

Article I

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AI-generated works and copyright law: towards a union of strange bedfellows

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1. Introduction

Copyright law vests in original works of authorship.¹ However, most European Union (EU) copyright instruments do not clearly specify whether an ‘author’ is a natural and/or legal person.² EU Member States have also adopted divergent interpretations of ‘authorship’. Though it appears that there might be a preference for the definition of an author as a natural person,³ this approach might not adequately reflect technological realities since copyright works are no longer the exclusive reserve of natural persons. This is particularly because AI systems are now (either autonomously or with human input) capable of creating works which would ordinarily have been eligible for copyright protection had they been created by natural persons. Owing to reasons which include the above, AI-generated works may not be subject to copyright protection in most EU countries and this might affect the incentivization of creatives.⁴ The main objective of this article is the proposition of a legal framework that is capable of securing the copyright protection of AI-generated works through a redefinition of the concept of authorship. This article proposes for the ascription of legal personhood to AI systems to ensure that AI is recognized as an author of its works and creations under copyright law. This article further advocates for the importation of the corporate law principle of ‘lifting the veil of incorporation’ a key feature of the legal personhood of companies. The factors that distinguish relevant AI systems from other non-human authors will also be advanced with the objective of justifying the ‘special treatment’ being proposed for the copyright protection of AI-generated

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This article

- The creation of copyright works was exclusively reserved for humans. However, other non-humans now create works which would ordinarily be eligible for copyright protection. Despite this fact, a substantial number of copyright legislations in the European Union (EU) Member States may not provide copyright protection for (Artificial Intelligence) AI-generated works.
- Focusing on the authorship eligibility requirement of EU copyright law, this article makes a case for the extension of copyright protection to AI-generated works through the attribution of legal personhood to AI systems that create copyright works. This article also proposes for (among other things) the importation of the corporate law principle of ‘lifting the veil of incorporation’ into the ascription of legal personhood to AI systems. The impact of these propositions on AI-generated works and copyright law as well as some probable consequences of not adopting these propositions are also addressed.

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1 Alexander I Poltorak and Paul J Lerner, *Essentials of Intellectual Property Law* (2nd edn, Wiley and Sons 2011).

2 Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society L 167, 22/06/2001 p. 10 - 19, Directive 2019/2019/790 of the European Parliament and of the Council of 17 April 2019 on copyright and related rights in the Digital Single Market and amending Directives 96/9/EC and 2001/29/EC OJ L 130, 17.5.2019, p. 92–125, Berne Convention for the Protection of Literary and Artistic Works as amended on 28 September 1979, WIPO Copyright Treaty (WCT), Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs). It is notable that art 2(1) Computer Program Directive states that ‘the author of a computer program shall be the

natural person or group of natural persons who has created the program or ... the legal person designated as the right holder by that legislation’.

3 European Parliamentary Research Service, *Copyright Law in the EU: Salient Features of Copyright Law Across the EU Member States* (Comparative Law Library Unit, June 2018) PE 625.126 <[http://www.europarl.europa.eu/RegData/etudes/STUD/2018/625126/EPRS_STU\(2018\)625126_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/STUD/2018/625126/EPRS_STU(2018)625126_EN.pdf)> accessed on 15 June 2019.

4 Annette Kur and Thomas Dreier, *European Intellectual Property Law: Text, Cases and Materials* (Edward Elgar Publishing 2013) 5–10; Wei Shi, *Intellectual Property in the Global Trading System* (Springer-Verlag Berlin, Heidelberg 2008) 22–66; Waelde Charlotte and others, *Contemporary Intellectual Property: Law and Policy* (Oxford University Press 4th edn, 2018) 41–42.

works. The article concludes by considering both the challenges posed by its propositions as well as those posed by alternative propositions of other schools of thought.

2. Practical examples of AI-generated works

AI refers to systems that display intelligent behaviour by analysing their environment and acting with some degree of autonomy to achieve specific goals.⁵ The concept of ‘strong AI’ and ‘weak AI’ is relevant to the classification of AI with the former depicting (among other things) autonomous AI with a mind of its own and the latter referring to AI which requires varying levels of human input.⁶ This article considers both strong and weak AI with distinctions been made where necessary. AI generates a plethora of copyright works. Some existing examples are indicated in the table below:

Generally, AI can either be autonomous or dependent on human input in the production process.¹⁴ The Society of Automobile Engineers (SAE) has postulated six levels of driving automation which, for the purpose of this article, may help reflect the levels of autonomy that exists in AI. While Level 0 involves no automation at all, in Levels 1 and 2, the system takes over some driving tasks but the driver must continually monitor the system in order to take over the driving when necessary; Level 3 requires less monitoring of the system by the driver; the system is able to drive the car in normal operation and in defined surroundings in level 4 though the driver can intervene at will; Level 5 is the fully automated and autonomous stage.¹⁵ Currently, AI largely requires varying levels of human input with Levels 1–4 being more prevalent in practice than Level 5.¹⁶ For instance, even though the programmers select the features of a new painting for the ‘Next Rembrandt’, the ultimate creation of the output is carried out by the ‘Next Rembrandt’ itself.¹⁷ Based on this work structure, the

| | | |
|-----------------------|-----------------------------------|--|
| Cinematographic works | Benjamin the bot | ‘Benjamin’ is a movie director and was responsible for directing the movie ‘zone out’ by piecing thousands of old movies together. ⁷ |
| Artistic works | Next Rembrandt | The Next Rembrandt creates new paintings from past Rembrandt paintings by analysing the properties of past paintings and creating new paintings from them. ⁸ |
| | AICAN | AICAN creates art based on images dating back to five centuries ago with which it had been fed during machine learning. ⁹ |
| Literary works | Beta writer and other AI writers | AI authors books, ¹⁰ novels ¹¹ and newspaper articles. ¹² |
| Musical works | Sony’s Flow Machine ¹³ | This AI system extracts patterns from a music database and composes music within specific genres. Significant input from human musicians is needed to reach a satisfactory result. |

5 European Commission, Artificial Intelligence for Europe, {SWD(2018) 137 final}, Brussels, 25 April 2018 COM (2018) 237 final, 2; Stuart J Russell and Peter Norvig, *Artificial Intelligence: A Modern Approach* (3rd edn, Pearson 2010) 7.

6 Jerry Kaplan, *Artificial Intelligence What Everyone Needs to Know* (Oxford Publishers 2016) 68.

7 Lauren Goode, ‘AI Made a Movie and the Results Are Horrifyingly Amazing’ (*Wired*, 2018) <<https://www.wired.com/story/ai-filmmaker-zone-out/>> accessed 25 June 2019.

8 *ibid.*

9 Ahmed Elgammal, ‘Meet AICAN, a Machine That Operates as an Autonomous Artist’ (*The Conversation*, 17 October 2018) <<https://theconversation.com/meet-aican-a-machine-that-operates-as-an-autonomous-artist-104381>> accessed 17 October 2020.

10 Beta Writer, *Lithium-Ion Batteries* (Springer 2019) <<https://link.springer.com/book/10.1007/978-3-030-16800-1#authorsandaffiliationsbook>> accessed 26 June 2019.

11 Thomas Hornigold, ‘The First Novel Written by AI Is Here and It Is as Weird as You Would Expect It to Be’ <<https://singularityhub.com/2018/10/25/ai-wrote-a-road-trip-novel-is-it-a-good-read/>> accessed 26 June 2019.

12 Jacklyn Peiser, ‘The Rise of the Robot Reporter’ *The New York Times* (5 February 2019) <<https://www.nytimes.com/2019/02/05/business/media/artificial-intelligence-journalism-robots.html>> accessed 26 June 2019.

13 <http://www.flow-machines.com/history/events/ai-makes-pop-music/> (19 September 2016) accessed 8 June 2020.

14 Jacopo Ciani, ‘Learning from Monkeys: Authorship Issues Arising From AI Technology’ in P Moura Oliveira, P Novais and L Reis (eds), *Progress in Artificial Intelligence, Lecture Notes in Computer Science*, vol 11804 (EPIA 2019).

15 The Society of Automobile Engineers, ‘SAE International Releases Updated Visual Chart for Its ‘Levels of Driving Automation’ Standard for Self-Driving Vehicles’ (*SAE International*, 11 December 2018) <<https://www.sae.org/news/press-room/2018/12/sae-international-releases-updated-visual-chart-for-its-%E2%80%9Clevels-of-driving-automation%E2%80%9D-standard-for-self-driving-vehicles>> accessed 13 June 2020.

16 Pamela Samuelson, ‘AI Authorship?’ (2020) 63(7) *Communications of the ACM* 22.

17 Péter Mezei, ‘From Leonardo to the Next Rembrandt – The Need for AI-Pessimism in the Age of Algorithms’ (4 May 2020) 7 <<https://ssrn.com/abstract=3592187>> accessed 14 June 2020.

'Next Rembrandt' might be classified into Level 3 of the SAE classification. On the other hand, AICAN is able to create art independently without human input in the production process. However, human input is only required to curate a story which aligns the completed art with societal realities.¹⁸ It would therefore appear that AICAN falls into Level 4 of the SAE classification only because of said human curation efforts.

At the time of writing this article, the appropriation of joint authorship rights between humans and AI is yet to be a settled matter. However, where AI is used as a tool, it will be more likely to recognize the party that conceptualizes and directs the work as the author as against the tool that simply followed instructions to execute the work.¹⁹ An example of joint authorship between humans and AI can be seen in the process of the generation of copyright works by the 'Next Rembrandt'.²⁰ Some insights into the appropriation of joint authorship rights between humans and AI can be gleaned from some provisions of copyright laws on the appropriation of joint authorship between humans. For instance, section 10 UK Copyright, Designs and Patents Act 1988 (UK CDPA) defines joint authorship in terms of 'a work produced by the collaboration of two or more authors in which the contribution of each author is not distinct from that of the other author(s)'. Section 22 Irish Copyright and Related Rights Act 2000 contains a similar provision. One of the envisaged problems with vesting joint authorship in both humans and AI is the apparent inability of AI to meet the threshold of authorship as anticipated within the framework of EU copyright law.²¹ This notwithstanding, it has also been argued that AI meets the threshold for joint authorship with human authors and should have eligible works protected as a result.²² It is yet to be seen how these provisions will be interpreted for works of joint authorship between humans and AI.

18 Nr 9.

19 The use of cameras to take photographs falls squarely within the category of tools being used for executing the work of a human author. See Jane C Ginsburg, 'The Concept of Authorship in Comparative Copyright Law' (2003) 52 *DePaul L Rev* 1063, 1072.

20 Nr 9.

21 This lack of clarity stems from the close link between personhood and the definition of authorship in a manner as to suggest that copyright can only lie in a person (whether natural or legal). See s 178 UK Copyright, Patent and Design Act 1988; s 21(f) Irish Copyright and related Rights Act 2000.

22 Jared Vasconcellos Grubow, 'O.K. Computer: The Devolution of Human Creativity and Granting Musical Copyrights to Artificially Intelligent Joint Authors' (2018) *Cardozo Law Review* 387; Atilla Kasap, 'Copyright and Creative Artificial Intelligence (AI) Systems: A Twenty-first Century Approach to Authorship of AI-Generated Works in the United States' (2019) 19(4) *Wake Forest Intellectual Property Law Journal* 335.

23 Joined Case C-403/08 and C-429/08 *Football Association Premier League Ltd et al v QC Leisure et al* [2011] ECLI:EU:C:2011:631, paras 95, 96, 155, 156 and 159.

3. Authorship in EU copyright law

It is trite that to be eligible for copyright protection, a work has to be original²³ and have an author. It is the authorship arm of the copyright eligibility requirements that forms the focus of this article. The 'authorship' arm of the copyright eligibility requirements is examined within the framework of international copyright treaties, EU legislation, the case law of the Court of Justice of the European Union (CJEU), applicable legislation of EU Member States and the case law of national courts of EU Member States.

3.1 International copyright treaties

The Berne Convention²⁴ uses the term 'author' frequently but does not explicitly define it.²⁵ Article 15(1) and (2) of the said convention provides that natural and legal persons whose name appears on the work shall, in the absence of proof to the contrary, be presumed to be the author of the work. Rather than defining the author, this provision suggests that the author could then be a natural or legal person, whose name appears on the work. This clause provides some context as to what the Berne Convention means when it refers to the term 'author'. However, Article 6bis(2) Berne Convention further outlines a framework for regulating the moral rights of the author after his 'death'. This provision also supports the lack of clarity in the definition of authorship as the Convention variously refers and alludes to both humans and/or legal persons as authors. The WIPO Copyright Treaty²⁶ and the TRIPs Agreement²⁷ are both silent on the definition of an author. However, both legal instruments make compliance with the Berne Convention a necessary pre-condition for compliance with their own provisions.²⁸ Therefore, one can contextually infer that both the WIPO Copyright Treaty and the TRIPs

24 Berne Convention for the Protection of Literary and Artistic Works, 9 September 1886, as revised at Stockholm on 14 July 1967, 828 UNTS 221.

25 It has been suggested that the rationale for this lack of a definition in the Berne convention was the similar understanding shared among Member States at the time in respect of the meaning of author. See: Sam Ricketson and Jane C Ginsburg, *International Copyright and Neighboring Rights: The Berne Convention and Beyond* (2nd eds, vol 1, OUP 2005) 358. Also, Sam Ricketson, *The Berne Convention, 1886-1986* 6.4 (1987).

26 WIPO Copyright Treaty, 20 December 1996, S Treaty Doc No 105-17 (1997); 2186 UNTS 121; 36 ILM 65 (1997).

27 Agreement on Trade-Related Aspects of Intellectual Property Rights, 15 April 1994 Marrakesh Agreement Establishing the World Trade Organization, Annex 1C, 1869 UNTS 3; 33 ILM 1197 (1994)

28 For instance, art 1(2) of the WCT provides that nothing in the Treaty shall derogate from the obligations of contracting parties under the Berne convention. See also art 2(2) TRIPs.

Agreement incorporate the aforementioned interpretation of authorship under the Berne Convention.

3.2 EU law and CJEU decisions

At the EU level, different sectoral copyright instruments designated to harmonize specific areas of copyright law have variously defined authorship. For the purpose of this article, the definition of authorship within the scope of EU copyright law is considered using selected EU directives. Article 4 Database Directive²⁹ stipulates that ‘the author of a database shall be the person or group of natural persons who created the database or, where the legislation of the Member States so permits, the legal person designated as the rightholder by that legislation’. Article 2(1) Computer Directive³⁰ provides that ‘the author of a computer program shall be the *natural person or group of natural persons* who created the program or, where the legislation of the Member State permits, the *legal person* designated as the right holder by that legislation’ (emphasis added). One common similarity between the Database Directive and the Computer Directive is the leeway given to Member States to define authorship, which is also proof of the lack of harmonization in the definition of an author at the EU level. One may, however, infer that the author could be a natural person, while the rightholder may be a legal person.³¹ While the on Directive on the Information Society is silent on whether an author should be a natural and/or a legal person,³² recitals 72 and 74 of the more recent Directive on the digital single market³³ makes reference to natural persons as authors in a manner that can be interpreted as requiring an author to be a natural person. Based on the legislations above, it is clear that a non-human or non-legal entity (such as AI), is ineligible to be recognized as an author in the EU.

The jurisprudence of the CJEU appears to support the position that only natural persons can be authors in a copyright sense. In the *Painer* case, ‘originality’ was interpreted by the court as requiring authors to stamp their personal touch, reflect their personality and

express their creative abilities in their work(s).³⁴ In the *Infopaq* case,³⁵ the court had held that, in order to qualify for copyright protection, a work must be an author’s own intellectual creation. The implications of these rulings are that, to be eligible for copyright protection, a work cannot merely be a replica of an earlier work and that the author must have made ‘subjective choices thereby imprinting the work with his personal touch’.³⁶ From the above interpretation of selected cases of the CJEU, it is clear that the concept of authorship and originality are inter-connected. In other words, for a copyright work to be deemed as an author’s own intellectual creation (ie the originality requirement), such author must have stamped his personal touch on the work (ie authorship requirement).

3.3 National laws and court decisions

The interpretation of the concept of authorship varies among EU Member States. For instance, in the UK (as at the time when the UK was fully an EU Member State),³⁷ the author of a work is the person who creates it.³⁸ Section 9(3) UK CDPA provides that, in the case of computer-generated works, the author shall be taken to be the person by whom the arrangements necessary for the creation of the works are undertaken. Section 178 UK CPDA defines computer-generated works as works without a human author, with such works being granted protection for 50 years. Another example can be found in Ireland. Section 21(f) Copyright and Related Rights Act 2000 stipulates that an author of a computer-generated work is ‘the person by whom the arrangements necessary for the creation of the works are undertaken’. Section 2 of the same legislation defines computer-generated works as works ‘generated by computers in circumstances where the author of the work is not an individual’.³⁹

The divergent interpretations of the concept of authorship (as indicated above) complicate any attempt to clearly define it with certainty. Therefore, a question—such as ‘can a legal person be an author?’—is capable of being answered in the positive and/or negative

29 art 4(1) Directive 96/9/EC of the European Parliament and of the council of 11 March 1996 on the legal protection of databases [1996] OJ L77/20.

30 art 2(1) Directive 2009/24/EC of the European Parliament and of the council of 23 April 2009 on the legal protection of computer programs (2009) OJ L111.

31 See Rosa Ballardini, Kan He and Teemu Roos, ‘AI Generated Content: Authorship and Inventorship in the Age of Artificial Intelligence’ <<https://www.cs.helsinki.fi/u/ttonteri/pub/aicontent2018.pdf>> accessed 21 June 2019.

32 Directive 2001/29/EC L 167 , 22/06/2001, p. 10–19.

33 Directive (EU) 2019/790 OJ L 130, 17.5.2019, p. 92–125.

34 Case C-145/10 *Eva-Maria Painer v Standard Verlags GmbH et al.* [2013] ECLI:EU:C:2013:138, 42.

35 Case C-5/08 *Infopaq International A/S v Danske Dagblades Forening* [2009] ECLI:EU:C:2009:465.

36 *ibid*, para 35. Case C-145/10 *Eva-Maria Painer v Standard Verlags GmbH et al.* [2013] ECLI:EU:C:2013:138, 42, Ground 2 of the decision; Case C-604/10 *Football Dataco Ltd et al., v Yahoo! Etal* [2012] ECLI:EU:C:2012:115.

37 The UK government, ‘The UK Has Left the EU’ <<https://www.gov.uk/transition>> accessed 5 June 2020.

38 s 9(1) UK Copyright, Designs and Patents Act 1988.

39 art 4 of the Dutch Copyright Act (Auteurswet) of 23 September 1912. *Zonen Endstra v Nieuw Amsterdam B.V.*, HR 30 mei 2008, ECLI:NL:HR:2008:BC2153.

within the framework of European copyright law, subject to the legislation being considered. However, since AI is neither a natural nor legal person, it is incapable of being accorded authorship rights for its works under any of the permissible definitions of authorship. In a bid to cure this defect, this article proposes the adoption of legal personhood for AI systems to guarantee the copyright protection of AI-generated works.

4. Brief background on legal personhood

It is clear that AI systems are not recognized as authors since they are neither natural nor legal persons. The possibility of attributing legal personhood to AI systems as a means of attaining the 'legal personhood status' necessary to be recognized as an author is discussed in this section. The nature, origin, schools of thought and other relevant background issues pertaining to legal personhood are considered. The essence of this consideration is to establish points of intersection and compatibility between AI and legal personhood as means of justifying the ascription of legal personhood to AI.

Legal personhood has the reputation of being a hotly debated topic with the necessity of its debate arising out of issues such as the personhood of natural persons (as against foetuses⁴⁰ and children), women,⁴¹ slaves,⁴² animals,⁴³ idols,⁴⁴ companies,⁴⁵ nature⁴⁶ and, as addressed in this article, AI. Legal personhood is an entire topic on its own and is the subject matter of a wide range of legal literature.⁴⁷ However, the discussion on legal personhood in this article will be limited to what

is necessary for the copyright protection of AI-generated works.

The term 'personhood' was originally attributed to natural persons (at least in the predominantly Western legal systems)—who have been born, who are currently alive, who are sentient, rationale and who are of age.⁴⁸ To properly appreciate the concept of legal personhood, it is necessary to understand the theories of legal personhood particularly in the context of their relevance to this article. A foremost theory of legal personhood is the orthodox theory which attaches legal personhood to the ability to hold rights and bear duties as a legal person.⁴⁹ Based on the works of previous scholars,⁵⁰ a case has been made for a new theory of legal personhood referred to as the 'bundle theory'.⁵¹ The bundle theory proposes that legal personhood comprises a cluster of rights and/or duties depending on the nature and purpose of a particular legal relation. The implication of this is that different legal persons can hold different rights and bear different duties depending on the context in question.⁵² Two further classifications of legal personhood that are relevant to the bundle theory are the passive and the active legal personhood.⁵³ While passive personhood involves legal entities which have legal representatives acting on their behalf, active legal personhood on the other hand involves independent actors who can actively enter into contracts and perform legal acts for themselves.⁵⁴

Another theory of legal personhood relevant for the purpose of this discourse is the fiction theory. Which attributes legal personhood to fictitious persons (non-natural persons) for legal purposes.⁵⁵ Such fictitious attribution of legal personhood is clearly distinguishable from the legal personhood attributable to natural

40 The question of legal personhood for fetuses is closely tied to the competing rights of the foetus and its mother, a discourse which does not fall within the purview of this research.

41 Previously, the English doctrine of coverture had the effect of suspending the rights of a married woman or at best subsuming them in those of her husband with the implication that the woman could not carry out any activity independent of her husband. Visa AJ Kurki and Tomasz Pietrzykowski (eds), *Legal Personhood: Animals, Artificial Intelligence and the Unborn* (Springer International Publishing 2017) vol 158, 77.

42 Kurki and Pietrzykowski, *ibid* 80.

43 *ibid* 81.

44 Elaine Hsiao, 'Whanganui River Agreement, Indigenous Rights and Rights of Nature' (2012) 42 *Environmental Policy and Law* 371.

45 The legal personality of companies is an important component of corporate law and it is impossible to accurately discuss write a book on corporate law or even learn about corporate law without discussing the legal personality of companies.

46 Dinah Shelton, 'Nature as a Legal Person' (2015) *Vertigo*. 22. 10.4000/vertigo.16188 <<https://journals.openedition.org/vertigo/16188?lang=en#entries>> accessed 4 July 2020.

47 See Jessica Berg, 'Of Elephants and Embryos: A Proposed Framework for Legal Personhood' (2007) 59 *Hastings LJ* 369; Charlotte O'Brien, 'I

Trade, Therefore I Am: Legal Personhood in the European Union' (2013) 50(6) *Common Market Law Review* 1643.

48 These qualities have been restricted to contemporary Western legal systems because in some jurisdictions, despite possessing the legal qualities under discourse, slaves were not regarded as natural persons. Visa AJ Kurki, *A Theory of Legal Personhood* (OUP 2019) 10.

49 BA Garner and HC Black, *Black's Law Dictionary* (9th edn, West 2009); Kurki, *ibid* 62.

50 Ngiare Naffine, *Law's Meaning of Life: Philosophy, Religion, Darwin and the Legal Person* (Hart Publishing 2009) 46 and 47; Richard Tur, 'The "Person" in Law' in Arthur Peacocke and Grant Gillett (eds), *Persons and Personality: A Contemporary Inquiry* (Basil Blackwell 1988) 121 and 122.

51 Kurki (n 48) 90–92.

52 *ibid* 93.

53 *ibid* 139–45.

54 *ibid*.

55 Jeanne Gaakeer, "'Sua cuique persona?' A Note on the Fiction of Legal Personhood and a Reflection on Interdisciplinary Consequences' (2016) 28(3) *Law & Literature* 287, particularly 288.

persons who are born as persons, unlike legal personhood which is a figment of legal creation.⁵⁶ There is also the purpose theory which upholds the view that personhood, whether legal⁵⁷ or natural, is merely a creation of the law geared towards the realization of specific purposes.⁵⁸

The ascription of personhood of any type is a legal determination usually reached by the legislature based on varying considerations.⁵⁹ The ascription of legal personhood to companies is a good example of this. Corporations (with an ability to own property and contract in their own name) are also said to be traceable to the Romans with the first corporations being public bodies, cities and states. The Roman approach to corporation is said to have heavily influenced the European (and particularly English) approach to incorporation.⁶⁰ Three theories relevant for understanding the underlying rationale for legal personhood are the concession theories (also known as fiction theories referred to above) according to which legal persons including corporations exist as creations of the state; participant theories, which identify corporations as primarily created by individuals; and institutional theories, which project corporations as institutions formed according to legal rules, organized and run by individuals.⁶¹ All these theories depict the use of legal persons including companies as vehicles for achieving various purposes within the confines of the law.⁶² The propositions being made in this article will be modelled (to a large extent) after the legal personality of companies as we have it today. Despite the reference to companies, this article does not attempt to draw parallels between AI and companies: it only aims at importing relevant and applicable principles of corporate law for the regulation of AI.

5. Legal personhood in the specific context of AI and copyright law

Having considered some relevant background issues to legal personhood, the possibility of attributing legal

personhood to AI-generated works is examined in this section. In order to justify the extension of copyright protection to AI-generated works, the modalities for ascribing legal personhood to AI systems ought to be considered. From the theories referred to above, AI is compatible with the various theories of legal personhood. The competing considerations that must be addressed before such a policy decision can be made shall now be considered.

Ascribing legal personhood to AI requires that as a passive legal person, AI will have legal representatives who will act on its behalf. This will require that AI is vested with a separate legal personality distinct from such legal representatives, a right to sue and be sued, a right to hold properties in its own name, etc just like natural persons.⁶³ In other words, should AI be granted legal personhood, they will operate in a similar manner as the legal persons of today.⁶⁴ The principle of legal personality of companies was judicially laid down in the notorious English case of *Salomon v Salomon* where the House of Lords noted *inter alia* that a legally incorporated company must be treated like any other independent natural person with its own rights and liabilities.⁶⁵ Furthermore, the attribution of legal personality to AI carries the necessary implication that the legal representatives (acting on behalf of AI) would necessarily benefit from the gains of the AI on one hand and be liable for its wrongs and/or infringements on the other hand.

An important exception to the legal personality of companies, which could play an important role in the adoption of legal personhood for AI systems, is the 'lifting the veil of incorporation' principle which is an exception to the legal personhood of companies.⁶⁶ The 'lifting the veil of incorporation' principle literally presupposes that the law 'casts a veil' over the legal representatives of a company which makes the company (and not its legal representatives) solely liable for its actions. This veil is neither lifted nor pierced except under specific conditions.⁶⁷ The principle implies that,

56 Sethna Jehangir, *Jurisprudence* (Bombay, Lakhani Book Depot 3rd edn, 1973) 593–95.

57 Elvia Arcelia Quintana Adriano, 'Natural Persons, Juridical Persons and Legal Personhood' (2015) 8(C) Mexican Law Review 101.

58 Dean Pound Roscoe, *Jurisprudence* (West Publishing Co 1959) vol IV, 255. Leicester C Webb, *Legal Personality and Political Pluralism* (Melbourne UP 1958).

59 For instance, at different times in the history of mankind, slaves women and even children have had varying legal personality statuses under the law. Tomas Pietrzykowski, 'The Idea of Non-personal Subjects of Law' in Kurki and Pietrzykowski (n 41) vol 119, 51.

60 Kurki (n 48) 145; Pietrzykowski, *ibid* 10.

61 Kurki, *ibid* 155.

62 David Millon, 'Theories of the Corporation' (1990) Duke LJ 201–262, pp. 206 (discussing historical development of the theory of corporations).

63 These are rights that ordinarily accrue to legal persons. Lawrence B Solum, 'Legal Personhood for Artificial Intelligences' (1992) 70 NC L Rev 1239.

64 See Robert R Pennington, *Company Law* (Pennington Butterworths 1985) 36–43.

65 *Salomon v Salomon* (1897) AC 22, 30.

66 D French, *Mayson, French & Ryan on Company Law: 2016-2017 Edition* (OUP 2016) 133–42; Chrispas Nyombi, 'Lifting the Veil of Incorporation under Common Law and Statute' (2014) 56(1) International Journal of Law & Management 66.

67 For example, criminal activities. *Walter Moon on Company Law* (Tan Cheng Han, General ed, 3rd edn, Sweet and Maxwell Asia 2009) 252.

upon the lifting of the veil of incorporation and the consequent unveiling of a company's legal representatives, the said representatives become liable for the company's actions and will also be responsible for pursuing certain accruing rights subject to applicable legal restrictions.⁶⁸ This article proposes that, for AI to effectively hold copyright, it might be necessary to ascribe legal personality to AI systems coupled with the registration of the legal representatives and the owners or shareholders of AI systems. These legal representatives will be the ones charged with the duty of enforcing the rights of AI while also taking responsibility for its actions. In other words, the legal representatives of AI will be the ones who would be behind its corporate veil and when the need arises, such legal representatives will be held liable for the actions of relevant AI systems. For instance, where legal representatives of an AI system have (intentionally) designed an AI system to systematically infringe an author's copyright, such legal representatives may be held personally liable for such infringements. The implication of this will be that AI will be a separate (passive) legal person and will be capable of holding its own copyright. Just like a company, the legal representatives will proceed against the infringers of the copyright of the AI, while third parties who allege an AI system has breached their rights can institute an action against the AI system itself. Such an action will be instituted in the name of the AI system as an entity that can sue and be sued in its own name. In the case of AI-generated works, which infringe upon existing copyright, the question of the justification for holding the legal representatives liable in such an instance may arise. However, this contention could also be countered with the argument that, since the legal representatives either designed or commissioned the design of the AI, then they should be legally answerable in civil law for the actions of the AI just as they also enjoy the rights and benefits that it generates. Also, the law of agency means that the AI system may be viewed as an agent of its legal representatives and they may be liable as a result.⁶⁹ From an authorship perspective, ascribing legal personhood to AI means that AI will own copyright in its work. To achieve this, the definition of authorship within the framework of EU copyright law must be extended to

legal persons. It is only then that AI can be recognized as an author and enjoy/exercise accruing rights and duties (including the enforcement of its copyright or defence of copyright infringement claims against it) through their legal representatives, and vice versa. Therefore, AI will operate similarly to a company.

The copyright protection of works created by non-natural and non-legal authors is not entirely new under European national copyright laws. Section 178 of the UK CPDA defines a computer-generated work as a work generated by a computer in circumstances such that there is no human author of the work. The language of section 178 of the UK CPDA reveals that the intent of said provision is the protection of works created by computer systems (like the AI-generated works which form the subject matter of this article). In addressing the authorship of computer-generated works, section 9(3) of the UK CPDA provides that the author of such works shall be 'the person by whom the arrangements necessary for the creation of the works were undertaken'.⁷⁰ In the case of AI-generated works, 'the person by whom the arrangements necessary for the creation of the work were undertaken' could be the legal person serving as the legal representative of the relevant AI system who would most likely have developed the AI. In relating the highlighted provisions of the UK CPDA to the extension of legal personhood to AI systems as a means for protecting AI-generated works, this article advances the position that this system is very similar to the approach of the UK CPDA.

6. Potential challenges in the copyright protection of AI-generated works

One of the challenges that the ascription of legal personhood to AI systems may present relates to the assignment of moral rights for works created by AI systems. This challenge stems from the distinction in the philosophical approach to moral rights in common law and civil law jurisdictions. In copyright law, moral rights are rights which include the inalienable rights of an author to be recognized as the author of his or her work even after their economic rights may have been transferred to a third party.⁷¹ A proper comprehension

68 Solum has suggested that another means for making AI liable for wrongs occasioned from its creations is through the use of product liability. In building on Solum's position, this article suggests that even when AI is found liable for 'product liability', only its legal representatives will be capable of contesting and/or complying with the requirements of such finding. Solum (n 63) 1245.

69 Eric A Posner, 'Agency Models in Law and Economics' (2000) University of Chicago Law School, John M. Olin Law and Economics Working Paper No 92 <<https://ssrn.com/abstract=204872>>.

70 Person in the context of the UKCPDA could be a natural or legal person, eg the programmer or his/her employer. See Annemarie Bridy, 'Coding Creativity: Copyright and the Artificially Intelligent Author' (2012) 5 Stan Tech L Rev 1, 1 52.

71 The moral rights of the author has strong roots in France where it was originally referred to as the 'droite de Morale'. See Claudia Roggero, *Author Moral Rights: Different Approaches in Civil and Common Law* (20 April 2016) <<https://www.dandi.media/en/2016/04/authors-moral-rights-civil-common-law/>> accessed 17 June 2020; art 6bis Berne convention which provides an author with moral rights and the right 'to

of the philosophical difference(s) in the approach to moral rights in civil and common law jurisdictions aids the understanding of the potential challenges that may arise from an attempt to vest moral rights in AI systems. In civil law jurisdictions,⁷² moral rights seek to protect the personality and the ‘subjective feelings’ of the author beyond the scope of economic rights.⁷³ Specific features of the civil law approach to the moral rights of an author include inter alia the author’s right to the integrity of the work (which is a right to prevent a modification of the work without the author’s consent), a right to be recognized as the author of the work and a right to determine whether the work is to be released to the public or withdrawn from the public domain.⁷⁴ A practical depiction of the implementation of moral rights in a civil law context can be found in French case law where the court ‘held a theatrical director liable for infringement of Samuel Beckett’s right of integrity by staging *Waiting For Godot* with the two lead roles played by women instead of men, contrary to Beckett’s stage directions’.⁷⁵ Thus, the court found as a violation of the moral right of the author.⁷⁶ However, in common law jurisdictions, any unlawful exploitation of an author’s work would amount to a violation of the copyright of such an author.⁷⁷

A literal application of the civil law approach to moral rights would imply that moral rights are the exclusive reserve of natural persons which cannot be held by AI systems which generate copyright works. However, this may not necessarily be correct because AI is modelled after and is intended to simulate human intelligence. In fact, it is expected that AI systems will (at some point in the future) have an independent

mind of their own and will also be capable of ‘perceiving’ and ‘acting’.⁷⁸ Flowing from this hypothesis, it is arguable that, if natural persons can hold moral rights, so can independent and autonomous AI.⁷⁹ Furthermore, the concept of morality (and moral rights) varies from society to society—for instance—propositions for the ascription of moral rights for trees, rivers, stones, etc have been advanced and have been met with various reactions in different jurisdictions.⁸⁰ Therefore, the blanket application of moral rights to AI might be met with varying reactions across different societies. In cases where the work has been created through a joint effort between humans and AI, it might be practicable for moral rights to be vested in the natural person responsible for the development of the AI.⁸¹ However, this may raise concerns pertaining to the logic behind appropriating to humans, moral rights that are not theirs. This is particularly because moral rights protect (among other things), the personality of the author. It might therefore be illogical to grant such personality rights to humans when they have no personality rights in the work. When AI is used as a tool by a human author, the law is settled that authorship lies in the human author who conceived and executed the idea with the aid of the tool.⁸² Therefore, moral rights of an author ought not to be used as a justification to preclude AI-generated works from copyright protection. Another possible approach to resolving the moral rights’ dilemma might be by abrogating moral rights in respect of AI-generated works. In accordance with the legal personhood proposition made in earlier parts of this article, this implies that the ownership of AI-generated works will lie in the AI system without an

claim authorship of the work and to object to any distortion, mutilation or other modification of, or other derogatory action in relation to, the said work, which would be prejudicial to his honor or reputation’; Elizabeth Adeney, *The Moral Rights of Authors and Performers: An International and Comparative Analysis* (Oxford University Press 2006) 43–68.

72 The stronghold of this ‘moral right’ approach in civil law countries flows from the French approach to moral rights.

73 Adam D Moore and Kenneth Einar Himma, ‘Intellectual Property’ in Edward N Zalta (ed), *Stanford Encyclopedia of Philosophy* (2011) para 2.7 <<https://ssrn.com/abstract=1980917>> accessed 17 June 2020.

74 It must be noted that this right to the release or withdrawal of the work from the public domain may be affected where economic rights have been transferred in the work, especially for a fee. Cyrill P Rigamonti, ‘Deconstructing Moral Rights’ (2006) 47(2) *Harvard International Law Journal* 362. It has also been said that the main purpose of moral rights—eg the most well-known examples: the rights of paternity, integrity, first publication and withdrawal—is to build a strong personal relationship between the author and her work. Mira T Sundara Rajan, *Moral Rights - Principles, Practice and New Technology* (OUP 2011) 9.

75 Roggero (n 71).

76 It is important to note that apart from moral rights, authors or rightsholders (as the case may be) also have economic rights which entitles them to reap the financial benefit of their work and to authorize third

parties to use such works for a fee. See World Intellectual Property Organisation (WIPO), *Understanding Copyright and Related Rights* (WIPO 2nd edn, 2016) 9, 10.

77 Roggero (n 71). The view that moral rights are attributed less value in common law countries has been challenged with the position that the foundation for moral rights is probably traceable to the common law. Gerald Dworkin, ‘The Moral Right of the Author: Moral Rights and the Common Law Countries’ (1994–1995) 19 *Colum-VLA JL & Arts* 229.

78 Russell and Norvig (n 7) 7.

79 It would also appear that s 178 of the UK CPDA has attempted to resolve the moral rights dilemma by providing that works created by computer systems shall belong to the person who undertook the arrangements necessary for its creation.

80 See Christopher D Stone, *Should Trees Have Standing?: And Other Essays on Law, Morals, and the Environment* (Oceana Publications 1996).

81 The possibility of using other solutions such as ‘creative commons licenses’, the ‘work for hire doctrine’ etc have been examined in Mezei (n 17). It has also been recommended that copyright should be vested in the user who is responsible for generating the output. See Samuelson (n 16) 22. Bond and Blair suggest the recognition of computer-generated works as deserving of only economic rights. Toby Bond and Sarah Blair, ‘Artificial Intelligence & Copyright: Section 9(3) or Authorship Without an Author’ (2019) 14(6) *JIP LAP* 423.

82 Ginsburg (n 19) 1072.

ascription of moral rights either to the AI system or its legal representatives. While this approach may seem like an outrageous attempt to alter the nature of copyright law for AI-generated works, an x-ray of existing legislations particularly in common law jurisdictions suggests otherwise. An example of this can be found in section 178 of the UK CPDA which provides inter alia that the right to be identified as the author or director of a work shall not apply to computer-generated works.⁸³ This provision of the UK CPDA completely abrogated a key part of moral rights which is a central theme in copyright law. In the absence of any notable dire consequences from this provision of the UK CPDA, more consideration ought to be put into the possibility of adopting a similar approach for AI. As previously mentioned, this common law approach does not adequately assuage the doubts that will be raised in the mind of civil law moral right purists. This approach of the law in the UK is traceable to the lesser stringency attached to the moral rights approach in common law countries when compared with their civil law counterparts. In order to balance the concerns of the common law and civil law approach to moral rights, elements of moral rights such as (AI) being perpetually recognized as the author of the work, preservation of the author's personality rights, etc may be codified in substantive copyright legislations with the effect of guaranteeing the statutory protection of various elements of moral rights. Therefore, even if moral rights are not directly vested in AI, some selected elements of said moral rights may be extended to AI through their codification in applicable laws.

A potential challenge facing the propositions made in this article as it concerns the copyright protection of AI-generated works is in relation to the technology neutrality regulatory approach to copyright law. This regulatory approach is reflected for instance in Article 6 of the WIPO Copyright Treaty, which provides inter alia that 'authors of literary and artistic works shall enjoy the exclusive right of authorising any communication to the public of their works, *by wire or wireless means*, including the making available to the public of their works in such a way that members of the public may access these works from a place and at a time individually chosen by them' (emphasis added).⁸⁴ As

exemplified in the WIPO treaty, copyright law generally focuses on the nature and use of the work and not the medium for its creation. The rationale behind technology neutrality as a regulatory approach (in copyright law) has been said to include ensuring that a legislation remains valid notwithstanding technological changes, thereby preventing incessant amendments while also ensuring the enforceability of said laws both online and offline.⁸⁵ However, the proposition being made in this article for the attribution of legal personhood to AI and consequently, the copyright protection of AI-generated works, which at first sight may seem like a derogation from the sacred technology neutrality principle of copyright law may not be the first derogation from the said principle. Section 178 of the UK CPDA defines computer-generated work as a work that is generated by a computer in circumstances such that there is no human author of the work. This provision derogates from the technology neutrality principle as it seeks to particularly regulate copyright computer-generated works. Therefore, it supports the view that technology neutrality principle may not be a strong enough reason to deprive AI-generated works of copyright protection. Furthermore, the current approach of negotiating the appropriate borders for technology neutrality in legislations rather than practically ensuring that such technologies are adequately regulated may not be an appropriate solution particularly because of the undeniable impact of technology in the world today. Interestingly, the technology neutrality regulatory approach has previously proven in other fields of law to have unprecedented effects outside the objective of the lawmaker without necessarily aiding its intended objectives.⁸⁶

Though this article advocates for the copyright protection of AI-generated works, it is necessary to prevent a scenario where developers receive double incentivization through the AI system on one hand and the works generated by the AI systems on the other. This is very likely, for instance, where (as suggested in this article) AI systems are granted copyright in their works with the rights/duties therefrom vested in the developers/legal representatives of the AI system who at the same time enjoy patent rights in the AI system. This scenario might make a case for the position of the Romantic

83 The rationale for this provision is traceable to the common law approach to moral rights. See first paragraph of Section 6 above.

84 art 11(1) or recitations (art 11ter(1)) of the Berne Convention.

85 Chris Reed, 'Taking Sides on Technology Neutrality' (2007) 4 SCRIPT-ed doi: 10.2966/scrip.040307.263.

86 One of such unintended consequences is the occurrence in the UK where UK telecoms companies allowed customers to pay for ringtones, downloads, etc through the customers' pre-pay float. However, the UK

Financial Services Authority (FSA) viewed the activity as e-money issuance and directed the telecommunication companies to register as e-money issuers. However, this directive had the unintended consequence of making these telecoms companies ineligible to operate as mobile telephony companies because of the prohibition on non-financial services. The FSA finally bowed out of the regulation of the relevant payments to telecoms companies deferring regulatory authority to the Payment Proposal Directive. See *ibid* 277.

school in leaving such works in the public domain when one form of IP rights protection already exists.⁸⁷ In addressing the concerns that may be raised by double incentivization, the key consideration ought to be encouraging and promoting innovation rather than discouraging it.

7. Examining the impact of the ‘public domain’ argument in the protection of AI-generated works

A proposition of the Romantic school is that AI-generated works should be left in the public domain⁸⁸ because AI systems will be protected by other IP rights which will be sufficient to recoup the research and development (R&D) costs and investments thereby making it unnecessary to extend copyright protection to the works produced by such AI system.⁸⁹ Since this proposition is in sharp contrast with that which is proffered in this article, it is necessary to address it. This consideration enhances an appreciation of the importance of extending copyright protection to AI-generated works, through the taking into account of the potential effects of withholding copyright protection to such works. One of the justifications that has been advanced in support of the proposition of the Romantic school is the view that creativity may well continue to flourish in the society without reliance on copyright and other intellectual property rights.⁹⁰ To buttress a similar position, it has been noted that not all creatives make considerable financial gains from their works, a reality which does not deter their creativity.⁹¹ Fame, passion for the arts and recognition among one’s peers have been further identified as factors which incentivize creatives even though they are well aware that there would be little coming their way in the form of remuneration.⁹² While the ‘public domain’ approach appears to be a feasible solution to the challenges posed by the copyright protection of AI-generated works, this approach raises doubts in situations where developers have actually built AI systems for the purpose of ‘creating artistic works in certain specific ways that, for instance, would

not be possible to be done by human beings themselves’ or in cases where the AI system itself would not be eligible for IP protection but the work created by the AI system would.⁹³ It is doubtful that passion for the arts and recognition will incentivize developers in such cases. In such specific cases, the preclusion of AI-generated works from copyright protection might result in the disincentivization of its developers.

Another potentially remote implication of precluding AI systems from enjoying copyright protection in works autonomously created by them is the potential devaluation of human-authored works due to AI’s ability to create large volumes of work within a very short timeframe.⁹⁴ This has potentially negative implications for human-authored works. By leaving AI-generated works in the public domain, persons seeking to utilize works will be naturally inclined to use AI-generated works which are freely available in the public domain thereby leaving the works created by human authors with lesser patronage and consequently, lesser royalties. This can potentially result in the disincentivization of human authors. Disincentivizing human authors can rob humanity of true knowledge. This is because (weak) AI does not possess the consciousness of the human mind rather, they are merely trained to identify patterns and/or build carry-out simulated tasks that have been learned through machine learning. This shortcoming of AI is best reflected in AICAN. Even though AICAN autonomously creates art, it lacks the human-like consciousness to socially contextualize and tell a story with its art, thereby necessitating the role of a human curator for this purpose. To further buttress this point, Zittrain states that ‘... most machine-learning systems don’t uncover causal mechanisms. They are statistical-correlation engines. They can’t explain why they think some patients are more likely to die, because they don’t “think” in any colloquial sense of the word—they only answer . . .’⁹⁵ Unlike human intelligence which is capable of investigating problems as far as the causal effects, AI is largely incapable of doing this, except for strong AI which is still largely very futuristic. A practical example of this shortcoming of AI

87 The Romantic school is that school that proposes that AI-generated works should be left in the public domain. See Ballardini, He and Roos (n 31).

88 Tanya Aplin and Giulia Pasqualetto, ‘Artificial Intelligence and Copyright Protection’ in Rosa Ballardini, Petri Kuoppamäki and Olli Pitkänen (eds), *Regulating Industrial Internet Through IPR, Data Protection and Competition Law* (Kluwer 2019) ch 5.

89 Ballardini, He and Roos (n 31).

90 See Aplin and Pasqualetto (n 88). Aplin and Pasqualetto also point out the fact that protecting AI-generated works may likely worsen the orphan works problem.

91 Linda J Lacey, ‘Of Bread and Roses and Copyrights’ [1989] *Duke Law Journal* 1532.

92 *ibid.*

93 Ballardini, He and Roos (n 31).

94 For instance, Benjamin the Bot made the movie ‘Zone Out’ within 48 hours. Goode (n 7).

95 Jonathan Zittrain, ‘The Hidden Costs of Automated Thinking’ (*The New Yorker*, 23 July 2019) <<https://www.newyorker.com/tech/annals-of-technology/the-hidden-costs-of-automated-thinking>> accessed 11 January 2019.

can be seen in the first research book authored by AI.⁹⁶ As stated in the book's introduction,

State-of-the-art computer algorithms were applied to: select relevant sources from Springer Nature publications, arrange these in a topical order, and provide succinct summaries of these articles. The result is a cross-corpora auto-summarisation of current texts . . . This book summarises more than 150 research articles published from 2016 to 2018 and provides an informative and concise overview of recent research into anode and cathode materials as well as further aspects such as separators, polymer electrolytes, thermal behavior and modelling.

This shows that Beta writer has merely authored a compendium of summaries and current research on the subject matter of lithium-ion batteries and has not and is most likely unable to (at least from the information provided by the publisher) opine and dissect the subject area on its own by providing its views and/or contributing some novelty to the substantive body of knowledge. If works authored by AI systems like Beta writer are left in the public domain and they succeed in depriving human-generated works of any patronage, the tendency may be the disincentivization of human authors potentially resulting in the consequent deprivation of mankind of the creativity of human authors. This could spell doom for creativity and the body of knowledge in various fields because the critical reasoning of human authors may be substituted for the summarization skills of AI systems thereby potentially robbing mankind of genuine and novel creative development. Therefore, granting copyright protection to AI-generated works by ascribing legal personhood to AI systems remains one of the best ways of achieving this purpose. Since AI is far from being autonomous, the challenges identified in this paragraph might not materialize until AI becomes fully autonomous.

Furthermore, the 'public domain' approach of the Romantic school will also constitute a challenge in cases where copyright works are generated through joint authorship efforts between AI systems and natural persons. In such cases, one can expect (in accordance with the economic theory)⁹⁷ that human authors may be disincentivized if their efforts in such works of joint authorship are left unprotected. Guaranteeing copyright protection for such works of joint authorship is therefore necessary to prevent this occurrence. IP law (in this case, copyright) seeks to incentivize authors for the investment/creativity that goes into their works. In the

case of copyright, it is understood that a creative activity would usually include a 'cost of expression' (ie a cost which corresponds to the time used in creating the work) and a 'cost of production' (a running cost, dependent on the number of copies produced). In order for the creation of works to be economically viable, the estimated income from sales minus the cost of production should exceed or at least equal the cost of expression.⁹⁸ For AI systems that will be generating works, it is yet to be seen if developers will incur any costs from having to maintain such AI systems. If such maintenance costs will arise, then developers might suffer a loss if the works of the relevant AI-system lie in the public domain. This occurrence is even more probable in those cases where the AI system itself does not meet the eligibility requirements of IP rights. Such a result constitutes a further argument against the public domain proposition of the Romantic school.

While precluding AI-generated works from copyright protection may come with its own benefits,⁹⁹ such an occurrence will leave developers with no choice but to seek alternative measures such as trade secrets and strict contractual obligations in order to protect relevant AI-generated works. Since IP rights are usually deployed in the promotion of innovation rather than secrecy, trade secrets, and contractual obligations would not help in achieving this objective. To put it differently, the approach of the Romantic school might discourage rather than foster investments and developments in AI-generated works.

8. Concluding remarks

Copyright law and AI-generated works are clearly strange bedfellows. In order to guarantee the copyright protection of AI-generated works, knotty issues identified in this article must be addressed and regulated. AI systems have redefined the concept of authorship, hence, the necessity of reconsidering the laws regulating copyright protection. There is a need to revisit and possibly expand the definition of an author to include legal persons and for AI systems to be accorded with legal personhood so that AI-generated works can enjoy copyright protection. This is because such systems are now undeniably capable (whether alone or with human input) of creating works that merit copyright protection. While leaving AI-generated works in the public domain may seem like one way to regulate such works, this

⁹⁶ Nr 9.

⁹⁷ This theory posits that the exclusive right to utilize intangible property is required to stimulate intellectual creativity. David Bainbridge, *Intellectual Property* (10th edn, Pearson Education Limited 2019) 21.

⁹⁸ William Landes and Richard Posner, *The Economic Structure of Intellectual Property Law* (Harvard UP 2003) 294-402

⁹⁹ Aplin and Pasqualetto (n 88) s 5.09.

article has identified certain eventualities which may make such a policy approach counterproductive. From earlier mentioned provisions of the UK CPDA, it is also clear that some of the propositions in this article are not entirely new to copyright law as same has been in existence in the UK even before AI became a celebrated buzzword.

The ascription of legal personhood to AI has the potential of becoming very beneficial for AI and the society at large even beyond the scope of copyright law.¹⁰⁰ From a policy point of view, it would amount to an economic loss if the creativity of AI systems is not exploited for commercial and economic growth. These are critical times for AI as a review of some of the works that have been generated by AI systems can be likened to a rough diamond in need of so much polishing and refining, with a robust incentivization system for such works being a good means of achieving such polishing

and refining. For instance, the movie 'Zone Out'¹⁰¹ is far from being a box-office hit; however, there is a potential in the AI system ('Benjamin') which ought to be incentivized by IP law (through its developers) to encourage the needed investment in R&D that could see AI produce box office hits. If such works are left unprotected in the public domain, the chances that investments will go into R&D for such AI systems will be very slim thereby stunting the development of AI-generated works. Finally, there is a need for the regulation of the copyright regime of AI-generated works to eradicate the conjecture and speculation currently encircling such works. This can be best achieved by legislators taking a concrete policy position in this regard and quite frankly, ensuring that our laws develop and can support rather than inhibit technological advancements will be a good foundation.

100 Such systems could also be a revenue generation channel for the state.

101 Nr 7.