by Philip Mirowski’s work around this theme. See P. Mirowski, *Machine Dreams: Economics Becomes a Cyborg Science* (Cambridge University Press 2002) pp. 5–81.

75 *Ibid.* pp. 12–13.

theory, behavioural research and psychopharmacological research, theories of information ... [T]he cyborg is seen to emerge out of such a specific matrix.”⁷⁶ It is difficult to imagine a world without computers (or Hegel) for Philip Allott to declare in 1971 that the history of international law is “like a sophisticated electronic machine, a feedback process [that] ensures ... laws are adjusted in the light of experience and in order to achieve new goals and meet new challenges”.⁷⁷ Second, the “anatomy of the cyborg” means “the breaching of the ramparts between the Natural and the Social, the Human and the Inhuman”, and often with a sense of irreverent (if cautious) enthusiasm.⁷⁸ Coded into this claim is not simply a respect for the non-human, but the erasure of the specific biological, cultural, emotional embodied characteristics of human thought and of what it means to live in a place, in a time, with others.⁷⁹ The term cyborg was originally invented, according to Manfred Clynes, to signal “a concept of persons who can free themselves from the constraints of the environment to the extent that they wished”.⁸⁰ A generation before, the first generation of cybernetic intellectuals were thinking something similar. Turing believed that communication between people counted as noise that interfered with the pure thought of human concentration. Shannon’s depiction of information stripped away semantic context. Computer scientists working on ‘the bomb’ at Los Alamos viewed computer simulations as more valuable than real world experiments. These feelings seem to date back earlier with early 20th century right wing economists, such as Jevons, claiming that the laws of human and machine thought are analogous. With the rise of computer technologies, the closed system of the program began to stand in for nature whereby the social world of the management class operating the computers read their worlds into our non-human environments, and vice versa the individual human subject and cultures became computationally routinized.

Technologies will often sit unused. What compelled our disciplines, such as international law, to begin adopting computer technologies as a central metaphor? Perhaps it is that Freudian death drive compelling us as a profession toward the non-excitabile, inanimate state of entropy. Maybe it is the strength of the gravitational pull of commodification to abstract localised people and

76 D. Haraway, *How Like a Leaf* (Routledge 2000) pp. 128–129.

77 Allott, *supra* note 39, p. 130.

78 Mirowski, *supra* note 70, p. 13.

79 It is outside the scope of this paper, but I tend to think that post/trans-humanism, in its various iterations and for whatever progressive appeal, is deeply enmeshed in an elitist, extinctionist, sexist logic.

80 Chris Hables Gray, ‘An Interview with Manfred Clynes’, in Chris Hables Gray (ed), *The Cyborg Handbook* (Routledge 1995) p. 47.

things into quantifiable 'classes' in the quest of ever-more efficient production and exchange and to make us think of all things as entangled (and interchangeable) information. Maybe it is the role of data, not simply to extract content from life, colonising all our hours to the market, but to shut down the possibility of resistance, and what we are witnessing is our all too toothless gestures to put up a fight from our academic trenches. Maybe it plays the role of strawman to excuse the discipline's desire to romanticise legal scrutiny and professional judgment. Or perhaps it is an intuition that we do not yet understand and whose stakes feel ominous and compelling. The more sophisticated our designs and defences, the more unmanageable the viruses and severe the crashes.

It is easy to forget that we are children of evolutionary biology, not (just) electricity and wires. In evolution, we learn that innovation and survival are grounded in the capacity to fail, to fail often and wildly, to be able to accommodate vulnerability. But it also teaches us that enclaves of rest in the chaotic sea of silence can only be sustained by sucking orderliness from life.⁸¹ In the increasingly apparent failure of humanistic individualism, falling back into our newest digitised simulacrum feels unavoidable, even if only to ultimately amplify the problems that originally brought us to our computer screens.

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81 See E. Fox Heller, *Reconfiguring Life: Metaphors of Twentieth-Century Biology* (Columbia University Press 1996) pp. 65–81.