Introduction to The Future of Copyright in the Age of Artificial Intelligence

In The Path of Law, Justice Oliver Wendell Holmes explains that our laws developed like a growing of a plant – slowly but steadily. Holmes’ pragmatic approach accepts the idea of the law as a mechanism for mediating social interactions. In the coming decades, humanity will be forced to address new social issues induced by scientific progress. It is reasonable to assume that these changes will affect social interactions and, subsequently, the development of our legal norms.

We can learn a lot by looking back at some of the developments that have taken place in recent decades. Many scholars could not have anticipated the effect the Internet would have on so many industries, social interactions, and future developments (AI included). Some of the more ominous predictions turned out to be inaccurate: the movie and the music industries did not vanish as a result of new technologies that seemed to promote rampant infringement but rather adapted. This led to new revenue streams ranging from video rentals to music and video streaming, effectively creating more job opportunities than were lost. Similarly, the future of AI and other emerging technologies need not be all doom and gloom.

More and more innovative programs are breaking down the glass wall and advancing further than anyone could have possibly expected. AI machines are creating movies (like Sunspring (2016)), writing novels (like the Japanese AI novel – The Day a Computer Writes a Novel), and even creating art (like the Edmond de Belamy portrait). Every day seems to bring AIs closer to being humanoid and closer to the singularity, where they will eventually surpass us. In the last several years, advancements in AI technology introduced new analytic methods such as advances in natural language processing (NLP). What seemed futuristic at the beginning of this century will likely be realized by the end of the decade as the fourth (or fifth) Industrial Revolution. The developments in NLP allow AI systems to write books, answer emails, and even replace humans in call centres. Take the most recent iteration of the GPT-3. This new OpenAI language generator is getting surprisingly better at creating

1 Oliver Wendell Holmes Jr, ‘The Path of Law’ (1897) 10 Harv L Rev 457.
human-like texts, making it much harder to determine if a machine or a human authored its outputs.³

The way AI systems work is very different from the human mind. AI-authored writing may look like any other human text, but it has no ‘soul’. Even the most advanced AI system that is running on a robust program, learning from a large volume of data and providing excellent results, is merely ‘guessing’ using probabilities that a word is appropriate in a given sentence. AI systems do not ‘understand’. AI cannot yet feel the thrill and enjoyment of reading George RR Martin’s ‘A Song of Ice and Fire’ novels. It cannot appreciate the difference between Dr Seuss’ Green Eggs book and a grocery list. Thus, from a normative perspective, we should ask if AI creations are worthy of legal protection, if the AI work is indeed a copyrighted work, and what does it mean for the concept of authorship? These questions will become more important in the years to come – not only with respect to AI’s creations, but also concerning AI’s rights in other legal fields (like contracts and torts).

This book offers an extensive analysis of intellectual property and authorship theories and explores the possible impact artificial intelligence might have on those theories. The book makes several arguments: first, it advocates for an inclusive approach to authorship that recognizes human and non-human creations. Second, it searches for the right ‘candidate’ for ownership. In doing so, the book explores several possible legal frameworks, including assigning ownership to the programmer, the user, the AI itself, and other alternatives such as the public domain or author-in-law models. Third, the book explores the concept of artificial intelligence as it develops through the years in various fields, seeking to reframe it.

Part I, Searching for Common Ground, provides an overview of AI’s history and general concepts in order to shape the legal discussion that follows. In Chapter 1, I highlight important historical milestones in the development of AI technology, explaining the current state of AI research and surveying the legal challenges that current AI technology poses. Chapter 2 addresses the philosophical question of legal personhood for non-humans, refuting the main objections to AI personhood. Chapter 3 outlines the various definitions and approaches for the term ‘artificial intelligence’ and offers new terminology for the AI legal concept. The AI concept was shaped by the scientific community that created the field. This is important because, as AI technology has sparked the attention of the legal community, most scholars have preferred to ‘skip’ the

process of redefining the terminology, opting instead for whichever conceptions of the scientific vocabulary they believe preferable in each discussion.

Part II, *AI-IP Theory*, develops the theoretical discussion and considers whether one or more IP theories could support IP protection for AI creations. In Chapter 4, I introduce the intellectual property theory debate, providing a critical discussion about the current trends in intellectual property. Taking a closer look at the development of computer programs protection, Chapter 5 provides a better understanding of the way technology affected the development of IP law. I further explain how and when IP protection for computer programs evolved and outline the legal mechanism for IP protection that has been awarded to programs. I also present the more current legal challenges and provide further insight toward the expected changes.

Chapter 6 places the artificial intelligence debate within the intellectual property theoretical map and proposes a broader perspective for AI-IP theory. In doing so, Chapter 6 extends the theoretical discussion, signalling relevant elements from the different intellectual property theories and considering whether artificial intelligence might be explained by or applicable to those theories. Chapter 7 builds on the two previous parts, reflecting on some of copyright’s legal exceptions and justifications. It expands the discussion on intellectual property theory begun in Chapters 4 and 5, delving deeper into the concept of authorship. This chapter also provides insights into the modern concept of the human author as it developed during the 18th century through paradigms such as romantic authorship and individualism.

Part III, *New Vision for AI Authorship*, draws connections between the first and second parts of the book. Chapter 8 presents the paths AI authorship might take in the future. Building on the ideas and arguments I covered in earlier parts, in this chapter, I further explore the potential for AI authorship and identify the many players involved in the creation process who could claim AI’s authorship. First, I present the frontrunner for AI authorship (the programmer and the user), but I also consider other possible paths. I discuss ‘no authorship’ alternatives (public rights or government ownership) and even explore the possibility of awarding IP rights to the AI itself. Finally, I address two other rights models: author in law and AI moral rights. Even if significant changes to IP laws are required, they do not need to be instantaneous. In the current stage of AI development, our legal framework could suffice.\(^4\) Maybe all we need are a few tweaks and amendments to that framework to regard any work, whether human-created or not, as copyrightable.

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Chapter 9 discusses data barriers to artificial intelligence. Artificial intelligence requires a massive amount of data to develop. The mere availability of data is not enough. Artificial intelligence needs good data. Incomplete or biased data can exacerbate problems. Good data, however, might be copyrighted or restricted, which poses a problem: where the artificial intelligence’s input infringes copyright or privacy law, the output may infringe too. This chapter touches on the ways copyright, privacy laws, and contracts might adapt to accommodate the expected changes. It discusses legal alternatives and exceptions such as fair dealing, *sui generis* legislation, or a specific exemption for data mining and AI ‘training’.

In Chapter 10, I revisit copyright standards. I further outline the scholarly originality–creativity debate and argue that two critical changes ought to be implemented (not necessarily linked to AI). One is considering a higher originality and creativity-based standard; the second is bridging the originality gap between jurisdictions. This chapter also discusses the possibility of a creative machine. Finally, in Chapter 11, I revisit some of my earlier questions asking who the AI author is, offering further thoughts and conclusions as to the different paths AI authorship might take. Between a programmer AI-authorship model and a user-authorship model, I am inclined to the latter.