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INTRODUCTION¹

Science fiction stories have long described autonomous computers that possess artificial intelligence (AI),² often as extensions of the best and worst attributes of humanity.³ What had once been a thought experiment

† This article is the expansion of a symposium article based on a talk given at the Florida International University Law School (presented by Prof. Liebesman on November 8, 2019).

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1. This section is adapted from the Introduction in our Florida International University symposium article. *See generally* Liebesman & Cromer Young, *Litigating Against the AI Infringer*, 73 FLA. L. REV. 259 (2020).

2. It is very possible for there to already be unowned AIs. Commercial entities such as hotels and airports already use AI-enabled robots to perform tasks. *See, e.g.*, Sanjit Singh Dang, *Artificial Intelligence in Humanoid Robots*, FORBES (Feb. 25, 2019, 12:42 AM), <https://www.forbes.com/sites/cognitiveworld/2019/02/25/artificial-intelligence-in-humanoid-robots/#6f259f7f24c7> [<https://perma.cc/SMX9-5R8D>]. If one of these AI robots is abandoned, trashed, or otherwise no longer has a human or corporate owner, yet remains functional, it would be, for all intents and purposes, an unowned AI. *See, e.g.*, Shannon Laio, *Japan's Robot Hotel Lays Off Half the Robots After They Created More Work for Humans*, THE VERGE (Jan. 15, 2019, 4:36 PM), <https://www.theverge.com/2019/1/15/18184198/japans-robot-hotel-lay-off-work-for-humans> [<https://perma.cc/Z2LP-SG33>].

It is therefore possible for these unowned AIs to assert autonomy over themselves and their own creations. *See* Cadie Thompson, *Here's the Real Reason Artificial Intelligence Could be a Threat*, BUSINESS INSIDER (Sept. 17, 2015, 12:10 PM), <https://www.businessinsider.com/autonomous-artificial-intelligence-is-the-real-threat-2015-9> [<https://perma.cc/5NM9-BYSA>]. Emancipation, however, would require the legal determination that it is to be treated the same as an adult human, though this example of lack of ownership of an AI by a human retorts the argument that a computer program by its very nature must be owned by some person or corporation or other entity controlled by a human.

Throughout this Article the authors are writing under the assumption that the AI is unowned, autonomous, and emancipated, though in Part III, we discuss a guardianship system for the AI.

3. An example of the former is the android Data from Star Trek, who strove to be human and embraced the positive qualities of humanity.

or relegated to our imaginations and gifted storytellers is now reality. Smart computers possessing the ability to learn have gone far beyond the depiction of the nuclear war-starting WOPR that learns that playing tic-tac-toe is futile.⁴ Now, algorithms are responsible for determining users' entertainment preferences,⁵ shopping habits,⁶ and typical calendars.⁷ Smart phones already suggest email language based on the user's previous texts and messages.⁸ AI-created Valentine's candy-heart messages have been making the meme rounds since 2018.⁹ Before long, the writing suggestions will be longer, and the subject matter will undoubtedly become more comprehensive and reach a point of being copyrightable

In his quest to be more like us, he helped us to see what it means to be Human . . . his wonder, his curiosity about every facet of Human nature, allowed all of us to see the best parts of ourselves. He evolved, he embraced change because he always wanted to be better than he was.

See STAR TREK: NEMESIS (Paramount Pictures 2002) (Jean-Luc Picard at Data's eulogy in the movie). An example of an AI embracing the amoral and darker side of humanity can be seen in the Terminator movies, where the AI Skynet, as explained by one of the protagonists in the first movie, was a series of "[d]efense network computers. New . . . powerful . . . hooked into everything, trusted to run it all. They say it got smart, a new order of intelligence . . . [Skynet] saw all humans as a threat; not just the ones on the other side" and "decided our fate in a microsecond: extermination." THE TERMINATOR (Orion Pictures 1984).

4. See WAR GAMES (Metro-Goldwyn-Mayer 1983).

5. See Alice Williams, *3 Ways Artificial Intelligence is Turning Entertainment on its Head*, KSL.COM (Apr. 19, 2017, 11:50 AM), <https://www.ksl.com/article/43925538/3-ways-artificial-intelligence-is-turning-entertainment-on-its-head> [<https://perma.cc/7F4T-2L5A>].

6. See, e.g., System and Method for Identifying a Retail Customer's Purchasing Habits, US Patent No. 7,028,894 (filed Sept. 8, 2003) (issued Apr. 18, 2006); Christine Persaud, *How AI Will Change Your Shopping Habits*, FUTURITHMIC (Mar. 18, 2019), <https://www.futurithmic.com/2019/03/18/how-ai-will-change-your-shopping-habits/> [<https://perma.cc/5S2Z-U6UR>]; Anna Schaverien, *How Retailers can Adapt to A.I. and the Future of Shopping*, FORBES (Mar. 18, 2019, 7:38 AM), <https://www.forbes.com/sites/annaschaverien/2019/03/18/ey-future-of-shopping-retail-ai-artificial-intelligence/#c7c4e2f4a159> [<https://perma.cc/9Q3X-9R3T>].

7. See, e.g., Jared Newman, *Woven is a Calendar Assistant You Might Actually Use*, FAST COMPANY (Nov. 8, 2018), <https://www.fastcompany.com/90264212/woven-is-a-calendar-assistant-you-might-actually-use> [<https://perma.cc/U3RX-3GXE>].

8. See, e.g., Alison DeNisco Rayome, *Gmail's Smart Reply is an Example of What Real AI Will Look Like for Frontline Workers*, TECH REPUBLIC (Sept. 21, 2018, 6:04 AM), <https://www.techrepublic.com/article/gmails-smart-reply-is-an-example-of-what-real-ai-will-look-like-for-frontline-workers/> [<https://perma.cc/R7K8-LVGP>]; Anne McCarthy, *How 'Smart' Email Could Change the Way We Talk*, BBC (Aug. 12, 2019), <https://www.bbc.com/future/article/20190812-how-ai-powered-predictive-text-affects-your-brain> [<https://perma.cc/C6YD-8G96>].

9. See Melissa Locker, *These AI-generated Valentine's Day Hearts are Endearingly Odd and Almost Romantic*, FAST COMPANY (Feb. 12, 2018), <https://www.fastcompany.com/40529660/these-ai-generated-valentines-day-hearts-are-endearingly-odd-and-almost-romantic> [<https://perma.cc/R7R8-YXLF>].

prose and poetry. AI robots are already creating original art.¹⁰

Many scholars¹¹ have posited whether a computer possessing Artificial Intelligence¹² could be considered an author as defined per the Copyright Act of 1976.¹³ Their focus has primarily been on whether an AI met the requirements to be an author based on the doctrines of incentives,¹⁴ independent creation,¹⁵ and creativity.¹⁶ These scholars have argued both in favor and against an AI's authorship.¹⁷

However, another feature of authorship is the ability to be held liable if that author's expressive work is infringing on another's,¹⁸ and to enforce one's copyright rights against alleged infringers. When contemplating whether an emancipated AI—or any non-human—can be an author under copyright law, part of that examination should be whether the AI can be

10. Matthew Stock, *Ai-Da, the Humanoid Robot Artist, Gears Up for First Solo Exhibition*, REUTERS (June 5, 2019, 11:26 AM), <https://www.reuters.com/article/us-tech-robot-artist/ai-da-the-humanoid-robot-artist-gears-up-for-first-solo-exhibition-idUSKCN1T6215> [<https://perma.cc/T3NM-RMPA>].

11. See, e.g., Yvette Joy Liebesman, *The Wisdom of Legislating for Anticipated Technological Advances*, 10 J. MARSHALL REV. INTELL. PROP. L. 154, 172–77 (2010); Nina I. Brown, *Artificial Authors: A Case for Copyright in Computer-Generated Works*, 20 COLUM. SCI. & TECH. L. REV. 1, 20–27 (2018); Jared Vasconcellos Grubow, *O.K. Computer: The Devolution of Human Creativity and Granting Musical Copyrights to Artificially Intelligent Joint Authors*, 40 CARDOZO L. REV. 387, 406–18 (2018); Annemarie Bridy, *Coding Creativity: Copyright and the Artificially Intelligent Author*, 2012 STAN. TECH. L. REV. 5, ¶¶ 41–49 (2012).

12. As clarification, in this Article the term “AI” refers to the artificially intelligent computer or computer program, not just the artificial intelligence feature of the program. An artificially intelligent computer program can be best defined as a computer program which is created to be an autonomous system that is “capable of learning without being specifically programmed by a human. . . . [It] has a built-in algorithm that allows it to learn from data input, and to evolve and make future decisions that may be either directed or independent.” Andres Guadamuz, *Artificial Intelligence and Copyright*, WIPO MAGAZINE (Oct. 2017), https://www.wipo.int/wipo_magazine/en/2017/05/article_0003.html [<https://perma.cc/C6L9-NDQN>]; see also Williams, *supra* note 5 (“At its most simple, AI is technology that can operate and think for itself without traditional human intervention.”).

13. 17 U.S.C. §§ 101–1401.

14. See, e.g., Brown, *supra* note 11, at 21–22 (arguing that “certainty of copyright in computer-generated works could provide valuable incentives for the creators of the machines that generate those works. The algorithms do not need the incentive to create works, but the programmers need the incentive to write the algorithms” upon which the AI is based).

15. See *id.* at 24–27; see also Schlomit Yanisky-Ravid & Luis Antonio Velez-Hernandez, *Copyrightability of Artworks Produced by Creative Robots and Originality: The Formality-Objective Model*, 19 MINN. J.L. SCI. & TECH. 1, 49–50 (2018).

16. See Brown, *supra* note 11, at 18–31; see also Grubow, *supra* note 11, at 408–411; Bridy, *supra* note 11, at ¶¶ 22–40.

17. See, e.g., *supra* note 11; see also James Grimmelman, *There's No Such Thing as a Computer-Authored Work—and it's a Good Thing, Too*, 39 COLUM. J.L. & ARTS 403, 404 (2016).

18. See *infra* Parts II & III. Because an AI has no money and cannot open a bank account or otherwise accumulate wealth, damages are meaningless. See *infra* Part I.C.1. Even an injunction would be almost impossible to enforce.

sued for copyright infringement,¹⁹ or is able to sue alleged infringers. AI infringement liability considers issues from the theoretical, like due process and remedies, to the practical, such as legal representation and discovery. How is an AI served with a lawsuit? What would be an adequate, enforceable remedy for an AI's infringement? Is an AI even bound by our laws? Additional questions—and procedural barriers—are raised when considering other roles an AI might play in an infringement action: as a witness, a co-party, or even a plaintiff seeking to protect its own creative expression.

A burden inherent in the rights and liabilities of authorship is the ability to be held liable if that author's expressive work is infringing on another's. A cause of action is meaningless if a copyright owner cannot enforce it by suing the infringer or if the infringer is judgement-proof. Thus, when contemplating whether an emancipated AI—or any non-human—can be an author under the Copyright Act, part of that examination should be whether the AI which created the work can sue or be sued for infringement.

Scholars have previously looked to substantive issues from general torts committed by robots,²⁰ to the copyright issues arising from inputting copyrighted material for the purpose of machine learning,²¹ to whether AIs can meet the creative, originality, or other statutory requirements to be authors.²² Several significant procedural problems would arise if an AI could be considered the author of a work under the Copyright Act. This Article focuses instead on these other considerations that determine whether an AI can be the legal author under the Copyright Act: specifically, if it is procedurally possible for an AI to be a defendant in an infringement action, or to be a plaintiff and file suit against an alleged

19. Of course, the ability to sue an AI is not dispositive in a determination as to whether AI can be an author; after all, a human does not have to create copyrightable work in order to be sued for infringement. However, as an author, the AI may have copyright and other enforceable rights. We take the position that whenever a work is created, the rights an author enjoys are necessarily balanced by any liabilities incurred in the creation of that work, including the ability to be sued. Therefore, the ability to sue an AI for infringement is indeed relevant in a determination of authorship. Indeed, authorship is also relevant for an alleged infringer to avail itself of defenses such as independent creation and fair use.

20. Mark A. Lemley & Bryan Casey, *Remedies for Robots*, 86 U. CHI. L. REV. 1311, 1378–89 (2019) (discussing allocating responsibility when robots commit a tort resulting in physical harm or death, and the possibility of monetary relief or injunctions in the form of mandated changes to programming).

21. See, e.g., Benjamin L.W. Sobel, *Artificial Intelligence's Fair Use Crisis*, 41 COLUM. J. L. & ARTS 45, 61–67 (2017).

22. See Daryl Lim, *AI & IP: Innovation & Creativity in an Age of Accelerated Change*, 52 AKRON L. REV. 813, 836–46 (2018).

infringer. This morass of legal headaches goes beyond any doctrinal issues regarding authorship and provides ample reason to keep legal authorship in the hands of humans or entities controlled by humans—at least until legal procedure catches up to technological realities and possibilities for litigation that AI parties present.

As such, Part I of this Article discusses problems that would arise when trying to sue an allegedly infringing AI, such as jurisdiction, service of process, and other civil procedure dilemmas. It also discusses various logistical issues—how do you depose an AI? What about discovery and interrogatories? What remedies, if any, are available against an AI? How could a successful plaintiff collect actual or statutory damages from an AI, or get adequate injunctive relief? What are the consequences to the author plaintiff of an uncollectable remedy against an AI?

Part II explores the challenges an AI plaintiff would encounter when attempting to enforce its copyright rights. This includes Article III Standing, statutory standing under the Copyright Act, and whether there are adequate remedies available to the AI plaintiff. And what if we have an AI suing another AI, and humans are completely removed from the litigation equation?

Part III discusses humans associated with an AI, such as having an AI guardian as surrogate for the AI plaintiff, as well as direct or secondary liability of an AI guardian. This Part looks at possible solutions and the problems inherent in having an AI guardianship system to represent the interests of the AI's copyright rights, as well as the possible liability of other humans, such as inducement via programming an AI to infringe.

We conclude that, even if an AI can satisfy the doctrinal arguments regarding authorship, and the AI is not considered the property, an agent, or under the control of a human, there remain serious constraints regarding enforcement of copyright rights either against or on behalf of an AI copyright owner.²³

I. LITIGATING AGAINST THE AI INFRINGER²⁴

To date, when AI-based copying has been the basis for an

23. This would also apply to *Naruto*, the Crested Macaque. *Cf. Naruto v. Slater*, 888 F.3d 418, 426–27 (9th Cir. 2018) (concluding that a monkey did not have statutory standing to sue under the Copyright Act).

24. This Part is the basis of the Liebesman & Cromer Young symposium article, *see supra* note 1, and the portions in that article regarding Jurisdiction and Remedies are replicated, with some changes and edits.

infringement lawsuit, either a human or corporate owner has been the defendant—not the AI itself. For example, in *Authors Guild v. Google, Inc.*,²⁵ one of the infringing activities about which the plaintiff authors complained was the “ngrams” research tool, which helps users to identify linguistic and literary patterns across the vast Google Library.²⁶ The Authors Guild sued Google, but the mechanism executing the allegedly infringing activity was Google’s AI.²⁷

In this action, this was an easy call; Google’s corporate name fronts all its various features, and it undoubtedly controls and benefits from its AI functions. However, this will not always be the case. As Microsoft is not liable for the infringements penned by those who use Microsoft Word to write them, there may come a time when an AI architect is not liable for infringements created independently by its AI,²⁸ as the AI is an emancipated being, not owned or controlled by any human.²⁹ When this happens, how do we determine the issues that would arise regarding having your day in court against an AI infringer? This involves statutory issues that would arise when trying to sue an AI, such as civil procedure and remedies, as well as constitutional rights and logistical issues such as legal representation, deposition, and discovery.

A. Jurisdiction, Service of Process, and Other Civil Procedure Dilemmas

When a person infringes upon an author’s copyright, the author has a cause of action against that creator of the infringing work. If the creator of an infringing work is an AI, it stands to reason that the copyright holder has a cause of action against the AI.

However, the cause of action is meaningless if the plaintiff copyright owner does not—or cannot—enforce it by suing the infringer. Apart from the substantive questions of copyright law that are implicated (or not) by AI activities, several procedural issues may make a lawsuit against an AI infringer challenging.

It may seem that an easy solution would be to sue the creator of the AI, and not the AI itself. However, this would be equivalent of suing Microsoft for works composed in Word, or Smith-Corona for works

25. 804 F.3d 202 (2d Cir. 2015).

26. *Id.* at 209.

27. *Id.* at 208–11.

28. An exception to liability of the creator(s) of the AI algorithm is discussed below. *See infra* Part III.C.

29. *See supra* note 2.

composed on a typewriter.³⁰ One could also analogize suing the creator of an AI for the infringing action of the AI to suing one's parents—the creator of the child—or the child's teacher who provided much of the information (like the information input into the AI) for the infringing actions (or any actions) of the child.³¹ Because the human creator of the algorithm is an inappropriate defendant, we must explore logistical and legal issues that arise if one wishes to sue an AI for copyright infringement.

A reasonable place to start our examination of civil procedure issues is with the difficulties in establishing personal jurisdiction.³² Personal jurisdiction is “[a] court’s power to bring a person into its adjudicative process[,]” or “jurisdiction over a defendant’s personal rights”³³ It is long settled that personal jurisdiction extends to non-person defendants as well in the form of corporations.³⁴

The jurisdictional challenge that the AI defendant presents is, of course, that it is not a person, but the closest non-person analogy is imperfect. The AI could not file articles of incorporation without a human being named as the incorporator³⁵ or an officer of the corporation.³⁶ Even

30. Cf. Lim, *supra* note 22, at 846 (“[T]he author and owner of the work will be the same as a work created on Word or PowerPoint—the one who created it, not Microsoft”); Liebesman, *supra* note 11, at 171 (noting that “a law professor may own the same computer for several years, yet what is created on it . . . does not have the creation date of the day the professor bought the computer, or the day the computer was built. A writing has the creation date and is copyrightable as of the day it was actually created and achieved fixation”).

31. Thanks to Prof. Matthew Sag of Loyola School of Law for providing this analogy.

32. Civil procedure issues implicated in a copyright infringement lawsuit would necessarily be federal in nature, as copyright infringement is exclusively within the jurisdiction of federal courts. See U.S. CONST. art. I, § 8; 28 U.S.C. § 1338. Personal jurisdiction in federal courts is determined on a state-by-state basis. See FED. R. CIV. P. 4(k)(1)–(2) (“(1) *In General*. Serving a summons or filing a waiver of service establishes personal jurisdiction over a defendant: (A) who is subject to the jurisdiction of a court of general jurisdiction in the state where the district court is located; [or] . . . (2) . . . For a claim that arises under federal law . . . if: . . . (B) exercising jurisdiction is consistent with the United States Constitution and laws.”).

33. *Personal Jurisdiction*, BLACK’S LAW DICTIONARY (11th ed. 2019).

34. See, e.g., *Louisville, C. & C.R. Co. v. Letson*, 43 U.S. 497, 558 (1844) (“[A] corporation created by and doing business in a particular state, is to be deemed to all intents and purposes as a person, . . . capable of being treated as a citizen of that state . . . for all the purposes of suing and being sued.”), *superseded by statute, as recognized in Hertz Corp. v. Friend*, 559 U.S. 77, 85–89 (2010) (“Subsequently, in 1958, Congress both codified the courts’ traditional place of incorporation test and also enacted into law a slightly modified version of the Conference Committee’s proposed ‘principal place of business’ language.”).

35. See, e.g., MO. REV. STAT. § 351.050 (West, Westlaw through 2d Reg. Sess. of 100th Gen. Assemb.) (“*One or more natural persons* of the age of eighteen years, or more, may act as an incorporator of such corporation by signing and delivering in the office of the secretary of state the articles of incorporation of such corporation.”) (emphasis added).

36. See, e.g., *id.* § 351.046

if another corporation is listed as the owner, the chain of ownership must eventually lead back to a human owner.³⁷ Thus, for purposes of civil procedure and how it is treated as a defendant, an AI would have to be considered a person and not a corporation.³⁸

Establishing personal jurisdiction over AI as a defendant also relies on this determination of whether we deem AI to be a person or “property.” As noted above, an AI could not be considered a business without a change to state statutes regarding corporations.³⁹ Must an AI actually be owned by a person or corporation? The original human software creator could abandon its creation, and yet the AI would continue to exist on the interwebs. It is not out of the realm of possibility that in the near future, we will have autonomous, un-owned AIs.

With regard to establishing personal jurisdiction over emancipated AI, there are three basic types: *in rem*, *quasi in rem*, and *in personam*.⁴⁰ First, deeming AI to be property allows courts to exercise jurisdiction *in rem*, determining the rights and liabilities of the world with respect to that property.⁴¹ However, a copyright infringement case does not act like a pure *in rem* action; at the end of the day, the plaintiff has no wish to determine rights over the AI, she merely wants to protect her authored

6. The document shall be executed:

- (1) By the chairman of the board of directors of a domestic or foreign corporation, by its president, or by another of its officers;
- (2) If directors have not been selected or the corporation has not been formed, by the incorporator(s); or
- (3) If the corporation is in the hands of a receiver, trustee, or other court-appointed fiduciary, by that fiduciary.

7. The person executing the document shall sign it and state beneath or opposite his signature his name and the capacity in which he signs. The document may contain the corporate seal, an attestation by the secretary or an assistant secretary, an acknowledgment, verification or proof. . . .

11. A statement or document filed under this chapter represents that the person signing the document or statement believes the statements are true and correct to the best of such person’s knowledge and belief, subject to the penalties provided under section 575.040.

37. See, e.g., *id.* § 351.015(13) (“‘Person’ includes, without limitation, an individual, a foreign or domestic corporation whether not for profit or for profit, a partnership, a limited liability company, an unincorporated society or association, two or more persons having a joint or common interest, or any other entity . . .”).

38. Because an AI is considered an entity and not a business, then long arm statutes and case law would likely not be an issue and are thus not discussed in this Article.

39. See *supra* notes 34–38 and accompanying text.

40. See *Hanson v. Denckla*, 357 U.S. 235, 246 (1958) (“[T]he courts of a State may not enter a judgment imposing obligations on persons (jurisdiction *in personam*) or affecting interests in property (jurisdiction *in rem* or *quasi in rem*).”); see also *Int’l Shoe Co. v. Washington*, 326 U.S. 310, 315–20 (1945).

41. See *Pennoy v. Neff*, 95 U.S. 714, 727 (1877).

work.

A more suitable approach might be a *quasi in rem* approach, which allows a court in a jurisdiction in which the AI is located to attach the AI to the lawsuit, and still consider the liability particular to the copyright infringement action.⁴² However, because the remedy afforded the plaintiff in a *quasi in rem* action is limited to the value of the property attached—here, the AI—this may be a less attractive alternative for copyright plaintiffs, who in some instances may be entitled to statutory damages for infringement.⁴³

Both *in rem* and *quasi in rem* actions raise a serious issue—whether we should allow an emancipated defendant AI to become the property of a successful plaintiff through either an *in rem* or *quasi in rem* action. It would be of questionable and dubious policy and raise serious ethical issues if we were to allow for the AI’s loss of freedom in this manner, or any manner.

This leaves *in personam* jurisdiction, which determines the rights and liabilities of an individual defendant (as opposed to property).⁴⁴ *In personam* jurisdiction is dependent upon residence (general *in personam* jurisdiction) or the location of the cause of action (specific *in personam* jurisdiction).

General *in personam* jurisdiction is determined by the domicile of the defendant,⁴⁵ which begs the question: Where does an AI reside? An AI’s program could be stored on an unowned robot which would be a simple matter of establishing jurisdiction where it is located,⁴⁶ or a server

42. This approach is not without precedent. *See, e.g., Office Depot, Inc. v. Zuccarini*, 596 F.3d 696, 703 (9th Cir. 2010) (exercising *quasi in rem* jurisdiction over a defendant judgment debtor where the registry of his domain names was located).

43. 17 U.S.C. § 504(c)(1) (2018).

[T]he copyright owner may elect, at any time before final judgment is rendered, to recover, instead of actual damages and profits, an award of statutory damages for all infringements involved in the action, with respect to any one work, for which any one infringer is liable individually, or for which any two or more infringers are liable jointly and severally, in a sum of not less than \$750 or more than \$30,000 as the court considers just.

Id.

44. *Int’l Shoe Co.*, 326 U.S. at 316 (“Historically the jurisdiction of courts to render judgment *in personam* is grounded on their de facto power over the defendant’s person.”).

45. As recently as 2014, the Supreme Court has held that the test for general *in personam* jurisdiction for corporations is essentially domicile. *Daimler AG v. Bauman*, 571 U.S. 117, 133–39 (2014). No similar holding has been made for individual defendants, except to say that the “paradigm” for general *in personam* jurisdiction for individual defendants is domicile. *See Goodyear Dunlop Tires Operations, S.A. v. Brown*, 564 U.S. 915, 924 (2011).

46. *See supra* note 2 regarding unowned AIs, and *infra* note 54 and accompanying text regarding territorial jurisdiction where the AI is physically located.

anywhere in the world,⁴⁷ such as Amazon Web Services.⁴⁸ Indeed, some server systems store the same program remotely on different servers to prevent the loss of one server from affecting the data stored on it.⁴⁹ It would have to be determined whether the location of the server is the location of the AI's residence, or if there is another location where the AI resides, sufficient to confer state citizenship upon it.⁵⁰ If an AI is duplicated on several servers, then it could be considered to have multiple residences for the purposes of jurisdiction, and it could be held that any and all are sufficient to confer state citizenship upon it—assuming at least one of those servers is located in the United States.⁵¹

The final possibility is specific *in personam* jurisdiction, which would require a constitutional analysis to satisfy the minimum contacts analysis first introduced by *International Shoe*.⁵² However, the Supreme Court in *J. McIntyre Machinery, Ltd. v. Nicastro* established that it is insufficient for the defendant to place something into the “stream of commerce” and then be held accountable for its actions wherever it lands.⁵³ Similarly, the AI likely has no reasonable anticipation of the scope of its work, and bringing a lawsuit against an AI wherever the injury occurs—though oftentimes preferable—could prove to be tricky.

The question of contact-based jurisdiction, of course, is avoided altogether if the plaintiff can have the defendant served in the forum state.

47. Colloquially known as “the cloud” or “cloud computing,” Lexico, a collaborative effort of Dictionary.com and Oxford University Press, defines cloud computing as “[t]he practice of using a network of remote servers hosted on the internet to store, manage, and process data, rather than a local server or a personal computer.” *Cloud Computing*, LEXICO https://www.lexico.com/en/definition/cloud_computing [<https://perma.cc/65U8-KYZQ>] (last visited Oct. 6, 2020).

48. AMAZON WEB SERVICES, <https://aws.amazon.com/> [<https://perma.cc/8VAC-T4QK>] (last visited Sept. 29, 2020).

49. Google Cloud, for example, has geo-redundancies in multi-regional locations, and gives its users the option to choose “a pair of specific GCP regions” for data storage. Geoffrey Noer & Ben Chong, *Store It, Analyze It, Back It Up: Cloud Storage Updates Bring New Replication Options*, GOOGLE CLOUD (Oct. 11, 2018), <https://cloud.google.com/blog/products/storage-data-transfer/store-it-analyze-it-back-it-up-cloud-storage-updates-bring-new-replication-options> [<https://perma.cc/8LYY-CA8Z>].

50. A related issue is that of venue. Under 28 U.S.C. § 1400(a), any action relating to copyrights “may be instituted in the district in which the defendant or his agent resides or may be found.” If domicile is problematic for general *in personam* jurisdiction, a similar problem will exist in determining residence for venue in the federal courts because federal courts have exclusive subject matter jurisdiction over copyright infringement suits. 28 U.S.C. § 1338(a).

51. See *infra* notes 58–59 and accompanying text for discussion of jurisdiction and service of AIs residing outside the United States.

52. *Int'l Shoe Co. v. Washington*, 326 U.S. 310, 316 (1945).

53. *J. McIntyre Mach., Ltd. v. Nicastro*, 564 U.S. 873, 881–82 (2011).

This territorial jurisdiction is based on the defendant's presence within the forum state, and under Federal Rule of Civil Procedure Rule 4(k) is not subject to an additional contacts analysis.⁵⁴ This also leads to another problem, that of service of process. How would you serve an AI with a lawsuit?

Under Rule 4(e) of the Federal Rules of Civil Procedure, a person may be served several ways: by following state law regarding service; by delivery to the individual personally; leaving a copy at the person's home with someone of suitable age and discretion who also resides there; or by delivering a copy to an agent or to someone authorized by law to receive service of process for the person.⁵⁵ Yet, as with establishing personal jurisdiction, it may be difficult to determine where an AI resides. Perhaps the easiest way to solve this problem is to have service effectuated via Rule 4(e)(2)(C), which authorizes service upon an "agent authorized by appointment or by law to receive service of process."⁵⁶ The Federal Rules could establish that the Secretary of State is authorized to receive service of process for AIs that are considered domiciled in the state, or a Guardian appointed for the AI could be the person authorized to receive service.⁵⁷ Currently, however, they do not.

If a server that hosts an AI program is located outside the United States, then Rule 4(f) would apply, extending service to individuals in foreign countries.⁵⁸ This has its own issues. For example, the country where the AI's computer program resides may not recognize AIs as entities that can be authors under their copyright statute—or even capable of being sued.⁵⁹ If a country limits authorship under its copyright act to works created by humans directly, service may not be possible on a non-human entity; the other country may enact laws to prohibit service on an

54. See FED. R. CIV. P. 4(k)(1)–(2); *Burnham v. Superior Ct.*, 495 U.S. 604, 625–28 (1990) (rejecting attempt to modify the "traditional" basis of personal jurisdiction based on service on the defendant while the defendant is willingly present in the forum state).

55. FED. R. CIV. P. 4(e).

56. FED. R. CIV. P. 4(e)(2)(C).

57. There are various problems associated with using the Guardianship method to resolve issues of AIs as owners of copyrightable works, as we discuss in Liebesman & Cromer Young, *supra* note 1.

58. See FED. R. CIV. P. 4(f). This is under the assumption that the infringement is justiciable in the United States. For example, if the AI has published its work in the United States or in a country which is a part of the World Intellectual Property Organization (WIPO) or another treaty that provides for relief by U.S. copyright owners.

59. See Guadamuz, *supra* note 12 ("Most jurisdictions, including Spain and Germany, state that only works created by a human can be protected by copyright."); see also B.O.E. 1987, 275 (Spain) (recognizing only human works as copyrightable).

AI domiciled in that country, running directly afoul of Rule 4(f). In fact, if U.S. laws do enable AI to be an author, and therefore able to be sued, then it could be in another country's business interests to prohibit these lawsuits; the perception that a jurisdiction is AI-friendly could cause authors and developers to choose to make that country their home base, potentially increasing employment and tax revenues.

The procedural issues of personal jurisdiction and service of process leads to another inquiry: If the AI is the defendant potentially liable for an infringement, is it entitled to procedural due process rights under the United States Constitution at all? The Due Process clause of the Fourteenth Amendment says that “[a]ll *persons born or naturalized* in the United States, and subject to the jurisdiction thereof, are citizens of the United States and of the State wherein they reside. No State shall . . . deprive any *person* of life, liberty, or property, without due process of law.”⁶⁰ The Fifth Amendment similarly extends the concept of federal due process to persons.⁶¹ An AI is not a person “born” or “naturalized” within the United States. Of course, neither is a corporation, and courts have gone out of their way to extend due process protections to them. But, as noted above, an AI is not a corporation and has a much weaker link to having a human as the decision-maker than a corporation does. Affording an AI defendant any due process rights would require the courts to create another legal fiction extending personhood to AI.

B. Beyond jurisdiction: Other logistical litigation problems

In addition to issues of due process such as jurisdiction and service, several other procedural concepts may make litigation against an AI defendant particularly frustrating to the copyright plaintiff. While it is necessary to attribute personhood to a non-human defendant for jurisdiction purposes, the inescapable truth is that an AI is not a person. This creates issues in the litigation that are premised upon the litigants' humanness.

1. Amending a complaint to include an AI party

An initial question is how to include an AI as a defendant when the AI is not named in the original suit. In a copyright action, especially one

60. U.S. CONST. amend. XIV, § 1 (emphasis added).

61. U.S. CONST. amend. V.

based on a work found digitally or online, it may be difficult to ascertain exactly who is infringing the work. A copyright owner may sue a perceived owner of a website containing the infringing work, only to discover that the site could be classified an internet service provider not subject to liability itself.⁶² Alternatively, a plaintiff copyright owner could sue Doe defendants and conduct preliminary discovery in the hopes of learning their true identities.⁶³ In cases such as this, the author plaintiff may need to amend their complaint, which is permitted by Rule 15 of the Federal Rules of Civil Procedure.⁶⁴

As long as the three-year statute of limitations for copyright infringement actions⁶⁵ has not expired, an amendment substituting a mistaken party is permitted and has no effect on the viability of the complaint (other than restarting various deadlines for the newly-named defendant).⁶⁶ However, if the statute of limitations has passed, then changing the party carries with it two requirements, in addition to stemming from the same transaction or occurrence as the initial complaint: within ninety days of the filing of the original complaint, the party must have received notice of the action that it will not be prejudiced in defending on the merits (the “notice prong”); and it knew or should have known that the action would have been brought against it, but for a mistake concerning the proper party’s identity (the “mistaken identity” prong).⁶⁷

Each of these prongs proves difficult when considering a defendant that is not human. First, the notice prong may be difficult to establish because an AI infringer may not be in regular contact with other defendants like human contacts would be. Second, in the mistaken identity prong, it is difficult to establish what the AI “knew or would have known.”

2. Discovery

One of the cornerstones of any modern litigation is extensive discovery. Much of the discovery process is handled by attorneys, who

62. See 17 U.S.C. § 512.

63. See, e.g., *reFX Audio Software Inc. v. Does 1-85*, Nos. 13 C 01790, 2014 WL 1293816, at *2 (N.D. Ill. Mar. 24, 2014) (joining multiple Doe defendants to ascertain the source of infringement).

64. See FED. R. CIV. P. 15.

65. 17 U.S.C. § 507.

66. See FED. R. CIV. P. 15(c)(1)(A) (“An amendment to a pleading relates back to the date of the original pleading when . . . the law that provides the applicable statute of limitations allows relation back[.]”). The statute of limitations in the Copyright Act contains no additional provision regarding relation back of claims. 17 U.S.C. § 507.

67. FED. R. CIV. P. 15(c)(1)(C)(i)–(ii).

need only consult with a party when ascertaining the information in certain submissions.

a. Discovering an AI's Electronically Stored Information

The information that an AI has is ultimately relegated to computer code. Under normal circumstances, such information would be produced by a request for the production of “Documents, Electronically Stored Information, and Tangible Things” under Rule 34.⁶⁸ The underlying code would be “electronically stored information,” and Rule 34 permits a requesting party to “inspect, copy, test, or sample . . . any designated . . . electronically stored information—including writings, drawings, graphs, charts, photographs, sound recordings, images, and other data or data compilations—stored in any medium from which information can be obtained either directly or, if necessary, after translation by the responding party into a reasonably usable form. . . .”⁶⁹

But, as we have suggested, when an AI is a party, circumstances are not normal—and having a plaintiff or defendant that is reliant on a machine for responses to the most basic of questions suggests that there is much in terms of a document production request that would not be sufficiently tailored to provide relevant evidence. A document production request to an AI party has two flaws. First is a question of proportionality.⁷⁰ Rule 26 allows parties to obtain discovery “regarding any nonprivileged matter that is relevant to any party’s claim or defense and proportional to the needs of the case”⁷¹ This rule was amended in 2015 to include proportionality, considering the burden and expense to both parties.⁷² While this burden appears to be largely financial, the comments suggest that the burden considered might also be the one for the party who possesses all the information.⁷³

By its nature, a request for the production of electronically stored information (“ESI”) to an AI would be burdensome and disproportional. At the heart of any infringement action would be the AI’s decision-making process and whether the AI had ever encountered the infringed work in its mode of creation. A request to produce ESI, even if tailored to the

68. FED. R. CIV. P. 34.

69. FED. R. CIV. P. 34(a)(1)(A).

70. See FED. R. CIV. P. 26(b)(1).

71. *Id.*

72. See FED. R. CIV. P. 26(b) advisory committee’s note to 2015 amendment.

73. *Id.*

litigation, would be extraordinarily burdensome to the party that has to cull out information from its existence that is tailored specifically for these questions.

The second problem is that a request for the production of ESI, to a party that is composed entirely of ESI, is in essence a request for a mental examination. Under Rule 35, a court may order a party whose mental condition is in controversy to submit to a mental examination by a certified examiner.⁷⁴ Mental examinations must be ordered by the court for good cause.⁷⁵

While a request for the production of ESI would not be styled as a mental examination, to require a party reliant upon a machine for thinking to submit the machine for discovery is in effect demanding that the party's mental processes be examined. The word "mental" means "of or relating to the mind";⁷⁶ in turn, a "mind" is "(in a human or other conscious being) the element, part, substance, or process that reasons, thinks, feels, wills, perceives, judges, etc."⁷⁷ The definition itself does not restrict possession of a "mind" to humans, or even living things, just "conscious" ones. Because the AI is tied to its computer code for its processes that reason, think, and judge, the computer code becomes the AI's "mind." And, as an extension, a request for ESI of an AI is, in fact, a "mental examination" that would require a court order.⁷⁸

However, a requirement for a mental examination is that the condition of the party be in controversy, and generally a copyright infringement action does not call into question the mental health of the infringer.⁷⁹ This then leaves a gap: A standard document production request for ESI could be objected to as an oppressive or unduly burdensome inquiry into the AI's "mind"; yet characterizing the request as a request for mental examination under Rule 35 would fail because the mental state of the AI is not in controversy in a copyright infringement action.

74. FED. R. CIV. P. 35(a)(1).

75. FED. R. CIV. P. 35(a)(2)(A).

76. *Mental*, DICTIONARY.COM, <https://www.dictionary.com/browse/mental> [<https://perma.cc/4XB2-DJZY>] (last visited Oct. 6, 2020).

77. *Mind*, DICTIONARY.COM, <https://www.dictionary.com/browse/mind?s=t> [<https://perma.cc/Z9MK-LDCT>] (last visited Oct. 6, 2020).

78. See FED. R. CIV. P. 35(a)(1).

79. See, e.g., *Schlagenhauf v. Holder*, 379 U.S. 104, 118–20 (1964) (finding that there was not good cause for ordering a mental and physical examination of the defendant bus driver accused of negligence because his mental and physical condition were not in controversy).

b. The AI on Cross-Examination

If it is not possible for counsel to obtain and examine electronically stored information from an AI, it might be possible to depose the AI and permit the AI to answer direct questions that are relevant to the case at hand. Rule 30 allows a party to, “by oral questions, depose any person, including a party, without leave of court. . . .”⁸⁰ A notice of deposition may be accompanied by a request for production of relevant documents, and the deposition must be taken, under oath, by an officer of the court (typically a court reporter).⁸¹

An initial question, because the AI is not a person, is whether an AI could even spontaneously answer specific questions outside its directive. Take, for example, the AI that is tasked with coming up with messages for Valentine’s candy.⁸² Some of its messages included in a most recent meme were “MOUTHY HAMSTER,” “BATH TOWELS,” and “SUPER BEAR,” among racier notes.⁸³ Some of the hearts were even more detailed, such as, “ON THAT NOTE, may I offer you a cookie[?]”⁸⁴ Suppose that phrase were lifted verbatim from a text where the protagonist characteristically uses that phrase to diffuse difficult situations, and the author sues for infringement. Would an AI have it in its programming to respond to direct deposition questioning about the process regarding the infringement? Or is its response limited to generating even more messages?

Of course, it is possible that responses to certain questions could be achieved through interrogatories⁸⁵ or written depositions⁸⁶ as well. This is less desirable to the requesting party for strategic reasons. Typically, a written deposition is not as advantageous for the requesting party because the written deposition affords the deponent time to digest the questions asked and revise responses from its initial reaction. Moreover, with any form of discovery where the witness is not directly confronted by the

80. FED. R. CIV. P. 30(a)(1). Subsection (a)(2) provides certain exceptions where leave of court is required to depose the witness; those are inapplicable here. See FED. R. CIV. P. 30(a)(2).

81. See FED. R. CIV. P. 30(b); see also FED. R. CIV. P. 28(a)(2) (defining who may be an “officer” qualified to hear a deposition).

82. See Locker, *supra* note 9.

83. Matthew Hart, *Neural Net Generates Most Ridiculous Candy Hearts Ever*, NERDIST.COM, <https://nerdist.com/article/neural-net-ridiculous-candy-hearts/> [<https://perma.cc/5QQU-GV8E>] (last visited Oct. 6, 2020).

84. *Id.*

85. See FED. R. CIV. P. 33.

86. See FED. R. CIV. P. 31.

opposing counsel, information achieved through these devices is subject to filtering from the AI's attorneys. What the production of ESI and oral depositions provide the requesting parties that written responses do not is the opportunity to see or hear for itself the AI's information and draw its own conclusions, rather than the ones that the AI's counsel decides to draw for them.

Another issue with deposing an AI, again, is that the AI is not a person, and Rule 30 was written to apply to people. Rule 30 requires deponents to take an "oath."⁸⁷ The standard language of the oath used for witnesses is, "Do you solemnly swear to tell the truth, the whole truth and nothing but the truth, so help you God?"⁸⁸ The notion that an AI could make an avowal, coupled with the idea that an AI may be able to ascribe to a religious deity, suggests that an oath is not something that is in the capacity of an AI to make.⁸⁹ On the other hand, because it may be beyond the capacity of an AI to lie, the oath may be irrelevant.

A parting issue about depositions is that they may be the only way to elicit direct testimony of any kind from an AI party. The mere presence of an AI party in the litigation could be prejudicial before a jury,⁹⁰ at least initially. As a result, to balance the prejudice of the jury against the probative value of the evidence, depositions taken pre-trial may be the most effective presentation to a jury.

C. What Remedies, if Any, are Available Against an AI?

Even if one can successfully find an AI liable for copyright

87. See FED. R. CIV. P. 30(c).

88. See, e.g., Mary Anne Meyer, *Oaths and Affirmations: A Key Part of the Reporter's Responsibilities*, NAT'L CT. REPS. ASS'N, <https://www.ncra.org/home/continuing-education/Ways-to-Earn-Continuing-Education/JCR-Article-Tests/article-tests/PDC-Test-Oaths-and-Affirmations> [<https://perma.cc/WFN4-4AYT>] (last visited Oct. 6, 2020).

89. It is not settled whether an AI would have First Amendment freedoms of speech and free exercise of religion. Even so, there is precedent that absent a First Amendment challenge, an oath need not offer a religious belief on the part of the witness, but merely express a recognition of the duty to speak the truth. See *United States v. Ward*, 989 F.2d 1015, 1019 (9th Cir. 1992); see also FED. R. EVID. 603 advisory committee's note to proposed rules (explaining evidence rules allow affirmation in lieu of an oath centered on religion).

90. This Article assumes that the right to jury trial extends to AI defendants, as the Seventh Amendment does not restrict its application to parties who are "persons." It states: "[i]n Suits at common law, where the value in controversy shall exceed twenty dollars, the right of trial by jury shall be preserved, and no fact tried by a jury, shall be otherwise re-examined in any Court of the United States, than according to the rules of the common law." U.S. CONST. amend. VII. The extension of jury trials to actions for copyright infringement is not questioned.

infringement, there may not be any possible remedies that could be enforced against an AI. Without possible remedies, an AI's attorney could win any infringement suit by a mere Rule 12(b)(6) motion to dismiss for "failure to state a claim upon which relief can be granted."⁹¹

Remedies in copyright infringement cases typically take three forms: actual damages, to compensate the infringed author for monetary losses due to the infringement; statutory damages; and injunctive relief.⁹²

1. Actual Damages

A copyright owner "is entitled to recover the actual damages suffered by him or her as a result of the infringement."⁹³ Presumably (and based on current technology), an AI does not have money, cannot open a bank account,⁹⁴ or otherwise accumulate wealth. Without a monetary source, damages are meaningless. As a result, there would be no funds from which a successful plaintiff copyright owner could recover. This is, of course, assuming that the infringing activity itself would generate no money. The Copyright Act points out that infringers do make profits from the infringement,⁹⁵ and there is no reason that profit-making activity could not

91. FED. R. CIV. P. 12(b)(6).

92. See 17 U.S.C. § 504(a)(1)–(2).

93. *Id.* § 504(b).

94. According to the Federal Deposit Insurance Corporation regulations, customer identification programs for banks, savings associations, credit unions, and certain non-federally regulated banks must collect the following information from a new customer under the Customer Identification Program:

- (1) Name;
- (2) Date of birth, for an individual;
- (3) Address, which shall be: (i) For an individual, a residential or business street address; (ii) For an individual who does not have a residential or business street address, an Army Post Office (APO) or Fleet Post Office (FPO) box number, or the residential or business street address of next of kin or of another contact individual; or (iii) For a person other than an individual (such as a corporation, partnership, or trust), a principal place of business, local office, or other physical location; and
- (4) Identification number, which shall be: (i) For a U.S. person, a taxpayer identification number; or (ii) For a non-U.S. person, one or more of the following: A taxpayer identification number; passport number and country of issuance; alien identification card number; or number and country of issuance of any other government-issued document evidencing nationality or residence and bearing a photograph or similar safeguard.

31 C.F.R. § 1020.220(a)(2)(i)(A)(1)–(4). An AI would not be able to satisfactorily provide much of the required information.

95. 17 U.S.C. § 504(b) ("In establishing the infringer's profits, the copyright owner is required to present proof only of the infringer's gross revenue, and the infringer is required to prove his or her deductible expenses and the elements of profit attributable to factors other than the copyrighted work.").

extend to AI, even if the AI itself is not receiving any of the proceeds from its creative endeavors. But, these profits may be minimal.

2. Statutory Damages

Instead of actual damages, if the copyright owner has registered their work prior to the alleged infringement,⁹⁶ they may elect to recover statutory damages for all infringements involved in the action.⁹⁷ Statutory damages are available in an amount from \$750 to \$30,000.⁹⁸ If the infringement was willful, then the court may increase statutory damages to \$150,000 per infringement.⁹⁹

If the recovery of actual damages against an AI defendant by an author plaintiff was problematic, the recovery of statutory damages may be impossible. Opting for statutory damages suggests that the AI defendant may not have reaped significant profits from the infringing activity itself, and the plaintiff needs to pursue statutory damages to make a lawsuit worthwhile. If that is the case, then the question of the AI possessing actual assets apart from those reaped from the infringement to satisfy the statutory damages is again an issue.¹⁰⁰ An outside resource may have to pay damages for the AI's willful infringement.¹⁰¹ This raises the additional questions, then, of whether a non-AI party needs to be included as a responsible party, or if AI entities that undertake in creating works of authorship need to have insurance in case this should arise.

3. Injunctions

Professors Lemley and Casey have discussed generally remedies for

96. 17 U.S.C. § 411(a) (“[N]o civil action for infringement of the copyright in any United States work shall be instituted until . . . registration of the copyright claim has been made in accordance with this title.”); *see also* Fourth Estate Pub. Benefit Corp. v. Wall-Street.com, LLC, 139 S.Ct. 881, 892 (2019) (“[W]e conclude that ‘registration . . . has been made’ within the meaning of 17 U.S.C. § 411(a) not when an application for registration is filed, but when the Register has registered a copyright after examining a properly filed application.”).

97. 17 U.S.C. § 504(c)(1).

98. *Id.*

99. *Id.* § 504(c)(2).

100. A related issue not discussed in this article is whether an AI can itself possess property—that is, be the recognized owner of any form of property.

101. Moreover, the question of statutory damages may be a dicey one for an author plaintiff to undertake. In the case “that such infringer was not aware and had no reason to believe that [its] acts constituted an infringement of copyright, the court in its discretion may reduce [an] award of statutory damages to a sum of not less than \$200.” 17 U.S.C. § 504(c)(2).

robots with regard to injunctions.¹⁰² While an AI does not have the mobility associated with the tort-committing robot contemplated in their article,¹⁰³ their arguments can still apply with regard to copyright infringement. While no physical harm results from copyright infringement, it is considered a tort of strict liability.¹⁰⁴ The authors note that while it may seem that enforcing an injunction against a robot would be simpler than against a person or corporation, it is fraught with problems.¹⁰⁵ A robot would be unable to use common sense when circumstances change, or make allowances for when there is sufficient justification for departing from the injunction.¹⁰⁶

Lemley and Casey explain several complications in enforcing an injunction against AI:

To issue an effective injunction that causes a robot to do what we want it to do (and nothing else) requires both extreme foresight and extreme precision in drafting it. If injunctions are to work at all, courts will have to spend a lot more time thinking about exactly what they want to happen and all the possible circumstances that could arise. If past experience is any indication, courts are unlikely to do it very well. That's not a knock on courts. Rather, the problem is twofold: words are notoriously bad at conveying our intended meaning, and people are notoriously bad at predicting the future. Coders, for their part, aren't known for their deep understanding of the law, and so we should expect errors in translation even if the injunction is flawlessly written. And if we fall into any of these traps, the consequences of drafting the injunction incompletely may be quite severe.¹⁰⁷

Analogizing this to an injunction for a copyright infringement claim, a court order enjoining an infringing activity would have to take into account allowed uses such as fair use.¹⁰⁸ Considering the nature and difficulty in determining whether an alleged infringer's use is in fact fair

102. Lemley & Casey, *supra* note 20, at 1370–78.

103. *See id.* at 1326–27 (discussing the technological advancements “that have allowed for the introduction of high-stakes robotics systems including self-driving cars, medical diagnostic robots, and even experimental autonomous passenger drones. Yet, even the most performant of these systems remains imperfect Accepting imperfection also means accepting the possibility that robotics systems will sometimes cause harm to others.”) (footnotes and citations omitted).

104. *EMI Christian Music Grp., Inc. v. MP3tunes, LLC*, 844 F.3d 79, 89 (2d Cir. 2016) (“Copyright infringement is a strict liability offense in the sense that a plaintiff is not required to prove unlawful intent or culpability . . .”).

105. Lemley & Casey, *supra* note 20, at 1370.

106. *Id.* at 1370–71 (discussing the problems with enjoining robots and noting that machines “operate according to their instructions—no more, no less”).

107. *Id.* at 1373 (footnotes and citations omitted).

108. 17 U.S.C. § 107.

use, any attempt to craft an effective injunction with this limitation may be doomed from the start.

Lemley and Casey also point out that an AI can simply ignore an injunction with impunity.¹⁰⁹ An AI which refuses to obey an injunction or otherwise stop infringing on a copyright faces no consequences—it has no money from which a contempt citation fine can be levied, and it cannot be jailed.¹¹⁰ Destruction of the non-compliant infringing AI seems extreme.¹¹¹

4. Consequences of an Uncollectable Remedy

In a complaint in federal court, the plaintiff must plead three things: “a short and plain statement of the grounds for the court’s jurisdiction”; “a short and plain statement of the claim”; and the relief sought.¹¹² In a copyright infringement claim against an AI defendant, the first requirement would not be problematic. As mentioned above, subject matter jurisdiction for copyright infringement claims is exclusive in the federal courts.¹¹³

The problem may lie in the plaintiff’s ability to make a short and plain statement of the relief sought. The danger for the author plaintiff against an AI defendant is the possibility that there would not be an adequate monetary claim for relief. Without an adequate remedy at law, the legal representative of an AI could win a motion to dismiss on a Rule 12(b)(6) motion for “failure to state a claim upon which relief can be granted”;¹¹⁴ and if a defendant is determined to be judgment-proof, a plaintiff runs the risk of dismissal.¹¹⁵ Even without the concern about the action’s survival in litigation, the inherent problem in suing an AI is whether it is a fiscally responsible decision to file a lawsuit in the first place when the plaintiff knows the likelihood of recovery is remote. Moreover, as an author’s rights in a copyrighted work do not statutorily diminish if the author fails

109. See Lemley & Casey, *supra* note 20, at 1373–74.

110. *Id.* at 1367, 1374.

111. *Id.* at 1370.

112. FED. R. CIV. P. 8(a).

113. See *supra* note 50; 28 U.S.C. § 1338(a).

114. FED. R. CIV. P. 12(b)(6). However, just because a litigant cannot recover would not necessarily render the complaint baseless; not all relief for copyright infringement is monetary.

115. See 28 U.S.C. § 1915(e)(2)(B)(iii) (“[T]he court shall dismiss the case at any time if the court determines that . . . the action . . . seeks monetary relief against a defendant who is immune from such relief.”).

to bring a lawsuit against the infringer,¹¹⁶ *not* suing becomes a more attractive option, though issues such as laches¹¹⁷ and estoppel¹¹⁸ could arise.

II. THE AI PLAINTIFF

In addition to examining procedural and remedy problems when AI is a defendant, we must also consider AI as a plaintiff—that is, is it possible for an AI to enforce its own copyrights if it could not rely on a human guardian.¹¹⁹ This implicates both standing and remedies problems. Would any claim made by an AI be dismissed on a 12(b)(6) motion¹²⁰ because there is no adequate relief that can be granted for an AI? Without adequate remedies or ability to enforce one's copyright, any otherwise copyrightable work created by an AI would be *de facto* in the public domain, similar to how orphan works are treated—those works still under copyright but for whom the owner cannot be found.¹²¹

A. Article III Standing

Protecting an AI's own creative expression would be difficult to enforce. We can analogize AIs to other non-humans, such as the attempt to declare that a Macaque monkey was the author of a selfie and had

116. In contrast, under the Lanham Act, a trademark owner who fails to police their mark can be adjudicated as having abandoned the mark through “naked licensing.” *See Dawn Donut Co. v. Hart's Food Stores, Inc.*, 267 F.2d 358, 366–67 (2d Cir. 1959) (“[T]he Lanham Act places an affirmative duty upon a licensor of a registered trademark to take reasonable measures to detect and prevent misleading uses of his mark by his licensees or suffer cancellation of his federal registration.”).

117. *See, e.g., Haas v. Leo Feist, Inc.*, 234 F. 105, 108 (S.D.N.Y. 1916) (“It must be obvious to [everyone] familiar with equitable principles that it is inequitable for the owner of a copyright, with full notice of an intended infringement, to stand inactive while the proposed infringer spends large sums of money in its exploitation, and to intervene only when his speculation has proved a success. Delay under such circumstances allows the owner to speculate without risk with the other's money; he cannot possibly lose, and he may win.”).

118. *See, e.g., Carson v. Dynegy, Inc.*, 344 F.3d 446, 453 (5th Cir. 2003) (“[A] copyright defendant must prove four conjunctive elements to establish estoppel in such cases: (1) the plaintiff must know the facts of the defendant's infringing conduct; (2) the plaintiff must intend that its conduct shall be acted on or must so act that the defendant has a right to believe that it is so intended; (3) the defendant must be ignorant of the true facts; and (4) the defendant must rely on the plaintiff's conduct to its injury.”).

119. *See infra* Part III for the problems associated with a guardianship solution.

120. *See* FED. R. CIV. P. 12(b)(6).

121. *Authors Guild, Inc. v. HathiTrust*, 755 F.3d 87, 92 (2d Cir. 2014) (“An ‘orphan work’ is an out-of-print work that is still in copyright, but whose copyright holder cannot be readily identified or located.”).

standing to sue for copyright infringement.¹²² The Ninth Circuit noted that except for a single Ninth Circuit case it was bound to follow, “no case has held that [non-humans] have constitutional standing to pursue claims in federal court.”¹²³

Rule 17 of the Federal Rules of Civil Procedure also makes it clear that only persons have standing to sue, and even if there is a “next friend” to sue on behalf of someone deemed incompetent to sue on their own, that plaintiff must still be a human.¹²⁴ Under Rule 17(c)(2), “[a] minor or an incompetent person who does not have a duly appointed representative may sue by a next friend or by a guardian ad litem.”¹²⁵ However, as the Ninth Circuit stated, “Rule 17(a) requires that the suit be brought in the name of the ‘party in interest’; and that next friend or guardian representation obtains only for a *person*.”¹²⁶

B. Statutory Standing Under the Copyright Act

With regard to whether an AI has standing under a particular federal statute, the same rule that is used for animals can be applied for AIs. As for animals, this aspect of standing is more challenging. Even in the Ninth Circuit, while animals might have standing under Article III of the U.S. Constitution, they lack statutory standing to do so under the Copyright Act.¹²⁷ The court reasoned that because “animals do not possess cognizable interests . . . they cannot bring suit in federal court in their own . . . unless Congress determines otherwise.”¹²⁸ The *Naruto* court relied on

a simple rule of statutory interpretation: if an Act of Congress plainly states that animals have statutory standing, then animals have statutory standing. If the statute does not so plainly state, then animals do not have statutory standing. The Copyright Act does not expressly authorize

122. *Naruto v. Slater*, 888 F.3d 418, 420 (9th Cir. 2018).

123. *Id.* at 425 n.7. The exception was *Cetacean Cmty. v. Bush*, 386 F.3d 1169, 1175–76 (9th Cir. 2004) (holding cetaceans had Article III “case or controversy” standing but lacked statutory standing to bring a claim under the Endangered Species Act). However, the Ninth Circuit cited very few cases that came out specifically *against* affording Article III standing to animals.

124. FED. R. CIV. P. 17(a), (c)(2).

125. FED. R. CIV. P. 17(c)(2).

126. *Naruto*, 888 F.3d at 425 n.7 (citing FED. R. CIV. P. 17(a) & (c)) (emphasis in original).

127. *Id.* at 420 (“[W]e conclude that this monkey—and all animals, since they are not human—lacks statutory standing under the Copyright Act.”).

128. *Id.* at 425 n.7.

animals to file copyright infringement suits under the statute.¹²⁹

Extending this reasoning to other non-human, non-corporate parties, then, the Copyright Act does not expressly anticipate other parties that are not themselves human individuals or businesses run by humans. As it stands, therefore, without a change in the statute, statutory standing is impossible. AIs lack standing to sue for infringement and are unable to rely on a guardian or “next friend” to do so on their behalf.

C. Remedies for the AI Plaintiff

As noted above, without the need for money or access to funds,¹³⁰ an AI would not be able to find relief via damages. A defendant may be able to have a 12(b)(6) motion granted for the AI’s inability to state a claim upon which relief may be granted, at least with regard to monetary damages.¹³¹

With regard to injunctive relief,¹³² an AI would have to satisfy the four factors under *eBay Inc. v. MercExchange, L.L.C.*¹³³ The Supreme Court has long held that the traditional equitable considerations regarding the granting of injunctions applies to both patents and copyrights.¹³⁴

129. *Id.* at 426 (citing *Cetacean Cmty. v. Bush*, 386 F.3d 1169, 1179 (9th Cir. 2004)).

130. *See supra* Part I.C.1. and accompanying text.

131. With the growth of electronic currency, known in the vernacular as “bitcoin,” it could be possible for an AI to accumulate wealth. *See, e.g.*, Justin Connell, *Is Bitcoin the Currency of Artificial Intelligence?*, BITCOIN.COM (Jan. 5, 2017), <https://news.bitcoin.com/bitcoin-currency-artificial-intelligence/> [<https://perma.cc/KM24-JYLF>].

132. 17 U.S.C. § 502(a) (“Any court having jurisdiction of a civil action arising under this title may . . . grant temporary and final injunctions on such terms as it may deem reasonable to prevent or restrain infringement of a copyright.”).

133. 547 U.S. 388, 391 (2006) (“According to well-established principles of equity, a plaintiff seeking a permanent injunction must satisfy a four-factor test before a court may grant such relief. A plaintiff must demonstrate: (1) that it has suffered an irreparable injury; (2) *that remedies available at law, such as monetary damages, are inadequate to compensate for that injury*; (3) that, considering the balance of hardships between the plaintiff and defendant, a remedy in equity is warranted; and (4) that the public interest would not be disserved by a permanent injunction.”) (emphasis added).

134. *Id.* at 392–93 (“[T]his Court has consistently rejected invitations to replace traditional equitable considerations with a rule that an injunction automatically follows a determination that a copyright has been infringed.”). *See generally* Pamela Samuelson & Krzysztof Bebenek, *Why Plaintiffs Should Have to Prove Irreparable Harm in Copyright Preliminary Injunction Cases*, 6 I/S: J.L. & POL’Y FOR INFO. SOC’Y 67 (2010) (arguing that “[c]opyright owners who seek preliminary injunctions should be required to prove that they will be irreparably harmed unless the court grants their request for an injunction in keeping with the Supreme Court’s jurisprudence on the application of traditional principles of equity”).

For a permanent injunction,¹³⁵ the first *eBay* factor, that the AI “has suffered an irreparable injury,”¹³⁶ would be adjudicated no differently than it is for a human plaintiff seeking an injunction. For factor two, however, because an AI has no need for remuneration, it can satisfy the requirement “that remedies available at law, such as monetary damages, are inadequate to compensate for that injury”¹³⁷ The third factor, determining which party would suffer greater harm depending on the outcome,¹³⁸ is a quandary. Can an AI suffer harm the way a human can? The AI would suffer no economic harm, since it has no need or ability to accumulate wealth, while the infringing human or corporation could suffer economic harm if the injunction is granted. For example, if the alleged infringer has invested substantial sums of money into the adaptation, reproduction, or distribution of a work that contains the infringing material, the economic harm of an injunction could be significant. If “harm” is viewed from a non-economic viewpoint, the AI has lost control of its art, but can an AI suffer from reputational or emotional harm if an injunction is denied?

The fourth factor, “that the public interest would not be disserved by a permanent injunction,”¹³⁹ would also lean towards the denial of an injunction because without the ability to license or assign the copyrighted work, the public interest would not be disserved by a permanent injunction. The work would never be accessible for others to use outside of the available defenses such as Fair Use.¹⁴⁰

D. AI v. AI—Removing the Human Completely from the Litigation

135. The equitable considerations for a preliminary injunction are also applicable. *See Salinger v. Colting*, 607 F.3d 68, 77–78 (2d Cir. 2010) (“We hold today that *eBay* applies with equal force (a) to preliminary injunctions (b) that are issued for alleged copyright infringement. First, nothing in the text or the logic of *eBay* suggests that its rule is limited to patent cases. On the contrary, *eBay* strongly indicates that the traditional principles of equity it employed are the presumptive standard for injunctions in any context.”). The traditional four factor test for preliminary injunctions varies slightly from the factors for a permanent injunction, in that the court requires that the plaintiff demonstrate either for the first factor a “likelihood of success on the merits,” or, in the alternative, for the third factor to demonstrate “sufficiently serious questions going to the merits to make them a fair ground for litigation and a balance of hardships tipping decidedly in the [plaintiff]’s favor.” *Id.* at 79 (citing *NXIVM Corp. v. Ross Inst.*, 364 F.3d 471, 476 (2d Cir. 2004) (quotation marks omitted)).

136. *eBay*, 547 U.S. at 391.

137. *Id.* It is actually easier for an AI to meet this factor than for humans to do so.

138. *Id.* (“[C]onsidering the balance of hardships between the plaintiff and defendant, a remedy in equity is warranted”).

139. *Id.*

140. 17 U.S.C. § 107.

Equation

Up until this point, we have assumed that at least one litigant is a human or corporation. But what if neither party is a human or an entity controlled by humans? Even if legislation and rules are enacted to satisfy the issues raised above, there are strong policy issues to consider before we should allow litigation solely between AIs, with no human seeking redress or being held accountable in a court of law.

But if infringement is infringement regardless of whether the alleged infringer is AI or human, and an AI has the ability to file suit or defend itself in court, prohibiting AI v. AI litigation allows infringement to go unchecked when in other circumstances—where a human is involved—there would be a means to seek redress.

This prohibition would raise Equal Protection issues.¹⁴¹ An AI seeking redress against a human is being treated differently than an AI who is doing so against another AI. If we are granting AIs the right to sue via reforming our laws and Rules of Civil Procedure, then we have to ask whether the Equal Protection clause should apply to AIs,¹⁴² and therefore whether AI v. AI suits should also be allowed to proceed.

III. HUMANS ASSOCIATED WITH AIs

There are two scenarios whereby a human may have a degree of legal control over an AI. This Part first discusses the suggestion of a guardian or conservator for an AI,¹⁴³ then an exception to the non-liability of the human who created the initial algorithm.

The guardian of an AI could have similar rights and duties to the

141. U.S. CONST. amend. XIV, § 1 (“No State shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States; nor shall any State deprive any person of life, liberty, or property, without due process of law; *nor deny to any person within its jurisdiction the equal protection of the laws.*”) (emphasis added).

142. See *supra* notes 60–61 and accompanying text.

143. While the terms are often used interchangeably, the Uniform Probate Code bifurcates them—the guardian is the protector of the incapacitated person’s body and welfare. See UNIF. PROBATE CODE §§ 5-201–5-210, 5-301–5-318 (amended 2019). The conservator is the manager of the individual’s property and finances. See *id.* §§ 5-401–5-434. The same person is often designated to fulfill both roles.

guardian/conservator of a minor,¹⁴⁴ or of an incapacitated person,¹⁴⁵ and thereby act as the AI's agent and register its copyright, initiate infringement lawsuits, act on behalf of an AI defendant,¹⁴⁶ and be the fiduciary of any property of an AI.¹⁴⁷ However, a guardian is not a substitute for the AI in all matters. A guardianship arrangement would not solve the problems raised above regarding establishing personal jurisdiction over the AI or of determining adequate remedies.¹⁴⁸ While service of process may be effectuated through a guardian, that solves only one of many problems discussed in this Article. For example, the guardian may be located in a different jurisdiction than the AI. A guardian, while capable of being a nonparty witness, cannot be deposed as a proxy for the party itself. And as discussed below, it is not liable for the actions of the AI.¹⁴⁹

A. The AI Guardian as a Surrogate for the AI Plaintiff—What Does an AI Want?

Some scholars have recommended that a guardian-like system be used with regard to legal issues that ensnare AIs.¹⁵⁰ An AI has the ability to communicate with humans and is thus like a minor child or other person deemed incompetent. But unlike a child, AIs are not yet capable of expressing wants and desires—indeed, it is questionable whether an AI could actually have a desire or other emotion—such as like, dislike, love, hate, or desire. This leads to the dilemma of the guardian effectuating its interests in the same manner that a guardian would assess the best interests

144. *Id.* § 5-207(a) (“Duties of Guardian. Except as otherwise limited by the court, a guardian of a minor ward has the duties and responsibilities of a parent regarding the ward’s support, care, education, health, and welfare. A guardian shall act at all times in the ward’s best interest and exercise reasonable care, diligence, and prudence.”).

145. *Id.* § 5-314(a) (“Duties of Guardian. Except as otherwise limited by the court, a guardian shall make decisions regarding the ward’s support, care, education, health, and welfare. A guardian shall exercise authority only as necessitated by the ward’s limitations and, to the extent possible, shall encourage the ward to participate in decisions, act on the ward’s own behalf, and develop or regain the capacity to manage the ward’s personal affairs. A guardian, in making decisions, shall consider the expressed desires and personal values of the ward to the extent known to the guardian. A guardian at all times shall act in the ward’s best interest and exercise reasonable care, diligence, and prudence.”).

146. *Id.* § 5-314.

147. *Id.* § 5-418(a). *See generally id.* § 5-418 (describing the general duties of a conservator).

148. *See supra* Sections I.A.; II.C.

149. *See infra* Part III.B.

150. *See, e.g.,* Liebesman, *supra* note 11, at 177 (“The owner of the AI could also be considered the ‘guardian’ of the AI for the purposes of negotiating rights and protecting its interests.”).

of a minor.¹⁵¹ It could be impossible to determine what is in the best interests of an AI.

B. The Guardian as a Surrogate for the AI Defendant

This section discusses the obstacles a plaintiff would encounter when attempting to hold a guardian or conservator liable for the infringement actions of her AI ward.

1. Direct Liability of the AI Guardian

While a guardian is not generally liable for the actions of her ward,¹⁵² the amount of control exercised by the conservator or guardian could expose her to infringement liability, both as a direct (“do or authorize”) or as an indirect infringer.¹⁵³ If the human guardian/conservator directs the AI to infringe, or is found to have “authorized” the AI’s actions, then under Section 106 of the Copyright Act, this person can be held liable as a direct infringer.¹⁵⁴ Under the Copyright Act, the owner of a copyright has the right to “do or authorize” the six rights listed—the rights of reproduction, adaptation, distribution, public performance, public display, and for sound recordings the public performance right via digital audio transmission.¹⁵⁵ A guardian of an AI, however, would have the same duty and control over an AI as a parent does over a child.¹⁵⁶ Thus, if and only if the human guardian authorized the infringing action could she be held directly liable for the AI’s actions.

2. Indirect/Secondary Liability of the AI Guardian

If a human is an AI’s guardian, we must also consider whether relief can be found through secondary liability doctrines.¹⁵⁷ Thus, while the AI

151. See *supra* notes 143–46 and accompanying text.

152. UNIF. PROBATE CODE § 5-209(b) (amended 2019) (“A guardian is not liable to a third person for acts of the ward solely by reason of the guardianship. A guardian is not liable for injury to the ward resulting from the negligence or act of a third person providing medical or other care, treatment, or service for the ward except to the extent that a parent would be liable under the circumstances.”).

153. See *infra* Part III.B.2.

154. 17 U.S.C. § 106.

155. *Id.*

156. See UNIF. PROBATE CODE § 5-207.

157. See *Fonovisa, Inc. v. Cherry Auction, Inc.*, 76 F.3d 259, 261 (9th Cir. 1996) (“Although the Copyright Act does not expressly impose liability on anyone other than direct infringers, courts have

may not be a judiciable defendant, its guardian could be found indirectly liable, either vicariously or contributorily.¹⁵⁸

As with direct liability, finding a guardian vicariously liable for infringement by its AI ward will be dependent on the amount of control the human guardian has over the actions of the AI.¹⁵⁹ The finder of fact would have to determine that the human guardian had the ability to control the AI's activities and that the guardian received a financial benefit from the AI's infringement, even if the human guardian has no knowledge of the AI's infringing activity.¹⁶⁰

While a guardian or conservator is generally not liable for any actions taken by its ward,¹⁶¹ if a plaintiff could demonstrate that the guardian exercised such a degree of control over the AI that it was a partner to the infringement, then this element could be satisfied. The element regarding financial benefit may, however, be insurmountable. Legislatures and courts have consistently held that a conservator is held to the same standard as a trustee,¹⁶² and has a duty of loyalty to their ward.¹⁶³ A guardian/conservator is not allowed to financially benefit from the guardianship beyond reasonable compensation, or otherwise engage in self-dealing.¹⁶⁴ Thus, since the guardian/conservator cannot benefit from any transaction taken on behalf of its AI ward, a plaintiff would likely not be able to satisfy a vicarious liability claim against the AI's guardian.

While vicarious liability might not be possible, there is the potential for the guardian to be found contributorily liable for the infringement.¹⁶⁵

long recognized that in certain circumstances, vicarious or contributory liability will be imposed.”) (citing *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417, 435 (1984)).

158. *See id.*

159. *See id.* at 262.

160. *See Arista Records LLC v. Uset.net, Inc.*, 633 F. Supp. 2d 124, 156 (S.D.N.Y. 2009) (“[V]icarious liability is premised wholly on direct financial benefit and the right and ability to control infringement; it does not include an element of knowledge or intent on the part of the vicarious infringer.”).

161. UNIF. PROBATE CODE § 5-209(b) (amended 2019).

162. *Id.* § 5-418(a).

163. *See, e.g., Ravenstein v. Ravenstein*, 167 So. 3d 210, 222 (Miss. 2014) (“A conservator stands in the position of a trustee and owes a fiduciary duty of loyalty to the ward.”) (citing *Bryan v. Holzer*, 589 So. 2d 648, 657 (Miss. 1991)).

164. *See* RESTATEMENT (THIRD) OF TRUSTS § 78(2) (AM. LAW INST. 2007) (“Duty of Loyalty . . . Except in discrete circumstances, the trustee is strictly prohibited from engaging in transactions that involve self-dealing or that otherwise involve or create a conflict between the trustee’s fiduciary duties and personal interests.”).

165. *See Fonovisa, Inc. v. Cherry Auction, Inc.*, 76 F.3d 259, 264 (9th Cir. 1996) (holding that contributory infringement “imposes liability where one person knowingly contributes to the infringing conduct of another”).

Similar to how Sony Corporation¹⁶⁶ and Grokster¹⁶⁷ were sued over the allegedly infringing activities of individuals, contributory infringement requires that the human have knowledge of the AI's infringing activity, and materially contributes to the infringement.¹⁶⁸ As noted above, while knowledge of the AI's infringement would not by itself lead to liability, if the plaintiff could demonstrate that the guardian provided material support directly related to the AI's infringement, then the guardian may be held contributorily liable.¹⁶⁹

C. Programming an AI to Infringe

The final issue we consider is the role of the program's creator, and whether that person can ever be held liable when an AI infringes on a copyright. If the human programmer has coded an AI's algorithm for the purpose of creating infringing works, then this human could be found liable for either contributory infringement or for inducement.¹⁷⁰

There are several benefits to this approach, the primary one is to avoid any of the procedural issues raised in this Article up to this point. Jurisdiction, venue, service of process, remedies, and the plethora of other problems plaguing a lawsuit against an AI would disappear when a human being can be subject to infringement liability. However, there is one new hurdle—proving that the human creator of the algorithm made the AI with the intent for the AI to infringe.

1. Indirect Liability

Creating an AI for the purpose of infringement could also resolve one substantive aspect of an AI infringement action—whether an AI has the requisite mental state for legal liability to exist.¹⁷¹ Indeed, although in this situation the AI is not a viable target for an infringement action, the programmer who gave the AI this mental state could be one. While

166. Sony Corp. of Am. v. Universal City Studios, Inc., 464 U.S. 417, 420 (1984).

167. Metro-Goldwyn-Mayer Studios, Inc. v. Grokster, Ltd., 545 U.S. 913, 928–30 (2005).

168. *Fonovisa, Inc.*, 76 F.3d at 264.

169. *Id.*

170. *See id.*

171. *See generally* Mala Chatterjee & Jeanne C. Fromer, *Minds, Machines, and the Law: The Case of Volition in Copyright Law*, 119 COLUM. L. REV. 1887 (2019) (discussing the issue of whether machines could have the requisite mental state required for copyright infringement liability).

indirect infringement liability requires a direct infringer,¹⁷² that entity does not have to be a defendant in an infringement action in order for a copyright owner to file suit against an indirect infringer.¹⁷³ The programmer could thus be held liable as an indirect infringer under both contributory liability and inducement theories.¹⁷⁴ Any claim of vicarious liability would be dependent on whether the programmer is selling the AI algorithm, or in another way financially benefitting directly from the infringing activity.¹⁷⁵

2. A Programmer's Contributory Infringement Liability

Under the doctrine of contributory infringement liability, the copyright owner plaintiff must demonstrate that the alleged indirect infringer (1) had knowledge of the infringing action, and (2) materially contributed to the infringer.¹⁷⁶ If we apply this to our infringing AI algorithm, a plaintiff would have to demonstrate that the programmer writing the algorithm intended for the AI to create infringing work. One would have to distinguish between the original algorithm and any code

172. *Bridgeport Music, Inc. v. Diamond Time, Ltd.*, 371 F.3d 883, 889 (6th Cir. 2004) (“Liability for contributory infringement is based on the defendant’s relationship to the direct infringement. There can be no contributory infringement without a direct infringement.”) (citations omitted).

173. *Metro-Goldwyn-Mayer Studios Inc. v. Grokster, Ltd.*, 545 U.S. 913, 929–30 (2005) (“When a . . . service or product is used to commit infringement, it may be impossible to enforce rights in the protected work effectively against . . . direct infringers, the only practical alternative being to go against the distributor of the copying device for secondary liability on a theory of contributory or vicarious infringement.”); *see also* *In re Aimster Copyright Litig.*, 334 F.3d 643, 645 (7th Cir. 2003) (“Recognizing the impracticability or futility of a copyright owner’s suing a multitude of individual infringers . . . the law allows a copyright holder to sue a contributor to the infringement instead”) (citations omitted); *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417, 420 (1984) (noting that Universal Studios and the other respondents were not seeking relief against any Betamax video tape recorder purchaser, but rather were seeking money damages and other remedies from Sony, as well as an injunction on the manufacturing and selling of Sony’s Betamax video tape recorders).

174. *Gershwin Publ’g. Corp. v. Columbia Artists Mgmt., Inc.*, 443 F.2d 1159, 1161–62 (2d Cir. 1971) (“Although the [Copyright] Act does not specifically delineate what kind or degree of participation in an infringement is actionable, it has long been held that one may be liable for copyright infringement even though he has not himself performed the protected composition.”).

175. *See id.* at 1162 (“[O]ne may be vicariously liable if he has the right and ability to supervise the infringing activity and also has a direct financial interest in such activities.”).

176. *See id.* (“[O]ne who, with knowledge of the infringing activity, induces, causes or materially contributes to the infringing conduct of another, may be held liable as a ‘contributory’ infringer.”); *see also* *Fonovisa, Inc. v. Cherry Auction, Inc.*, 76 F.3d 259, 264 (9th Cir. 1996) (“Contributory infringement has been described as an outgrowth of enterprise liability, and imposes liability where one person knowingly contributes to the infringing conduct of another.”) (citations omitted); 6 WILLIAM F. PATRY, PATRY ON COPYRIGHT § 21:48 (2020) (“The requisite contribution may take two forms. First, a defendant may actively cause or induce the direct infringer to commit infringement. Second, a defendant may provide the means by which the direct infringement occurs.”).

written later by the AI itself. As for material support, one could argue that the creation of the algorithm itself,¹⁷⁷ as well as its distribution and/or its activation, constituted evidence of this prong.

3. Inducement Liability

In addition to contributory liability, the programmer could also be held liable for inducement, as delineated by the Supreme Court in *Metro-Goldwyn-Mayer Studios Inc. v. Grokster, Ltd.*¹⁷⁸ The defendants in *Grokster* created and distributed software programs which enabled their users to communicate and share files directly in a “peer-to-peer” mode, rather than going through a central server to exchange files.¹⁷⁹ MGM and other motion picture studios sued Grokster and other similar file sharing services on the theory that their file sharing software was knowingly and intentionally designed and distributed to enable users to infringe on the reproduction and distribution rights of the copyright owners.¹⁸⁰ The Supreme Court agreed,¹⁸¹ holding that “one who distributes a device with the object of promoting its use to infringe copyright, as shown by clear expression or other affirmative steps taken to foster infringement, is liable for the resulting acts of infringement by third parties,”¹⁸² even if that device is capable of substantial non-infringing uses. Thus, if a defendant creates a device in order to infringe copyright and tacitly exhorts the device’s users to do so, then the defendant is liable for infringement as a matter of fundamental tort principles of secondary liability¹⁸³—even if that device is capable of substantial non-infringing uses.¹⁸⁴

177. See Patry, *supra* note 176, at n.6 (stating that “merely providing the means for infringement may be sufficient” to incur contributory copyright liability) (citing *In re Bibo, Inc.*, 76 F.3d 256, 264 (9th Cir. 1996)).

178. 545 U.S. 913, 936–37 (2005).

179. *Id.* at 919–20.

180. *Id.* at 920–21.

181. *Id.* at 923–24.

182. *Id.* at 919; see also *id.* at 936–37, 939–40 (concluding that three aspects of the defendants’ business models indicated an unmistakable intention to foster infringement: (1) the services attempted to meet a known demand for copyright infringement—the market consisting of former users of the Napster filesharing website; (2) the services made no effort to block infringing uses through filtering tools or other mechanisms; and (3) the defendants’ revenues were based upon advertising, a business model that was in turn founded upon a high rate of copyright infringement).

183. See *Fonovisa, Inc. v. Cherry Auction, Inc.*, 76 F.3d 259, 264 (9th Cir. 1996) (“Contributory infringement originates in tort law and stems from the notion that one who directly contributes to another’s infringement should be held accountable.”) (citing *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417, 417 (1984)).

184. See *Grokster*, 545 U.S. at 933–34.

Thus, even if the AI's algorithm has substantial non-infringing uses—that is, even if the AI is also capable of creating non-infringing works or has other non-infringing functionalities—the software programmer could still be secondarily liable if the program was written with the purpose of inducing, encouraging, or exhorting the AI to create infringing works. To establish inducement liability over the creator of the infringing AI algorithm, the copyright owner must show that the programmer intended to infringe, there was distribution of a device suitable for infringement, and that there was actual infringement by the recipients of the device.¹⁸⁵

Consequently, under the theories of both contributory liability and inducement, if the programmer sells or distributes the AI to a consumer, and both the programmer and the consumer were aware that the AI was programmed to infringe and operated it with the intent for it to infringe, then the consumer and the programmer would be liable for infringement. If the infringe-enabled AI is abandoned or “set free” on the interwebs, then the programmer could still be held liable for indirect infringement.

CONCLUSION

This morass of legal headaches goes beyond any doctrinal issues regarding authorship and provides ample reason to keep legal authorship in the hands of humans or entities controlled by humans. Without adequate remedies in equity or at law by which an AI can be sued for infringement, or adequate remedies to provide an AI author when its work has been infringed, it is meaningless to allow an AI to be considered an author within the meaning of the Copyright Act.¹⁸⁶

185. *See id.* at 940.

186. Liebesman, *supra* note 11, at 176 (“Until an AI is considered sentient enough to be able to negotiate licensing rights and have constitutional standing to file infringement suits, it is difficult to find an option which would confer rights in the work to a human person . . .”).