Fair Use by Design

Niva Elkin-Koren

ABSTRACT

Each year, the UCLA School of Law hosts the Melville B. Nimmer Memorial Lecture. Since 1986, the lecture series has served as a forum for leading scholars in the fields of copyright and First Amendment law. In recent years, the lecture has been presented by many distinguished scholars. The *UCLA Law Review* has published these lectures and proudly continues that tradition by publishing an Article by this year's presenter, Professor Niva Elkin-Koren.

AUTHOR

Professor, University of Haifa Faculty of Law. Director of the Haifa Center for Law and Technology, Faculty Associate at the Berkman Klein Center for Internet & Society at Harvard University. Thanks to Sharon Bar-Ziv, Bill Colitre, Lital Helman, Neil Netanel, David Nimmer, Gideon Parchomovsky, Maayan Perel and, participants at the Melville Nimmer Memorial lecture at UCLA School of Law, for comments on an earlier draft. Thanks to Matan Goldblatt for research assistance. The study discussed in this paper was supported by the I-CORE Program of the Planning and Budgeting Committee and the Israel Science Foundation (1716/12).

TABLE OF CONTENTS

INTRODUCTION

Fair use is a longstanding legal doctrine that has been the jewel in the crown of American copyright law. Copyright law intends to foster the creation of new works of authorship by securing incentives to authors and, at the same time, ensuring the freedom of current and future authors to use existing works.[1] Fair use serves as a check on copyright, to make sure it does not stifle the very creativity that the law seeks to foster.[2] It is also considered one of the safety valves which allows copyright protection to coexist with freedom of expression. Melville Nimmer, whom this annual lecture commemorates, was a pioneer in acknowledging this potential conflict, and has become a legend of copyright and freedom of speech.[3] Copyright is both an engine of free expression and simultaneously a restriction of such expression, since expression that is protected by copyright cannot be used without permission.[4] Therefore, to protect freedom of speech within copyright law, the fair use doctrine authorizes the court to permit certain unlicensed uses.[5]

Notwithstanding the centrality of fair use for American copyright law, its significance is now in danger. Nowadays, the vast majority of copyrighted materials are distributed digitally, and much of copyright enforcement is performed using algorithms. Fair use as a legal defense against infringement allegations might be largely irrelevant in an era of algorithmic enforcement, because such automated enforcement keeps potential disputes out of courts. The fair use doctrine is likely to remain instrumental for inserting balance into copyright law, and enabling courts to adjust the law to accommodate new

---

1.   *See* Authors Guild, Inc. v. HathiTrust, 755 F.3d 87, 94–95 (2d Cir. 2014) ("[Copyright] is designed rather to stimulate activity and progress in the arts for the intellectual enrichment of the public." (quoting Pierre N. Leval, *Toward a Fair Use Standard*, 103 HARV. L. REV. 1105, 1107 (1990))).

2.   Stewart v. Abend, 495 U.S. 207, 236 (1990) ("[Fair use] permits courts to avoid rigid application of the copyright statute when, on occasion, it would stifle the very creativity which that law is designed to foster." (quoting Iowa State Univ. Research Found., Inc. v. Am. Broad. Cos., 621 F.2d 57, 60 (2d Cir. 1980))).

3.   *See, e.g.*, Melville B. Nimmer, *Does Copyright Abridge the First Amendment Guarantees of Free Speech and Press?*, 17 UCLA L. REV. 1180 (1970).

4.   *See* NEIL WEINSTOCK NETANEL, COPYRIGHT'S PARADOX (2008); Michael D. Birnhack, *Copyright Law and Free Speech After* Eldred v. Ashcroft, 76 S. Cal. L. Rev. 1275 (2003); Rebecca Tushnet, *Copy This Essay: How Fair Use Doctrine Harms Free Speech and How Copying Serves It*, 114 YALE L.J. 535, 565–66 (2004).

5.   *See* Golan v. Holder, 132 S. Ct. 873, 890 (2012) (referring to fair use and the idea/expression dichotomy as the "traditional contours" of copyright law and "built-in First Amendment accommodations" (quoting Eldred v. Ashcroft, 537 U.S. 186, 219, 221 (2003))).

technological changes.[6] Yet, with the rise of robo notices and algorithmic copyright adjudication, fair use is withering.

The future of fair use is of great importance not only in the United States where the doctrine originally evolved, but also in countries such as Israel, which followed the American model and adopted fair use in its law a decade ago.[7] The future of fair use online is also important for internet users around the world—even in countries where fair use was never adopted. This is because American copyright law has become a global standard by virtue of its implementation by the major global online intermediaries, all of which are U.S.-based companies (e.g., Facebook, Twitter, Google, YouTube) that comply with the safe harbor provisions of the U.S. Digital Millennium Copyright Act (the DMCA).[8] Consequently, the withering of fair use in the safe harbor environment may also carry some serious global consequences. A robust copyright enforcement infrastructure without sufficient checks may limit access to noninfringing materials, prevent permissible uses of copyrighted works and, overall, may constrain free speech and access to knowledge.

I've written elsewhere about the new challenges to fair use in the digital environment and the importance of treating fair use as a user's right and not simply an affirmative defense.[9] Here, I argue that the future of fair use should also be algorithmic. In a nutshell, I argue that for fair use to serve its role in the twenty-first century, the checks that it intends to create on the rights of authors must also be embedded in the design of online systems.

Part I begins by briefly describing the rise of algorithmic decision making (ADM) in copyright, where access to copyrighted materials is increasingly governed by algorithms. Part II then explains why this may put fair use and freedom of speech in danger. In Part III, I introduce the notion of fair use by design and explain how this approach can help address some of these

---

6.   *See* Pamela Samuelson, *Justifications for Copyright Limitations and Exceptions*, *in* COPYRIGHT LAW IN AN AGE OF LIMITATIONS AND EXCEPTIONS 12, 48 (Ruth L. Okediji ed., 2017).

7.   Michael Birnhack, *Judicial Snapshots and Fair Use Theory*, 5 QUEEN MARY J. INTELL. PROP. 264 (2015). Based on the legislative history, the purpose of modeling Israeli fair use after the American model was to allow the courts to follow American case law in applying fair use doctrine. Neil Weinstock Netanel, *Israeli Fair Use From an Amerian Perspective*, *in* CREATING RIGHTS: READINGS IN COPYRIGHT LAW (Michael Birnhack & Guy Pessach eds., 2009), *printed in Hebrew*.

8.   *See* Digital Millennium Copyright Act of 1998, Pub. L. No. 105-304, 112 Stat. 2860 (codified as amended at 17 U.S.C. §§ 512, 1201–1205, 1301–1332 and 28 U.S.C. § 4001).

9.   *See, e.g.*, Niva Elkin-Koren, *Copyright in a Digital Ecosystem: A User-Rights Approach*, *in* COPYRIGHT LAW IN AN AGE OF LIMITATIONS AND EXCEPTIONS 132 (Ruth L. Okediji ed., 2017).

threats. Finally, Part IV outlines some of the legal challenges that I anticipate in making this transition to algorithmic adjudication.

I.   THE RISE OF ALGORITHMIC COPYRIGHT ENFORCEMENT: FROM DMCA TO ADM

We live in an era of great contradictions. On the one hand, we have unprecedented access to copyrighted works. We can instantly access an infinite selection of movies on Netflix, browse almost every published book on Google Books and Amazon, and listen to unlimited music on Spotify and YouTube. With the rise of cloud computing and mobile internet, much of our access to books, music, and movies is facilitated by online intermediaries. This holds true not only for commercial content, but also for user-generated content that is hosted, linked, searched for, and connected by online intermediaries. Consequently, much of the access to content that is made available online is shaped by the design, business models, and technological measures exercised by online intermediaries. Facebook, YouTube, Twitter, Google, App Stores, and Internet Service Providers all shape what becomes available, which content can be shared and how, and which will be filtered, blocked or removed.

Online intermediaries not only facilitate access to copyrighted materials, but also play a major role in copyright enforcement. Since the early 1990s, online intermediaries were put under pressure to become gatekeepers against the distribution of infringing materials.[10] The safe harbor provisions of the DMCA were designed to enable copyright holders to effectively remove infringing materials hosted by online intermediaries, while at the same time, to keep online intermediaries free of any liability for copyright infringements committed by their users.[11] The law offers limited immunity for online inter-mediaries, as long as they remove allegedly infringing materials immediately upon receiving a notice from the right holders.[12] This notice and takedown (N&TD) regime was one of the most influential laws, which together with section 230 of the Communications Decency Act enabled online intermediaries

---

10.   Niva Elkin-Koren, *After Twenty Years: Revisiting Copyright Liability of Online Intermediaries*, *in* THE EVOLUTION AND EQUILIBRIUM OF COPYRIGHT IN THE DIGITAL AGE 29, 29 (Susy Frankel & Daniel Gervais eds., 2014) ("Digital networks have led to an 'enforcement failure' in copyright-related industries, turning online intermediaries into key players in enforcement efforts.").

11.   Jennifer M. Urban & Laura Quilter, *Efficient Process or "Chilling Effects"? Takedown Notices Under Section 512 of the Digital Millennium Copyright Act*, 22 SANTA CLARA COMPUTER & HIGH TECH. L.J. 621, 622 (2006).

12.   *See* 17 U.S.C. § 512 (2012).

to facilitate user-generated content without fearing liability.[13] This immunity was without doubt one of the critical factors for the boost of creativity, innovation, and free expression that we have witnessed over the past two decades.[14]

The safe harbor regime generated a large volume of removal requests, resulting in algorithmic implementation of N&TD.[15] Copyright holders developed automated systems to track online infringements and automatically file takedown notifications with online intermediaries.[16] These robo notices are largely outsourced to agencies that specialize in automatically detecting alleged infringements and filing notices.[17] A recent report published by Google in July 2016 claims that in 2015 alone, 558 million notices were filed under the DMCA, requesting the removal of URLs from Google search results.[18]

Faced with this sheer volume of notices, online intermediaries have also adapted their own systems for adjudicating and administrating removal requests, using algorithms to manage the information influx. Some intermediaries even opted beyond N&TD procedures required by law, and voluntarily offer additional measures for right holders.[19] YouTube's Content ID is a classic example.[20] Content ID uses a digital identifying code to notify the right holder whenever a newly uploaded video matches a work that they own.[21]

---

13.   Eric Goldman, *Unregulating Online Harassment*, 87 DENV. U. L. REV. ONLINE 59, 60 (2010) (arguing that immunity under § 230 played a major role in the rise of social media platforms and user generated content).

14.   *See* Yochai Benkler, *Degrees of Freedom, Dimensions of Power*, 145 DÆDALUS 18, 19–20 (2016) (describing the boost of creativity, innovation and free expression in distributed networks).

15.   *See* Maayan Perel & Niva Elkin-Koren, *Accountability in Algorithmic Copyright Enforcement*, 20 STAN. TECH. L. REV. 473 (2016).

16.   Joe Karaganis & Jennifer Urban, *The Rise of the Robo Notice*, 58 COMM. ACM 28, (2015) (describing the adoption of automated notice-sending systems by rights holders).

17.   *See* JENNIFER URBAN ET AL., NOTICE AND TAKEDOWN IN EVERYDAY PRACTICE 84 & figs. 1 & 2 (2016) (reporting the findings of a study where around 92 percent of the removal requests were filed by agents, approximately 44 percent of them being copyright enforcement organizations). Under Section 512 of the DMCA, removal requests must be filed by the copyright owner or any person authorized to act on their behalf. 17 U.S.C. § 512. Similar findings were found in a study applying the same methodology in Israel. *See* Sharon Bar-Ziv & Niva Elkin-Koren, *Behind the Scenes of Online Copyright Enforcement: Empirical Evidence on Notice & Takedown*, 50 CONN. L. REV. (forthcoming 2017) (manuscript at 17 & fig.6) (on file with authors) (finding that about 82 percent of the removal requests were filed through rights enforcement service agents).

18.   GOOGLE, HOW GOOGLE FIGHTS PIRACY 19 (2016), https://drive.google.com/file /d/0BwxyRPFduTN2TmpGajJ6TnRLaDA/view [https://perma.cc/E3A8-SVRJ].

19.   Annemarie Bridy, *Copyright's Digital Deputies: DMCA-Plus Enforcement by Internet Intermediaries*, *in* RESEARCH HANDBOOK ON ELECTRONIC COMMERCE LAW 185 (John A. Rothchild ed., 2016).

20.   *See, e.g.*, *How Content ID Works*, YOUTUBE, https://support.google.com/youtube/answer /2797370?hl=en [https://perma.cc/RQS7-PUBM].

21.   *Id.*

Right holders can then choose to block or remove the content, share information, or monetize the content.[22] Voluntary measures may also include filtering the content before it is even uploaded, or takedown and stay down procedure, which may involve an active search to make sure the content is not reuploaded.[23]

The rise in algorithmic management of copyrighted materials has created new business opportunities for authors, by facilitating transactions with unauthorized users. At the same time, however, it presents new challenges for access to knowledge and free speech. The N&TD procedure, which was designed to offer a quick solution for copyright holders to prevent viral distribution of infringing materials, has become robust.[24] The unequivocal power of right holders to request removal, combined with the strong incentives of online intermediaries to remove content upon notice, transforms the safe harbor into practically a clean up mechanism for removal of any unwarranted content.[25]

II.   CAN FAIR USE LAST BEHIND A VEIL OF CODE?

The rise of the algorithmic N&TD regime means that much of copyright adjudication is now implemented behind a veil of code. In a recent study conducted in Israel, we systematically analyzed and coded removal requests to uncover what is hiding behind these algorithmic scenes. The dataset included a random sample of 10,000 removal requests that were sent to Google over a period of six months, regarding allegedly infringing materials residing in .il domains.[26]

One of the striking findings of this study was that the N&TD procedure was used to remove materials that do not infringe copyright and do not even raise any copyright issues. In fact, only 34 percent of the removal requests in the study involved copyright allegations.[27] The remaining 66 percent involved attempts to remove materials that were claimed to be inaccurate, defamatory, or misleading. These notices involved claims resembling the emerging "right to be forgotten."[28]

---

22.   *Id.*
23.   Bridy, *supra* note 19, at 195–200 nn.88–125 and accompanying text.
24.   *See* Daniel Seng, "Who Watches the Watchmen?" An Empirical Analysis of Errors in DMCA Takedown Notices (Oct. 21, 2015) (unpublished manuscript at 32), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2563202.
25.   *See* John Tehranian, *The New ©ensorship*, 101 IOWA L. REV. 245 (2015); *see also* Matthew Sag, *Internet Safe Harbors and the Transformation of Copyright Law*, 93 NOTRE DAME L. REV (forthcoming 2017), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2830184.
26.   Bar-Ziv & Elkin-Koren, *supra* note 17, at 4.
27.   *Id.* at 14.
28.   *Id.* ("This right . . . enables EU citizens and residents to request search engines to remove links in the search results to webpages that are linked to a search of their names.").

The right to be forgotten is a right to be delisted under the European Data Protection Directive.[29] This right was recently recognized by the European Court of Justice,[30] but has not yet been recognized in either Israel or the United States.[31]

Another surprising finding is that about 65 percent of the removal requests originated from a single entity—which filed approximately 6500 removal requests with Google.[32] These findings are not unique to Israel, but are consistent with the findings of another large scope study conducted in the United States by Jennifer Urban, Joe Karaganis, and Brianna Schofield using a similar methodology.[33] The study identified a single private entity that was responsible for 53 percent of all Image Search Requests, all of which appeared to be related to "improper subject matter" claims.[34]

These findings suggest that the N&TD algorithmic regime, which is neither overseen by the public nor by any judicial entity, is extremely vulnerable to misuse. This may have far-reaching implications for free flow of information, freedom of speech, and for achieving the balance between proprietary rights and access under copyright law.

How did the shift in copyright to algorithmic enforcement affect fair use? It is very difficult to systematically measure the impact on fair use. Indeed, the study by Jennifer Urban et al., found that one in fourteen (7.3 percent) takedown requests raised potential fair use defenses.[35] Yet the overall consequences of algorithmic enforcement for fair use are difficult to measure. The

---

29.   *Id. See* of the European Parliament and of the Council of 27 April 2016 on the Protection of Natural Persons With Regard to the Processing of Personal Data and on the Free Movement of Such Data, and Repealing Directive 95/46/EC, 2016 O.J. (L 119) 1, chapter III, section 3, Article 17. In 2014, the European Court of Justice held that search engine operators are responsible for the processing of personal data that appears on web pages published by third parties and are therefore obliged to "delist" any material that is inadequate, irrelevant, no longer relevant, or excessive in relation to those purposes and in the light of the time that has elapsed, as balanced against the public's right to the information. *See* Case C-131/12, Google Spain SL v. Agencia Española de Protección de Datos, 2014 E.C.R. 317. Recently the European Union has recognized a "right of individuals to have their data no longer processed and deleted when they are no longer needed for legitimate purposes" in its General Data Protection Regulation. *See Communication From the Commission to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions: A Comprehensive Approach on Personal Data Protection in the European Union*, at 8, COM (2010) 609 final (Nov. 4, 2010).
30.   Eldar Haber, *Privatization of the Judiciary*, 40 SEATTLE U. L. REV. 115, 122–29 (2016).
31.   *See* Hon. M. Margaret McKeown, *Censorship in the Guise of Authorship: Harmonizing Copyright and the First Amendment*, 15 CHI.-KENT J. INTELL. PROP. 1, 7–8 (2015).
32.   Bar-Ziv & Elkin-Koren, *supra* note 17, at 15.
33.   URBAN ET AL., *supra* note 17.
34.   *Id.* at 103 & tbl.3, 106.
35.   *Id.* at 95.

main reason is that it is impossible to measure works and uses that are completely absent, as they are filtered out before they can be uploaded.

At the same time, however, there are plenty of anecdotes of removals and blocking that can demonstrate the growing threat to fair use in the current online enforcement environment. One example is the famous dancing baby of the Lenz family.[36] In 2007, the mother, Stephanie Lenz, uploaded a twenty-nine-second home video to YouTube in which her two toddlers are seen dancing in the family's kitchen to the song "Let's Go Crazy" by Prince. Universal Music requested the removal of this video in a takedown notice sent to YouTube. YouTube removed the video, and eventually put it back, after receiving two counter notifications from Lenz.[37] The baby Lenz video has been "dancing" in and out of court for over a decade now, and the case may be deliberated by the Supreme Court during the coming term.

A more recent example of apparent fair use removal is the copyright notices filed by Samsung in order to block parodies. In this case, gamers made modifications to the video game *Grand Theft Auto V*, where sticky bombs were replaced with exploding Samsung Galaxy Note 7 devices.[38]

Other examples concern educational use, such as a lecture on copyright law by Harvard law professor William Fisher, which was taken down following a copyright claim by Sony Music.[39] This was a twenty-four-minute lecture, which was intended for nonprofit distance learning.[40] It includes about forty-five seconds of a song, and then another fifteen seconds of a cover version of that same song, inserted for instructional purposes.[41]

Many other examples are related to politics. One example is the takedown of the controversial movie *Innocence of the Muslims* which sparked violent protests across the Middle East, following a court order by the Ninth Circuit in the case of *Garcia v. Google, Inc.*[42] Here the plaintiff, an actress who played in the film, asked

---

36.   *See* Lenz v. Universal Music Corp., 801 F.3d 1126 (9th Cir. 2015), *amended by* 815 F.3d 1145 (9th Cir. 2016), *cert. denied*, 137 S. Ct. 416 (2016).

37.   *Id.* at 1130.

38.   *See* James Titcomb, *Samsung Attempts to Take Down Parody Note 7 Bomb GTA Videos*, TELEGRAPH (Oct. 21, 2016, 9:21 AM), http://www.telegraph.co.uk/technology/2016/10/21 /samsung-attempts-to-take-down-parody-gta-videos-with-note-7-bomb [https://perma.cc/2YGF-NCH3].

39.   *See* Mike Masnick, *Sony Music Issues Takedown on Copyright Lecture About Music Copyrights by Harvard Law Professor*, TECHDIRT (Feb. 16, 2016, 9:21 AM), https://www.techdirt.com /articles/20160214/08293233599/sony-music-issues-takedown-copyright-lecture-about -music-copyrights-harvard-law-professor.shtml [https://perma.cc/AT89-FF26].

40.   *See id.*

41.   *See id.*

42.   Garcia v. Google, Inc., 766 F.3d 929 (9th Cir. 2014), *rev'd en banc*, 786 F.3d 733 (9th Cir. 2015).

the court to order removal of the film from YouTube claiming copyright infringement. This order was later reversed by the same court.[43] Indeed, the Garcia case is not illustrative of algorithmic enforcement since it has been the subject of extensive litigation, nevertheless, it demonstrates the way in which copyright law could be used to invoke censorship and how the notice and takedown regime could be applied to promote it.

Another seriously troubling request was filed by the U.S. Department of Homeland Security and was presumably related to one of President Obama's speeches.[44]

The rise of algorithmic enforcement raises a new type of challenge: ensuring that algorithmic governance serves copyright goals, maintains delicate copyright balances, and complies with the rule of law.

III.   STATUTORY SAFEGUARDS

The DMCA anticipated potential abuse of the extrajudicial and unaccountable removal power rendered under the statute, and therefore included several safeguards. One such mechanism is a counter notice, which allows a user to contest the removal request.[45] A counter notice must include the following: (A) a physical or electronic signature; (B) identification of the material removed and its former location; (C) statement under penalty of perjury that the user believes in good faith that the material was mistakenly removed; (D) the user's name, address, and phone number; and consent to the jurisdiction of the Federal District Court.[46] After a notice is challenged by the user, the online intermediary might be required to reinstate the materials, if the right holder fails to notify the intermediary of the lawsuit within ten to fourteen days after filing.[47]

---

43.   Initially, the Ninth Circuit issued a takedown order, requiring Google to remove all copies of the film, and later on reheard the case en banc, dissolving the injunction and affirming the decision of the district court. Garcia v. Google, Inc., 786 F.3d 733 (9th Cir. 2015) (en banc), *rev'g* 766 F.3d 929. For further discussion of this decision and its implications see McKeown, *supra* note 31.

44.   *See* Mike Masnick, *Homeland Security Issuing Its Own DMCA Takedowns on YouTube to Stifle Speech*, TECHDIRT (Aug. 1, 2012, 10:06 AM), https://www.techdirt.com/articles/20120720 /02530219774/homeland-security-issuing-its-own-dmca-takedowns-youtube-to-stifle -speech.shtml [https://perma.cc/8DMA-JVTN].

45.   *See* 17 U.S.C. § 512(g)(2)–(3) (2012).

46.   *Id.* § 512(g)(3).

47.   *Id.* § 512(g)(2). If after ten to fourteen days, the complainant does not notify the webhost that it has filed a lawsuit, then the webhost must reinstate the contested material. Otherwise the webhost risks losing its safe harbor and it may be found liable for the damages suffered by users whose content had been unlawfully restricted. *Id.* § 512(g)(3).

In practice, however, this procedure is rarely used.[48] In the case of search engines there is no duty to notify the targeted user about the removal.[49] If you don't know that a link to your content was removed, how would you ever contest the decision? Also, the procedures are far too complicated for the ordinary user, who often lacks the legal expertise necessary to address them.[50]

Filing a counter notice might also be risky. One potential risk for users is disclosure of their personal data. YouTube, for instance, warns users that their personal data will be forwarded to right holders. Several right holders have indeed released personal data in their possession to the public.

Moreover, a counter notice that is found to be misrepresentative might be subject to damages. The claimant is required by law to form a good-faith belief that the targeted use was not "authorized by the copyright owner, its agent, or the law."[51] Any party who files a notice without such good-faith belief might be liable for damages.[52] This provision applies both to users filing a counter notice and to right holders who file takedown notices.[53]

The scope of this provision was recently addressed by the Ninth Circuit in *Lenz v. Universal Music Corp.*[54] The court held that fair use is not simply an affirmative defense, but it is actually a "use authorized by law"—and therefore right holders must consider whether potentially infringing material is fair use before issuing a takedown notice.[55]

The court was divided on which standard of good-faith belief applies to the right holder. The majority held that good-faith belief standards are subjective, but the majority also held that simply paying "lip service to the consideration of fair use by claiming it formed a good faith belief when there is evidence to

---

48.   URBAN ET AL., *supra* note 17, at 95.
49.   Search engines are not required to notify the alleged infringer of removal because they are not expected to have any service relationship with the alleged infringer. *See* 17 U.S.C. § 512(d); Urban & Quilter, *supra* note 11, at 626.
50.   Bar-Ziv & Elkin-Koren, *supra* note 17, at 18.
51.   17 U.S.C. § 512 (c)(3)(v).
52.   *Id.* § 512(f).
53.   *See id.* ("Any person who knowingly materially misrepresents under this section . . . shall be liable for any damages . . . .").
54.   Lenz v. Universal Music Corp., 815 F.3d 1145, 1153 (9th Cir. 2016), *cert. denied*, 137 S. Ct. 416 (2016). The court explained:
      [W]e hold—for the purposes of the DMCA—fair use is uniquely situated in copyright law so as to be treated differently than traditional affirmative defenses. We conclude that because 17 U.S.C. § 107 created a type of non-infringing use, fair use is "authorized by the law" and a copyright holder must consider the existence of fair use before sending a takedown notification under § 512(c).
      Id.
55.   *Id.* at 1158 (Smith, J., concurring in part and dissenting in part).

the contrary is still subject to § 512(f) liability."[56] The dissent thought that good-faith belief requires consideration of the four factors of fair use, and failing to consider these factors might be sufficient to establish liability for damages.[57]

Both the majority and dissent opinions overlook the challenges involved in constructing a judicial review for the algorithmic enforcement arena. The statutory framework of the DMCA is no longer sufficient to guard against misuse in the new era of algorithmic enforcement. Algorithmic copyright enforcement has tilted the balance of copyright law. It has changed copyright default: if copyrighted materials were once available unless proven to be infringing, today materials that are detected by algorithms are removed from public circulation unless explicitly authorized by the right holder.

Algorithmic enforcement lacks effective oversight measures and substantive checks. The challenge involved in reviewing a mass volume of content, and applying legal analysis prior to executing removals, calls for a different approach. The legal duty set by the Ninth Circuit in the *Lenz* decision, to consider fair use prior to filing a notice, may help tilt copyright balance back to its origins. Yet, if such duty must be implemented on a case-by-case basis by thousands of click workers, it may render the N&TD procedure impractical. To turn this duty into an effective safeguard against abuse and make this process feasible, fair use considerations must be embedded in the system design. In other words, robo notices and automated removals can only be addressed by automated fair use.

IV.   FAIR USE BY DESIGN

Law by design is not a new concept. Legal scholars led by Joel Reidenberg[58] and Lawrence Lessig,[59] developed the legal jurisprudence of Code as Law during the 1990s. Reidenberg, introduced the concept of Lex Informatica, technological standards that offer technological solutions for information policy challenges,[60] and Lawrence Lessig, coined the term "code is law" to de-

---

56.   *Id.* at 1154 (majority opinion). Consequently, even an unreasonable belief such as a belief formed without consideration of the statutory fair use factors, will not subject the sender of a takedown notice to liability under section 512(f) of the DMCA.

57.   Appeals were recently filed with the Supreme Court, one of which is currently under review.

58.   *See* Joel R. Reidenberg, *Lex Informatica: The Formulation of Information Policy Rules Through Technology*, 76 TEX. L. REV. 553 (1998).

59.   *See* LAWRENCE LESSIG, CODE: VERSION 2.0 (2d ed. 2006).

60.   *See* Reidenberg, *supra* note 58, at 558–60, 562 (discussing the Platform for Internet Content Selection that *was* designed to accommodate different standards for content without compromising free speech, as well as technological measures for anonymizing users' data).

scribe how algorithms substitute for law in regulating certain behaviors in cyber-space.[61]

In other fields, scholars such as Helen Nissenbaum[62] and Batya Friedman[63] called for incorporating values into the architecture of any device from ground up. Privacy by design is a classic example that was adopted by the Information and Privacy Commissioner of Ontario, Canada[64] and has now become the legal standard in the new data protection reform of the European Union, scheduled to come into effect in 2018.[65]

Can we envision fair use by design in a similar way? The fair use doctrine, as codified in section 107 of the Copyright Act of 1976, requires courts to consider four factors when determining whether certain use of a copyrighted work is permissible without a license. The open-ended nature of the fair use doctrine gives courts the discretion to accommodate the doctrine to the needs and challenges of a rapidly changing world.

Section 107 provides:

> Notwithstanding the provisions of sections 106 and 106A, the fair use of a copyrighted work, including such use by reproduction in copies or phonorecords or by any other means specified by that section, for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research, is not an infringement of copyright. In determining whether the use made of a work in any particular case is a fair use the factors to be considered shall include—

---

61.   *See* LESSIG, *supra* note 59.
62.   *See* Helen Nissenbaum, *From Preemption to Circumvention: If Technology Regulates, Why Do We Need Regulation (and Vice Versa)?*, 26 BERKELEY TECH. L.J 1367 (2011) (arguing that artifacts embody political and ethical values and discussing the limits of regulation by design); Helen Nissenbaum, *How Computer Systems Embody Values*, COMPUTER, Mar. 2001, at 120 (arguing that the moral properties of systems, such as bias, anonymity, privacy, and security must be attended by engineers who are developing computer systems).
63.   *See* Batya Friedman & Helen Nissenbaum, *Bias in Computer Systems*, 14 ACM TRANSACTIONS ON INFO. SYSS. 330 (1996).
64.   *See Privacy by Design*, INFO. & PRIVACY COMMISSIONER ONT., https://www.ipc.on.ca/privacy/protecting-personal-information/privacy-by-design [https://perma.cc/9YZE-A7PS].
65.   Commission Regulation 2016/679, of the European Parliament and of the Council of 27 April 2016 on the Protection of Natural Persons With Regard to the Processing of Personal Data and on the Free Movement of Such Data, and Repealing Directive 95/46/EC, 2016 O.J. (L 119) 1. Article 25 requires the data controller to implement appropriate technical and organizational measures, while determining the means for processing and at the time of processing itself, in order to ensure compliance with data protection principles. *Id.* at 48.

(1) the purpose and character of the use, including whether such
     use is of a commercial nature or is for nonprofit educational
     purposes;

(2) the nature of the copyrighted work;

(3) the amount and substantiality of the portion used in relation
     to the copyrighted work as a whole; and

(4) the effect of the use upon the potential market for or value of
     the copyrighted work.[66]

Programing these factors into an automated process would require translating fair use considerations into a set of instructions that can be executed on certain data sources, and writing them in programing language that is readable by computers. The process may further involve translating each of the four factors into legal specifications or rules, assigning weights to each, and analyzing the relationship between the different factors based on the case law.

Skeptics believe that fair use analysis cannot be automated. One concern is that it involves a high degree of complexity, which requires discretion while weighing each of the four factors in light of the purpose of copyright law.[67] This concern echoes similar debates regarding feasibility of securing fair use in digital right management (DRM) systems at the turn of the century. For instance, when discussing DRM systems, Professors Burk and Cohen stress: "Building the range of possible uses and outcomes into computer code would require both a bewildering degree of complexity and an impossible level of prescience. There is currently no good algorithm that is capable of producing such an analysis."[68]

Another concern is that algorithms that analyze fair use will fail to process information that is external to the content itself. For instance, determining the nature of use may require external information and additional analysis of facts. Yet, algorithms could be programmed to extract and analyze data from external sources. For instance, educational use might be determined based on tagging the

---

66. 17 U.S.C. § 107 (2012).
67. *See, e.g.*, Mark A. Lemley, *Rationalizing Internet Safe Harbors*, 6 J. ON TELECOMM. & HIGH
    TECH. L. 101, 110–11 (2007). Lemley argues that:

    > Image-parsing software may someday be able to identify pictures or videos that are
    > similar to individual copyrighted works, but they will never be able to determine
    > whether those pictures are fair uses, or whether they are legitimate copies or displays
    > made under one of the many statutory exceptions, or whether the individual pictured
    > is 16 rather than 18 years of age.

    Id.
68. Dan L. Burk & Julie E. Cohen, *Fair Use Infrastructure for Rights Management Systems*, 15 HARV.
    J.L. & TECH. 41, 56 (2001); *see also* Edward W. Felten, *A Skeptical View of DRM and Fair Use*,
    COMM. ACM, Apr. 2003, at 57, 58.

nature of the user. A program could detect the type of user (e.g., educational institution, governmental agency) based on the domain name (e.g., .edu, .gov) or by checking registration in external databases. Another indication for the nature of use could be the type of tagging selected by the party that uploads the work (educational, commercial, personal/private use). The commercial nature of use might actually be determined by the presence of advertisements, or other means of monetizing the content. External information might also be used to determine "the effect of the use upon the potential market" for the copyrighted work, using the commercial nature of use as a proxy.[69]

Some fair use considerations might be relatively easy to automate, such as the amount copied from the original work. For instance, a program could give a higher fair use score based on similarity of less than 10 percent. Basically, it might be easier to automate decision-making processes that use similar pre-established facts as inputs. The concern here is that embedding a certain interpretation of fair use in the code would promote a rather rigid application of the doctrine.[70]

But how would automated systems determine factors which involve the exercise of judgment, such as whether the allegedly infringing work makes a transformative use of the original work? Arguably, certain aspects of transformative use might also be determined by discrepancies between the purpose of the original work and the allegedly infringing work. Yet, such technical analysis may not fully capture the nuances of fair use legal analysis.

In general, algorithmic fair use translates the law into procedures written in computer language. It is necessary to make sure that the algorithmic imple-mentation, which aims to distinguish between infringing use and fair use, indeed complies with copyright law. The main concern is that reducing the four-factor analysis into a simplistic and somewhat rigid set of algorithmic instructions might cause some important aspects of fair use analysis to get lost along the way.

Overall, these concerns regarding the limitations of algorithmic fair use overlook recent developments in Artificial Intelligence (AI) and machine learning capabilities. AI has already been applied in very sophisticated contexts: physicians use algorithms to guide their diagnoses; banks use them to decide when to approve a loan; security agencies use AI to identify risks; lawyers use them to perform due diligence;[71] and even courts rely on algorithms for sen-

---

69. 17 U.S.C. § 107.
70. Similar claims were raised against the use of guidelines for fair use. *See, e.g.*, Kenneth D. Crews, *The Law of Fair Use and the Illusion of Fair-Use Guidelines*, 62 OHIO ST. L.J. 599 (2001).
71. *See, e.g.*, *How Kira Works*, KIRA, https://kirasystems.com/how-it-works [https://perma.cc/698K -B2PY].

tencing, by scoring the risk of the offender committing future crimes.[72] AI has already been applied for decision-making processes in contexts that are far more complex than fair use, involving critical issues of life and death, health, financial risks, and national security.

As it may be difficult to explicitly program fair use, machine learning and AI might offer a better solution. Like many other AI systems, fair use by design would face a classification challenge. It will be designed to differentiate between two categories: *infringing materials* and *fair use*. AI and machine-learning capabilities could enable algorithms to learn patterns of fair use instances by studying existing fair use decisions. Such training could be supervised using parameters and clusters identified by scholars in major fair use studies conducted, for example, by Barton Bebee,[73] Neil Netanel,[74] Pamela Samuelson,[75] and Matthew Sag.[76]

Another option is *unsupervised training* of the algorithm, allowing it to discover clusters based on input from previously litigated fair use cases. Machine learning capabilities could ensure that the system is up to date—because the classifications applied by the algorithm are constantly refined based on new fair use rulings.

Such procedures are not conclusive of course, but they could definitely raise a flag. But that is the case with the robo notice systems as well. These systems

---

72. Julia Angwin et al., *Machine Bias*, PROPUBLICA (May 23, 2016), https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing [https://perma.cc/LEA9-WKLC].

73. *See* Barton Beebe, *An Empirical Study of U.S. Copyright Fair Use Opinions, 1978–2005*, 156 U. PA. L. REV. 549 (2008). This article presents the results of an empirical study of over 300 reported cases decided between 1978 and 2005 and concludes that the first and fourth factors (i.e., *the purpose and character of the use* and *the effect of the use upon the potential market for or value of the copyrighted work*) are the most important factors in fair use analysis, with almost perfect correlation between judicial findings on the fourth factor and fair use case outcomes. *Id.* at 582–86.

74. *See* Neil Weinstock Netanel, *Making Sense of Fair Use*, 15 LEWIS & CLARK L. REV. 715 (2011) (presenting an empirical analysis of cases decided between 1978–2010, showing a shift in fair use doctrine from the market-centered paradigm towards the transformative paradigm).

75. *See* Pamela Samuelson, *Unbundling Fair Uses*, 77 FORDHAM L. REV. 2537, 2357 (2009) (identifying "policy-relevant clusters" based on specific types of uses, which make it possible to predict whether a use is likely to be considered fair by the court). These policy-relevant clusters include free speech and expression fair uses, authorship-promoting fair uses, uses that promote learning, foreseeable uses of copyrighted works beyond the six statutorily favored purposes, uses in litigation and for other government purposes, and uses in advertising. *Id.*

76. *See* Matthew Sag, *Predicting Fair Use*, 73 OHIO ST. L.J. 47 (2012) (coding more than 280 fair use cases decided in U.S. federal district courts between 1978–2011, and measuring the statistical correlation between fair use outcomes and a variety of factual patterns, which are not typically identified by courts). Findings show, for instance, that plaintiff's legal personality (but not defendant's legal personality) has statistically significant correlation with fair use outcome, so defendants have a greater chance of prevailing on fair use if the plaintiff is a natural person and a lesser chance of prevailing if the plaintiff is a corporation. *Id.* at 65–68.

apply algorithmic implementation of flexible legal standards—"substantial similarity"—and in many cases get it wrong. In this sense, algorithmic fair use could introduce a partial fix.

Some cases will require further analysis. Algorithmic fair use could therefore involve a two-tier review. First, algorithmic screening would be performed and second, for cases which were flagged by the system, but were inconclusive, human review would be conducted.

The biggest challenge for the law is to determine when is it legal to rely on fair use classification that is generated by AI systems. Is this sufficient to form a good-faith belief under the DMCA?

In the original text of the *Lenz* decision, the Ninth Circuit implied that fair use consideration might be implemented by algorithms.[77] The court also envisioned a two-tier system, involving algorithmic classification and human review.[78] Interestingly enough, this language (from the original opinion) was later omitted from the amended decision published in March 2016.[79]

Applying AI and machine learning for detecting fair use raises a whole new set of legal challenges. AI systems do not simply translate fair use considerations into computer language. They search for patterns, regularities and probabilities. In most cases the process is nontransparent, and in other cases it is not even fully controlled or predictable by the programmers. Yet, we may want to allow the use of systems, which are capable of reliably identifying a high percentage of fair use instances.

The need to address the sheer volume of copyright disputes requires a new approach to fair use that involves rethinking the role of legal oversight in algorithmic adjudication. Legal oversight should scrutinize whether the algorithmic implementation of fair use analysis is reasonable. Rather than making substantive determinations on a case-by-case basis, the courts will be called to

---

77.   *See* Lenz v. Universal Music Corp., 801 F.3d 1126, 1135 (9th Cir. 2015), *amended by* 815 F.3d 1145 (9th Cir. 2016), *cert. denied*, 137 S. Ct. 416 (2016). The court noted:

> For example, consideration of fair use may be sufficient if copyright holders utilize computer programs that automatically identify for takedown notifications content where: "(1) the video track matches the video track of a copyrighted work submitted by a content owner; (2) the audio track matches the audio track of that same copyrighted work; and (3) nearly the entirety . . . is comprised of a single copyrighted work."

> *Id.* (quoting Brief of Amici Curiae the Organization for Transformative Works, Public Knowledge, and International Documentary Ass'n in Support of Appellee and Cross-Appellant Stephanie Lenz at 29 n.8, *Lenz*, 801 F.3d 1126 (No. 13-16106), 2013 WL 6729321, at *29 n.8).

78.   *See id.* at 1135–36. Human review could be employed for the "minimal remaining content a computer program does not cull." *Id.* at 1136.

79.   *See* Lenz v. Universal Music Corp., 815 F.3d 1145 (9th Cir. 2016), *cert. denied*, 137 S. Ct. 416 (2016).

examine the validity of relying on a particular algorithm for considering fair use. A reasonable implementation of fair use could be sufficient to establish that a right holder has formed a good-faith belief, even if the court subsequently concludes that a particular use was fair. AI and machine learning would make it difficult for courts to check the rules embedded in the system, since these systems may not explicitly demonstrate the legal specifications of the four factors of fair use. Therefore, the courts will have to develop alternative measures to confirm that a system complies with the law. These may include determining acceptable error rates when testing the outcome of such a system compared to determination by the court, or defining the circumstances that require additional human review.

Notably, AI systems do not decide fair use, but simply generate a score that reflects the probability of fair use. It remains to be decided by courts which minimum score is needed to reasonably establish a good-faith belief that there was no fair use in question, and that therefore the use is not authorized by law.[80] It is also undecided which score indicates evidence to the contrary. In this context, copyright law is not alone. The legal system faces similar challenges in other areas too, for instance whether a high score generated by a predictive-policing algorithm constitutes reasonable suspicion or probable cause.[81]

Legal oversight of AI fair use systems may further require the court to articulate some principles of an adequate fair use analysis.[82] Rather than applying a case-by-case analysis, to determine whether fair use exists in any particular case, courts will be asked to consider whether fair use determination was reasonably applied by the AI system. Courts may conclude that a fair use consideration was properly made, without engaging in fair use analysis of a particular case at hand. In shifting from a case-by-case analysis (ex-post) to a legal scrutiny of the AI system (e.g., procedures, measures, error rate) (ex-ante), algorithmic fair use may transform legal analysis. It may facilitate a more predictable legal regime, where courts develop some preruling procedures to allow right holders to mitigate their risk.

---

80. For instance, if there is near a 100 percent probability of fair use, there is no doubt that no notice should be filed. If there is zero percent chance it is fair use, then a notice could be issued. But what if there is 34 percent or 69 percent probability of fair use? At what point it is no longer considered good-faith belief that the materials are not fair use and therefore could be legitimately removed? Right holders, using such systems, will have to decide how to rely on such scores when making their choices. Courts will have to decide which standard to apply.

81. *See* Jane Bambauer, *Hassle*, 113 MICH. L. REV. 461 (2015) (discussing the difficulties arising from applying actuarial methods in criminal law).

82. *See* Niva Elkin-Koren & Orit Fischman-Afori, *Rulifying Fair Use*, 59 ARIZ. L. REV. 161 (2017) (arguing that the open-ended nature of fair use should not be viewed as preventing courts from specifying the abstract fair use principles into guiding rules).

Conclusion

Fair use by design has become a necessity in an era of algorithmic governance. The need to develop such tools is necessary in order to tilt the copyright balance back to its origin in our robo notice environment.

Fair use by design may also carry some additional benefits. If algorithms become a legitimate measure for identifying noninfringing use, such measures might be applicable in other contexts as well.

Algorithmic fair use could offer a workable solution for a growing number of circumstances that involve a large volume of content in which the costs of determining fair use on a case-by-case basis, and the risk of mistakenly determining fair use, are simply too high. That is the case, for instance, in educational institutions which make large quantities of teaching materials available for educational purposes using e-reserve systems.[83]

Creating a workable solution for applying fair use may mitigate the chilling effect that arises from the unpredictability of fair use. The high cost and high risk involved in fair use implementation prevents users from taking advantage of productive uses that can foster copyright goals, simply because they fear liability.

Also, as we have seen in the *Lenz* case, applying case-by-case fair use analysis to a large volume of content may prevent right holders from taking advantage of the N&TD procedure to protect their rights online.

Developing reasonable standards in fair use algorithmic implementation could help mitigate the risk involved in applying fair use in practice. This practical solution will not compromise the flexibility and the discretion that are accorded to the courts in fair use adjudication. Machine learning capabilities will ensure that the system incorporates new rulings.

Algorithmic fair use would enable us to take fair use into the twenty-first century and allow fair use to fulfill its intended balancing role in an era of algorithmic governance.

But fair use by design is not simply a technical patch that requires certain engineering effort. It also requires certain legal innovation. We must develop a new framework for addressing algorithmic governance that involves rethinking the role of courts and of judicial oversight. This is not simply a task for programmers and engineers, but actually one of the greatest challenges facing lawyers and legal scholars in the coming years.

---

83.   *See id.* at 3–4.