Book Review: Contracting and Contract Law in the Age of Artificial Intelligence

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> "We are witnessing a major revolution in the ways in which contracts are initiated, negotiated, concluded, performed, and enforced."[1]

So begins Martin Ebers's introductory chapter to an excellent and informative new book, *Contracting and Contract Law in the Age of Artificial Intelligence* (Hart Publishing, 2022.) The book comprises fourteen chapters written by authors from a variety of disciplines (law, political science, economics, computer science, and linguistics.) Each chapter explores what contracting and contract law may look like in a world of artificial intelligence ('AI'). The chapters reflect presentations made at a virtual conference held in February 2021. Ebers, one the three co-editors of the book, along with Cristina Poncibò and Mimi Zou, argues that AI will infiltrate all aspects of contracting behaviour. It is hard to disagree with this proposition.

Consider how consumers contract with businesses in today's modern age. Often, our only point of contact with the seller is through software. We purchase tickets online and do our shopping online, the prices of which are determined by AI algorithms. But it's not just the prices where AI comes into play. The terms of the contract may have been optimized using data-

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1 Martin Ebers, 'Artificial Intelligence, Contracting, and Contract Law: An Introduction' in Martin Ebers, Cristina Poncibò, & Mimi Zou (eds.), *Contracting and Contract Law in the Age of Artificial Intelligence* (Hart Publishing, 2022), at 19.

driven contracting software. In the event of a dispute, it may be resolved automatically without intervention or oversight by humans. Automation is ubiquitous in financial contracts. And soon, automation will engulf employment contracts. Major transactions, such as M&A deals, will follow. Data-driven algorithms will be used to reduce all sorts of frictions in the contracting process. The laws and rules that govern how individuals and business privately order their affairs and engage in trade will need to adapt to keep up with these changes.

This book review is laudatory. There is much to praise about the content in each of the chapters in Ebers, Poncibo, and Zou's book. The chapters explore questions of critical importance for contract scholars, legal practitioners, judges, legislators, and contracting parties. The book is also timely. Several start-ups have, over the past decade or so, developed AI solutions to help lawyers and their clients reduce frictions in the contracting process and better understand the consequences of contractual provisions. For example, Kira Solutions (a company founded in Toronto) uses machine learning to automatically identify, extract, and analyze content in contracts efficiently and accurately.[2] But as humans give over more and more contracting autonomy over to AI, one wonders how contract doctrines will need to change in response.

There has been an explosion of research in the past decade or so examining the potential effects of AI on the law.[3] Private law scholarship in legal academia that explores the impact of AI has, for the most part, focused its lens on tort law obligations. For example, this literature has examined liability in the event that autonomous vehicles create unreasonable risk and

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2 See < https://kirasystems.com > (last accessed April 27, 2023).

3 *See generally* Catalina Goanta, Gijs van Dijck & Gerasimos Spanakis, 'Back to the Future: Waves of Legal Scholarship on Artificial Intelligence' in Sofia Ranchordás & Yaniv Roznai (eds.) *Time, Law, and Change: An Interdisciplinary Study* (Oxford: Hart Publishing, 2020) 327 (showing the increased attention artificial intelligence has received in legal scholarship in recent years); *see also* Pina D'Agostino, Carole Piovesan, & Aviv Goan (eds.), *Leading Legal disruption: Artificial Intelligence and a Toolkit for Lawyers and the Law* (Toronto: Thomas Reuters, 2021); Florian Martin-Bariteau & Teresa Scassa (eds.), *Artificial Intelligence and the Law in Canada* (Toronto: LexisNexis 2021); Benjamin Alarie, 'The path of the law: Towards legal singularity' (2016) 66:4 *University of Toronto Law Journal* 443; Gillian K. Hadfield, *Rules for a Flat World* (Oxford: Oxford University Press, 2016); Rory Van Loo, 'Rise of the Digital Regulator' (2017) 66:6 *Duke Law Journal 1267*; Aziz Z. Huq, 'A Right to a Human Decision' (2020) 106 *Virginia Law Review* 611; Anthony J. Casey & Anthony Niblett, 'The Death of Rules and Standards' (2017) 92 *Indiana Law Journal* 1401.

cause harm.[4]. Contracting and contract law has played second fiddle. It has received far less attention in legal scholarship compared to tort.[5] This book helps redress some of the imbalance.

For readers unfamiliar with the field of AI, Luigi Portanale's opening chapter (Chapter 1) provides a tremendous overview.[6] Portanale walks through the history of AI and sets the scene for the remaining thirteen chapters. Portanale spells out how much of the action in the latest 'summer' of AI has come from supervised machine learning and reinforcement learning. These tools are predictive technologies.

Prediction is very much at the heart of contracting. Martin Ebers's chapter (Chapter 2) argues that AI will not just touch all aspects of contracting, it may radically transform some of these aspects.[7] It provides a tantalizing glimpse of the arguments made in subsequent chapters. Silvia Martinelli and Carlo Rossi Chauvenet's chapter (Chapter 5) explores how data may be used to analyze and review contracts.[8] Anomalies can be red flagged by AI tools and different clauses can be evaluated. Guilio Messori's

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4 *See, e.g.,* Ryan Abbott, *The Reasonable Robot: Artificial Intelligence and the Law* (Cambridge Univ. Press, 2020); Antonio Davola, 'A Model for Tort Liability in a World of Driverless Cars: Establishing a Framework for the Upcoming Technology,' 54 *Idaho L. Rev.* 592 (2018); and Jacob D. Walpert, Carpooling Liability?: Applying Tort Law Principles to the Joint Emergence of Self-driving Automobiles and Transportation Network Companies, 85 *Fordham L. Rev.* 1863 (2017).

5 This is not to say that the literature has been silent. Far from it. Some of my own work, for example, has touched on the consequences for legal doctrine in the event that predictive technologies reduce many of the informational frictions in contracting. *See* Anthony J. Casey & Anthony Niblett, 'Self-driving Contracts,' (2017) 43(1) *Journal of Corporation Law* 101 (2017); and Anthony J. Casey & Anthony Niblett, 'The Present and Near-Future of Self-driving Contracts,' in Ernest Lim & Philip Morgan (eds.), *Cambridge Handbook on Private Law and Artificial Intelligence* (Cambridge Univ. Press, 2022).

6 Luigi Portinale, 'Mapping Artificial Intelligence: Perspectives from Computer Science', in Martin Ebers, Cristina Poncibò, & Mimi Zou (eds.), *Contracting and Contract Law in the Age of Artificial Intelligence* (Hart Publishing, 2022).

7 Martin Ebers, 'Artificial Intelligence, Contracting, and Contract Law: An Introduction' in Martin Ebers, Cristina Poncibò, & Mimi Zou (eds.), *Contracting and Contract Law in the Age of Artificial Intelligence* (Hart Publishing, 2022), at 19.

8 Silvia Martinelli & Carlo Rossi Chauvenet, 'From Document to Date: Revolution of Contract Through Legal Technologies,' in Martin Ebers, Cristina Poncibò, & Mimi Zou (eds.), *Contracting and Contract Law in the Age of Artificial Intelligence* (Hart Publishing, 2022).

chapter (Chapter 6) explains how these types of tools can be used in all aspects of the contract lifecycle: drafting, review, negotiation, signing, storage, management, providing specific examples of the companies that can assist with each of these tasks.[9] Luca Cagliero's chapter (Chapter 10) foreshadows how NLP methods can be used to summarize contracts and provisions, even in multilingual documents.[10]

Prediction is at the heart of legal disputes too. Paola Aurucci and Piercarlo Rossi's chapter (Chapter 14) discusses how AI predictions can help reduce the friction of legal disputes.[11] Those who litigate a breach of contract, for example, need to understand the likely merits of their case. Judges and arbitrators may turn to AI to help better understand the legal landscape.

The content in the chapters inevitably overlaps. But they cross over in interesting ways. For example, different chapters touch on philosophical questions such as what it means to contract in a world where humans are at least partially divorced from the contracting process. John Linarelli's chapter (Chapter 4), for example, explores what it means for AI to enter contracts.[12] How can an AI agent have the requisite intentionality to form a contract? Linarelli's theory asks us to consider a 'shared intentionality' of the human and the AI agent. Cristina Poncibò's chapter (Chapter 11) on remedies emphasizes the humanity of contract law and highlights how contract law will have to adapt in a world 'because of vanishing consent, the extreme automation of contracts, and the growing complexity and obscurity of contracts concluded by an AI'.[13]

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9 Giulio Messori, 'Legal Tech Solutions for the Management of the Contract Lifecycle,' in Martin Ebers, Cristina Poncibò, & Mimi Zou (eds.), *Contracting and Contract Law in the Age of Artificial Intelligence* (Hart Publishing, 2022).

10 Luca Cagliero, 'Summarizing Multilingual Documents: The Unexpressed Potential of Deep Natural Language Processing,' in Martin Ebers, Cristina Poncibò, & Mimi Zou (eds.), *Contracting and Contract Law in the Age of Artificial Intelligence* (Hart Publishing, 2022).

11 Paola Aurucci & Piercarlo Rossi, 'Artificial Intelligence and Contracts: Reflections about Dispute Resolution,' Martin Ebers, Cristina Poncibò, & Mimi Zou (eds.), *Contracting and Contract Law in the Age of Artificial Intelligence* (Hart Publishing, 2022).

12 John Linarelli, 'A Philosophy of Contract Law for Artificial Intelligence: Shared Intentionality,' in Martin Ebers, Cristina Poncibò, & Mimi Zou (eds.), *Contracting and Contract Law in the Age of Artificial Intelligence* (Hart Publishing, 2022).

13 Cristina Poncibò, 'Remedies for Artificial Intelligence,' in Martin Ebers, Cristina Poncibò, & Mimi Zou (eds.), Contracting and Contract Law in the Age of Artificial

The discussion of AI and contracting frequently veers into a discussion of 'smart contracts.' There is, as Ebers rightly points out, a distinction must be drawn between smart contracts and AI-infused contracting.[14] A smart contract deals primarily with verification and implementation without interference of third parties.[15] Some of the chapters in *Contract and Contract Law in the Age of Artificial Intelligence* explore the intriguing confluence between AI and smart contracts. Mimi Zou's chapter (Chapter 3) discusses the idea of making smart contracts 'smarter' with AI.[16] Zou's chapter looks at the different notions of trust that underpin formal code on one hand and that which pervades in the relational contract scholarship of Stewart Macaulay on the other.

But just how well can contractual obligations be converted into programming language? Megan Ma's fascinating chapter (Chapter 9) explores the relationship between contractual obligations and computer code.[17] Ma highlights the difficulties of converting human languages into code. Ma's chapter looks at a variety of programming languages and contrasts the code with real life contractual provisions, pointing out where frictions emerge and remain. Ma draws on the work of prominent philosophers and linguists to spotlight the difficulties. It is rare to find the works of Jacques Derrida, Joseph Raz, and Michel Foucault cited in a book about contracts and technology. The work is timely. And it reminds us of

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Intelligence (Hart Publishing, 2022), at 219.

14 Ebers, above note 1, at 20.

15 *See, e.g.,* Nick Szabo, *Smart Contracts* (1994); Trevor I. Kiviat, 'Beyond Bitcoin: Issues in Regulating Blockchain Transactions,' 65 *Duke L.J.* 569 (2015) (discussing blockchain transactions and automatically executing contracts); Anthony J. Bellia Jr., *Contracting with Electronic Agents,* 50 EMORY L.J. 1047 (2001) (discussing the ability to use electronic agents to enter into contracts); Harry Surden, 'Computable Contracts,' 46 *U.C. Davis. L. Rev.* 629 (2012) (discussing the ability to express specific contract terms in computable code); Joshua Fairfield, 'Smart Contracts, Bitcoin Bots, and Consumer Protection,' 71 *Wash & Lee L.Rev. Online* 35 (2014) (emphasizing the that the main innovation of smart contracting is the elimination of intermediaries).

16 Mimi Zou, 'When AI Meets Smart Contracts: The Regulation of Hyper-Autonomous Contracting Systems?', in Martin Ebers, Cristina Poncibò, & Mimi Zou (eds.), *Contracting and Contract Law in the Age of Artificial Intelligence* (Hart Publishing, 2022).

17 Megan Ma, 'Contracting in Code,' in Martin Ebers, Cristina Poncibò, & Mimi Zou (eds.), *Contracting and Contract Law in the Age of Artificial Intelligence* (Hart Publishing, 2022).

the importance of domain-based expertise to understand the limitations of technology.

The use of AI in contracting may create new concerns for competition authorities. Price fixing agreements between competitors is a crime. But what happens if competitors use the same pricing algorithms, resulting in softer competition? Should this be criminal? How should competition authorities regulate these type of contracts? Giuseppe Colangelo's chapter (Chapter 13) addresses these questions.[18] Colangelo notes that the responses in academia have ranged from the panicked ('we are witnessing the end of competition as we know it')[19] to the nonchalant ('downplaying algorithmic collusion as merely speculative . . . and difficult to achieve').[20] Meanwhile, most lawmakers and policymakers have adopted a 'wait-and-see' approach. Colangelo does an admirable job of explaining the dilemma faced by competition authorities, noting that we may need to rethink how we think of 'tacit agreement.'

The use of AI in contracting raises fascinating questions for copyright law, data protection, consumer protection, and the regulation of digital content. Chapters in this book touch on each. The focus is largely on European law. For example, Aleksei Kelli, Arvi Tavast, and Krister Lindén's chapter (Chapter 7) looking at the copyright and data protection implications of chatbots focuses heavily on Estonian law.[21] Karin Sein's chapter (Chapter 8) explores whether these legal tech solutions fall within the definition of a digital service for the purposes of the new *Digital Content Directive* and *E-Commerce Directive* under European law.[22] And Monika

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18 Giuseppe Colangelo, 'Artificial Intelligence and Anticompetitive Collusion: From the 'Meeting of Minds' to the 'Meeting of Algorithms'?', in Martin Ebers, Cristina Poncibò, & Mimi Zou (eds.), *Contracting and Contract Law in the Age of Artificial Intelligence* (Hart Publishing, 2022).

19 *Ibid.* at 252, citing Ariel Ezrachi & Maurice E. Stucke, *Virtual Competition: The Promise and Perils of the Algorithm-Driven Society* (Harvard Univ. Press, 2016).

20 *Ibid.* at 252.

21 Aleksei Kelli, Arvi Tavast, & Krister Lindén, 'Building a Chatbot: Challenges under Copyright and Data Protection Law,' in Martin Ebers, Cristina Poncibò, & Mimi Zou (eds.), *Contracting and Contract Law in the Age of Artificial Intelligence* (Hart Publishing, 2022).

22 Karin Sein, 'Legal Tech Solutions as Digital Serivces under the Digital Content Directive and E-Commerce Directive,' in Martin Ebers, Cristina Poncibò, & Mimi Zou (eds.), *Contracting and Contract Law in the Age of Artificial Intelligence* (Hart Publishing, 2022).

Namysłowska and Agnieska Jabłonowska's chapter (Chapter 12) discuss how AI can facilitate unfair commercial practices and unfair contract provisions and how the EU is thinking of regulating this type of conduct.[23]

Readers from Canada may question the relevance of these chapters to their practice or scholarship. But this would be short-sighted. Europe has been very much at the forefront of regulating digital enterprise and content. Europe is far more aggressive at regulating conduct of players in the digital space than we have been in Canada. We frequently hear calls that the digital space and artificial intelligence should be more tightly regulated. Europe is offering an interesting experiment. Will these regulations prevent or reduces alleged harms of AI? Or is the cure worse than the disease? Will these prohibitions and bright line rules not only stop the harms, but also destroy the benefit that AI in contracting bring?

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For those of us who write in the field of law and new technology, there is a persistent fear that any scholarship we produce will be rendered redundant at the time of publication by new technologies. A lot has happened in the field of AI and contracting since February 2021, when the conference took place. Indeed, some of the technologies discussed in this book have been superseded. We have witnessed an explosion of activity in the field of natural language processing. Chat GPT has captured the imagination of hundreds of millions of users and stoked the fears of many.[24]

The generative AI behind Chat GPT is more than just a chatbot. Large language models are moving in the direction of being able to do the work of a lawyer. As it stands, its capabilities are somewhat limited, but it can do some of the very simple, routine tasks of a lawyer. For example, it can churn out a simple contract in seconds.[25] I provided Chat GPT 3.5 with the following prompt:

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23 Monika Namysłowska and Agnieska Jabłonowska, 'Artificial Intelligence and Platform Services: EU Consumer (Contract) Law and New Regulatory Developments,' in Martin Ebers, Cristina Poncibò, & Mimi Zou (eds.), *Contracting and Contract Law in the Age of Artificial Intelligence* (Hart Publishing, 2022).

24 *See, e.g.,* Kevin Roose, 'GPT-4 Is Exciting and Scary,' *New York Times,* March 16, 2023, at B.1.

25 *See also* Noam Kolt, 'Predicting Consumer Contracts,' 37 *Berkeley Technology Law Journal* 71 (reporting success in using Chat GPT 3 to answer simple questions about contractual

> Write me a short contract. I wish to buy my friend's lemonade stand business for $2,500. My name is Stewart. My friend is Macaulay. The most important things to note are that it must include an integration clause, a non-compete clause (2 years in Toronto), and I get full ownership.

In less than one second, Chat GPT generated a "Contract for the Sale of Lemonade Stand Business." The agreement was admittedly very rudimentary. But it laid out six provisions, including an integration clause (with an explanation), a non-compete clause, a choice of law provision, and an execution clause. I followed up, asking whether I should include additional protections if the seller owned any trademarks (the contract was updated to reflect this protection) and inquired what I should do with the existing debts of the seller's business (again, the contract was updated.)

In short, the visions that generate so many of the hopes and fears of the authors of these fourteen chapters are coming true. There is little doubt that this type of technology will disrupt the work of transactional lawyers. The current technology will permit the disruption of very simple contracts, such as the one above. But as the technology becomes more advanced, it is not difficult to imagine AI writing more complex contracts, as well as negotiating, monitoring, and performing obligations.

To return to Martin Ebers's quote at the start of this review, one wonders indeed whether the use of AI is contracting is 'a major revolution' or whether it is merely an 'evolution.'[26] Is it just contracting better? Scholars may ask: do we really need to rethink our contract doctrines that have worked for centuries? Indeed, the fear that technology will diminish the 'human element' of contracting is something that is discussed with regard to *every* new technology. What it means to be 'human' changes with new technology.

What would 'a major revolution' look like here? It may be that there will be a radical rethink in how individuals and businesses privately order their affairs. We are currently constrained in the contracting process by human thinking and processing. But in a world of vastly improved predictions, instantaneous monitoring, and dispute avoidance, these constraints may very well be loosened.

An analogy may be helpful. In the late 19th Century, one may have asked why we need elevators if very few buildings are more than four or five storeys? But the elevator changed what is possible. It made tall buildings

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obligations.)

[26] *See* above note 1.

feasible. It paved the way for skyscrapers. Currently, contracting parties and lawyers may be asked whether we really need AI to contract. But the very way in which we contract may change. AI may pave the way for removing the frictions of trade and trust. The sky may no longer be the limit.