

PERFECT ENFORCEMENT & FILTERING TECHNOLOGY

I. INTRODUCTION

Congress has faced mounting pressure to reform the Digital Millennium Copyright Act (DMCA). One prevalent complaint surrounds the inefficiency of the enforcement process for online copyrighted material. These charges allege that copyright holders must engage in a Sisyphean “whack-a-mole” process in a futile attempt to protect their legal rights.¹ As a result, media platforms have begun to use filtering technologies to allow copyright holders to identify copyright infringing works and automatically “block, monetize, or monitor” matching online media also infringing their copyright.² In response, Open Internet activists have raised the specter of overbroad, indiscriminating computer programs stifling free expression and legitimate fair use.³

Of primary interest is the proposed filtering technology’s perfect enforcement implications and its legal treatment. The utilization of perfect enforcement technology for copyright sits at the forefront of a new wave of “smart” enforcement operations enabled by emerging machine learning technologies. Below, I seek to assess filtering technology’s perfect enforcement ramifications for copyright law.

What is perfect enforcement? Perfect enforcement reflects the idea that the law will be upheld with perfect accuracy every time. Perfect enforcement is often contemporaneous and non-negotiable. In the context of the DMCA debate, the filtering technology presents a form of perfect enforcement. Advocates for the technology envision such a regime ensuring that “takedown notice do[es] not allow the same content to reappear within a day.”⁴ In order to make this possible, the technology needs to “catch” every instance of attempted reposting or redistribution of the infringing material. The problem with this concept, as will be explored, is that the

¹ Stephen Carlisle, *DMCA “Takedown” Notices: Why “Takedown” Should Become “Take Down and Stay Down” and Why It’s Good for Everyone*, NOVA SOUTHEASTERN UNIV. (Jul. 23, 2014) <http://copyright.nova.edu/dmca-takedown-notices>.

² Elliot Harmon, *“Notice-And-Stay-Down” Is Really “Filter-Everything”*, ELECTRONIC FRONTIER FOUND. (Jan. 21, 2016), <https://www.eff.org/deeplinks/2016/01/notice-and-stay-down-really-filter-everything>.

³ See e.g., Timothy Geigner, *Notice & Staydown In Action: HBO Didn’t Even Need To Send Takedown Over Autistic Teen’s Artwork*, TECHDIRT (Dec. 16, 2016), <https://www.techdirt.com/articles/20161215/10462936288/notice-staydown-action-hbo-didnt-even-need-to-send-takedown-over-autistic-teens-artwork> (“Legitimate, non-infringing uses get caught up in the blanket takedowns issued by service providers that don’t really have a clue as to what they’re doing.”)

⁴ Comments of The Directors Guild of America, *Section 512 Study* (2016) at 8.

perfect enforcement technology runs into legal problems weighing against its deployment for preventative copyright enforcement.

A. *Perfect Enforcement Literature*

Legal scholars have debated whether the legal progress towards the utilization of perfect enforcement technologies constitutes a positive step forward. One camp of academics lauds perfect enforcement as a harbinger of justice.⁵ In response, many legal scholars highlight the drawbacks of perfect enforcement technologies, including “downside vision,”⁶ insufficient nuance,⁷ limitations of political expression,⁸ and societal efficiencies obtained through imperfect enforcement.⁹

B. *Perfect Enforcement Filtering Technology*

Below, I briefly expand upon the filtering technology in question. An effective implementation of the filtering technology provides the ability to detect infringing copyright material. These technologies detect infringement through methods such as the type of web traffic, the type of content, or the end user’s device.¹⁰ Many filtering companies such as Gracenote, Advestigo, Auditudo, Vobile, and Attributor offer the capacity to scan the entire Internet for the presence of infringing copyrighted materials.¹¹ Other filtering technologies are website-specific. For example, Audible Magic’s Copysense Content ID Technology represents the type of

⁵ See e.g. ACKERMAN, BRUCE A. *SOCIAL JUSTICE IN THE LIBERAL STATE* (1980).

⁶ JAMES BOYLE, *THE PUBLIC DOMAIN: ENCLOSING THE COMMONS OF THE MIND* 63 (2008) (“The downside dominates the field, the upside is invisible.”)

⁷ Jack Balkin, *Room for Maneuver: Julie Cohen’s Theory of Freedom in the Information State*, 6 JERUSALEM. R. OF L. STUD. 79, 82(2012). See also Jonathan Zittrain, *The Future of the Internet--And How to Stop It* 122 (2008) (“Part of what makes us human are the choices that we make every day about what counts as right and wrong, and whether to give in to temptations that we believe to be wrong. In a completely monitored and controlled environment, those choices vanish.”)

⁸ See JONATHAN L. ZITTRAIN, *THE FUTURE OF THE INTERNET: AND HOW TO STOP IT*, 118-119 (2008) (“[M]ost laws are not self-enforcing, and a measure of the law’s value and importance may be found in just how much those affected by it (including as victims) urge law enforcement to take a stand, or invoke what private rights of action they may have.”)

⁹ See e.g. Eduardo M. Penalver & Sonia K. Katyal, *Property Outlaws*, 155 U. PA. L. R. 1095 (2007) (discussing positive effects of property rule-breaking), Danielle Keats Citron, *Technological Due Process*, 85 Wash. U. L. Rev. 1249, 1298 (2008) (viewing individual discretion as “a principle source of creativeness”).

¹⁰ Sonia K. Katyal & Jason M. Schultz, *The Unending Search For the Optimal Infringement Filter*, 112 COLUM. L. REV. SIDEBAR 83, 103 (2012).

¹¹ Lital Helman & Gideon Parchomovsky, *The Best Available Technology Standard*, 111 COLUM. L. REV. 1194, 1203 & n.57 (2011).

technology already implemented by dozens of websites and heralded by advocates as a potential technological solution to the “whack-a-mole” problem.¹² This Content ID Technology uses a method called “fingerprinting” that allows sites to automatically screen and filter massive amounts of video and audio material to identify copyrighted content.¹³ As one scholar explains “fingerprinting”:

[C]opyright owners [] send information (“fingerprints”) to ISPs. That information is then submitted to an expansive database that contains copyrighted material that is fingerprinted, i.e., identified using information as tempo, tone, pitch, and color (depending upon the content). The system uses an algorithm that compares the fingerprints with works on the site, filtering matches. When the system finds a match, the ISP prevents the uploading of the material.¹⁴

Audible Magic touts its technology as “extremely accurate and scalable,”¹⁵ with “[p]ositive identification rates exceed[ing] 99% with false positive rates of less than 10^{-6} ” for clips as small as 5 seconds.¹⁶ YouTube’s similarly named ContentID recognizes 99.5 percent of technology with a 99.7 percent accuracy rate.¹⁷ However, skeptics characterize the implementation of the filtering technology as “neither practical nor advisable.”¹⁸ Nevertheless, all indications point to machine learning capabilities like those employed in fingerprinting technology only continuing to improve.¹⁹ After all, machine learning serves as the foundation for modern artificial intelligence, providing the core underlying technology that allows machine systems to behave intelligently.²⁰ As such,

¹² Brief for Audible Magic Corporation Neither Party at 7, *Viacom Int’l, Inc. v. YouTube, Inc.*, 718 F. Supp. 2d 514 (2010) (Nos. 10-3270, 10-3342) [hereinafter Audible Magic Brief]

¹³ *Id.* at 7, 17.

¹⁴ Donald P. Harris, *Time To Reboot?: DMCA 2.0*, 47 ARIZ. ST. L.J. 801, 824-825 (2015)

¹⁵ Audible Magic Brief, *supra* note 12 at 7.

¹⁶ *Why Audible Magic*, AUDIBLE MAGIC 2017, <https://www.audiblemagic.com/why-audible-magic>.

¹⁷ Christophe Muller, *YouTube: 'No other platform gives as much money back to creators'*, GUARDIAN (Apr. 28, 2016) <https://www.theguardian.com/music/musicblog/2016/apr/28/youtube-no-other-platform-gives-as-much-money-back-to-creators>.

¹⁸ Follow-up Comments of Organization for Transformative Works, *In the matter of Section 512 Study: Notice and Request for Public Comment* (2017).

¹⁹ See e.g., Ziad Obermeyer & Ezekiel J. Emanuel, *Predicting the Future — Big Data, Machine Learning, and Clinical Medicine*, 375 NEW ENGLAND J. MED. 1216 (2016) (“Machine learning has become ubiquitous and indispensable for solving complex problems in most sciences.”)

²⁰ Colin Smith, *Machine Learning: The Driving Force of Artificial Intelligence*, IMPERIAL COLLEGE LONDON (Oct. 4, 2017)

the remainder of this exploration operates off the assumption that the technology will continue to perfect a system of absolute enforcement that allows for fair use.

By adopting the lens of perfect enforcement for copyrighted materials, I identify two issues with this perfect enforcement technology. First, perfect enforcement eliminates enforcement discretion by shifting the burden of proof onto speakers in a manner that threatens free speech. Second, the perfect enforcement architecture denies speakers the freedom to engage in a form of unlawful speech, thereby uprooting a long-held freedom. However, as I demonstrate below, the Supreme Court's jurisprudence on burden-shifting offers one response to the erasure of enforcement discretion, and an expansion of the prior restraint doctrine could ensure that one could choose to violate the law.

II. ISSUES WITH EMPLOYING PERFECT ENFORCEMENT TECHNOLOGY FOR COPYRIGHT

A. Shifting the Pendulum on Free Speech

Filtering technology imposes significant restrictions on online expression and shifts the First Amendment paradigm in an important way. Installing a filtering mechanism effectively implements a presumption against allowing speech after an initial finding of copyright infringement. Instead of presuming a right to speech, a perfect enforcement regime would then effectuate a presumption against such a right. This shift in presumption establishes a potentially problematic burden-shifting scheme.²¹

Once an enforcing algorithm identifies certain material as copyright infringing, then the technology identifies all “fingerprinted” iterations of that material also violating copyright law. If another person tries to upload the same material, the automated enforcement infrastructure creates a default of denial. The burden shifts from the copyright holder's needing to proactively identify the material for removal to imposing a burden on the individual speaker to prove that the use in question does not actually violate copyright law. With perfect enforcement, the onus falls on the aspiring

http://www3.imperial.ac.uk/newsandeventspggrp/imperialcollege/newssummary/news_4-10-2017-13-31-11.

²¹ It is important to note that a broad swath of online copyrighted material implicated in this discussion clearly meets the constitutional definition for speech. As the Supreme Court recently reaffirmed, “creation and dissemination of information are speech within the meaning of the First Amendment.” *Sorrell v. IMS Health Inc.*, 564 U.S. 552, 570 (2011). *Sorrell* reads “information” broadly, and likely incorporates any copyrighted work that contains information that may be construed as a fact or as an idea. *Id.*

uploader to protect his or her free speech claim. Without the use of such automated technology, the material would remain online in the absence of deliberate copyright holder action—regardless of its technically infringing copyright status.²²

The burden-shifting on speech raises a distinct constitutional issue. In *Ashcroft v. Free Speech Coalition*, the Supreme Court warned of “serious constitutional difficulties by seeking to impose on the defendant the burden of proving his speech is not unlawful.”²³ This burden-shifting on speech appears to comprise the exact type of problematic regulation that raises “serious constitutional difficulties.”²⁴ Justice Kennedy ultimately avoided deciding the constitutionality of shifting the burden onto the speaker to justify his or her own speech by noting that the statute at issue separately left “a substantial amount of speech” unprotected.²⁵ Nevertheless, the Court reinforced this constitutional presumption for speech five years later: “Where the First Amendment is implicated, the tie goes to the speaker, not the censor.”²⁶ Thus, *Free Speech Coalition* leaves open the possibility that if presented with this constitutional question, the Court would rule that a law placing the onus on the defendant to prove the lawfulness of her speech might comprise an independent, per se First Amendment violation.

Moreover, the court *should* establish that the First Amendment burden-shifting jurisprudence prevents the adoption of perfect enforcement technology that eliminates discretionary enforcement. The discretionary enforcement of legal claims is supported by values of free choice. Perfect enforcement’s elimination of discretion thereby runs afoul of an important value. As President Obama explained in rejecting perfect enforcement of immigration laws: “[L]et’s be honest, tracking down, rounding up and deporting millions of people isn’t realistic. . . . It’s also not who we are as Americans.”²⁷ The interest in promoting order reaches diminishing marginal returns as enforcement becomes increasingly perfect; at a certain point the balance may tip so that the marginal gain in the rule of law is outweighed

²² Since copyright holders may actually prefer to tolerate some infringement, then the proposed perfect enforcement inherent in a “Staydown” regime may result in the provision of less speech than the copyright holders would optimally prefer. ²² For more on tolerated use, see generally Tim Wu, *Tolerated Use*, 31 COLUM. J.L. & ARTS 617 (2008) (discussing the rise of tolerated online copyright infringements).

²³ *Ashcroft v. Free Speech Coal.*, 535 U.S. 234, 255 (2002).

²⁴ *Id.*

²⁵ *Id.*

²⁶ *Fed. Election Comm’n v. Wisconsin Right To Life, Inc.*, 551 U.S. 449, 474 (2007).

²⁷ Barack Obama, *Transcript: Obama’s Immigration Speech*, (Nov. 20, 2014)

https://www.washingtonpost.com/politics/transcript-obamas-immigration-speech/2014/11/20/14ba8042-7117-11e4-893f-86bd390a3340_story.

by the marginal cost to other societal interests. Thus, societal values favor an imperfect enforcement that allows for tolerated infringement.

B. Changing Reality Shifts the Equilibrium

Second, filtering technology inserts a practical change into the speech governance architecture, effectively preventing individuals from violating copyright law. The technology overturns a fundamental human freedom: the capacity to break the law. The use of a preventative architecture adjusts a user's practical ability to engage in copyright infringement. This change in equilibrium implicates the ideas undergirding the First Amendment's prior restraint doctrine. By robbing individuals of the freedom to choose to break copyright laws, the perfect enforcement architecture undermines a core personal and political freedom. The expansion of the prior restraint doctrine to include the incapacitation of potential speakers offers one approaching for safeguarding the proliferation of ideas in an age of perfect enforcement technology.

Prior restraint involves injunctions that impose *ex ante* regulation on the publication of speech.²⁸ The Supreme Court has consistently taken a strong stance against the presumptive validity of prior restraints on speech.²⁹ Typically, prior restraints may only be justified when buoyed by sufficient procedural safeguards.³⁰ The doctrine of prior restraint also includes an important limitation: it does not provide an absolute defense to violating the law.³¹ As William Blackstone famously declared,

The liberty of the press is indeed essential to the nature of a free state; but this consists in laying no previous restraints upon publications, and not in freedom from censure for criminal matter when published. Every freeman

²⁸ *Org. for a Better Austin v. Keefe*, 402 U.S. 415, 418 (1971).

²⁹ *Id.* at 419; *see also* *N.Y. Times Co. v. United States*, 403 U.S. 713, 717 (1971) (Black, J., concurring) (“Both the history and language of the First Amendment support the view that the press must be left free to publish news, whatever the source, without censorship, injunctions, or prior restraints.”); *Bantam Books, Inc. v. Sullivan*, 372 U.S. 58, 70 (1963) (“Any system of prior restraints of expression [bears] a heavy presumption against its constitutional validity.”)

³⁰ *See* *Freedman v. State of Md.*, 380 U.S. 51, 60 (1965) (requiring procedural safeguards when applying prior restraint on expression). *But see* *Thomas v. Chicago Park Dist.*, 534 U.S. 316, 322 (2002) (finding that when applied in a content-neutral fashion, regulations may impose prior restraints to unlawful speech even without procedural safeguards).

³¹ The Ninth Circuit's considerations for removing infringing versus non-infringing speech are instructive in this regard. *See* *Perfect 10, Inc. v. CCBill LLC*, 488 F.3d 1102, 1112 (9th Cir. 2007) (“Accusations of alleged infringement have drastic consequences: . . . If the content infringes, justice has been done. But if it does not, speech protected under the First Amendment could be removed.”) *See generally* Lawrence R. Velvel, *Protecting Civil Disobedience Under the First Amendment*, 37 GEO. WASH. L. REV. 464 (1969) (finding that one can engage in civil disobedience and still violate the law).

has an undoubted right to lay what sentiments he pleases before the public; to forbid this, is to destroy the freedom of the press; but if he publishes what is improper, mischievous or illegal, he must take the consequence of his own temerity.³²

Prior restraint emphasizes the importance of letting speakers publish their thoughts, but the permission to publish does not shield speakers from the consequences of their actions. Furthermore, the Supreme Court has granted lessened prior restraint protection for unlawful speech. In *Thomas v. Chicago Park District*, the Court held that when applied in a content-neutral fashion, regulations could impose prior restraints to unlawful speech even without procedural safeguards.³³

In the copyright context, all material in question would be previously identified as unlawfully infringing content. Assuming that the machine learning technology can perfectly filter fair use, then the traditional doctrine of prior restraint would not hinder the implementation of perfect enforcement for copyright. However, the perfect enforcement architecture suggests that a traditional analogy to prior restraint fails to account for the fundamental shift in technological architecture.³⁴ A more appropriate analogy would not focus on the unlawfulness of the behavior but the incapacitation of potential speakers.³⁵ In the past age of traditional prior restraint, an injunction did not pose an absolute bar to the proliferation of ideas.³⁶ Even under the threat of injunction, a committed speaker could broadcast unlawful messages as long as they were willing to accept “the consequence of [their] own temerity.”³⁷ In stark contrast, a perfect enforcement regime muzzles speakers altogether.³⁸ By preventing the unlawful speech, perfect enforcement undermines a foundational piece of American political discourse—civil disobedience in protest of an unjust law.³⁹ Without the ability to protest, historic acts like the American Tea

³² *Near v. State of Minnesota ex rel. Olson*, 283 U.S. 697, 713–14 (1931); *see also* Katyal & Schultz, *supra* note 10 at 105 (“ex ante prevention of publication is the quintessential example of a First Amendment prior restraint”).

³³ *Thomas v. Chicago Park Dist.*, 534 U.S. 316, 322 (2002).

³⁴ For more on the constraints of architecture as a regulating modality, see LAWRENCE LESSIG, *CODE VERSION 2.0*, 125 (2006).

³⁵ A central flaw of analogous reasoning lies in the fact that reasonable people can disagree with the appropriate analogy. *See e.g.*, *Am. Broad. Companies, Inc. v. Aereo, Inc.*, 134 S. Ct. 2498, 2507 (2014) (disagreeing over the accuracy of a “copy shop” analogy to Respondent’s business practices).

³⁶ Michael L. Rich, *Limits on the Perfect Preventive State*, 46 Conn. L. Rev. 883 (2014)

³⁷ *Near*, 283 U.S. at 322.

³⁸ *See* ZITTRAIN, *supra* note **Error! Bookmark not defined.** at 107-108; Christina Mulligan, *Perfect Enforcement Of Law: When To Limit And When To Use Technology*, 14 RICH. J.L. & TECH 13 (2008).

³⁹ *See* Zittrain, *supra* note **Error! Bookmark not defined.**

Party and the Civil Rights protests could never have transpired.⁴⁰ If the prior restraint doctrine exists to allow individuals to speak their minds even at great personal cost, then the preemptive nature of the perfect enforcement regime is anathema to the heart of a hallmark First Amendment right.⁴¹ The law governs free speech in a punitive—not preventative—fashion. Filtering technology’s preventative enforcement introduces a change that destroys an individual’s freedom of choice to break the law. This creates a significant departure from a long history of an implicit right to violate speech restrictions and face the consequences. Analogous reasoning to past political protests suggests that the shift to an architectural infrastructure without a right to engage in rule-breaking raises significant constitutional concerns.⁴²

In short, the technological advances by perfect copyright enforcement threaten central spheres of free expression and throw conceptions of traditional capabilities into disarray. The prevention of unauthorized speech creates the worrisome possibility that technology could limit an individual from engaging in a core freedom. To the extent that the perfect enforcement technology restricts the capability to speak, it poses a troubling technological development. However, the doctrine of prior restraint might also provide the solution. By expanding the ambit of prior restraint to include the incapacitation of illegal speech, the law can ensure that perfect enforcement technologies do not disrupt a fundamental part of our political discourse.

III. CONCLUSION

Filtering technology poses potential First Amendment problems within the copyright context. Filtering technology, backed by the power of machine learning, will continue to improve as a form of perfect enforcement. However, the use of such technology for copyright enforcement creates two problems. First, the burden-shifting impedes on enforcement discretion. Second, the technology denies individuals the ability to break the law. Together, these two concerns suggest that filtering technology may be inappropriate for the copyright enforcement context.

Two prescriptive steps can mitigate these concerns. First, the Supreme Court should clarify that the *Free Speech Coalition* protects against filtering technology, which creates a presumption against the

⁴⁰ See generally Penalver & Katyal, *supra* note **Error! Bookmark not defined.** (outlining examples of value-adding civil disobedience).

⁴¹ See Rich, *supra* note 36, at 910.

⁴² Christina Mulligan raises another constitutional concern in the form of the inability to engage in a necessity defense. Mulligan, *supra* note 38 at 31.

speaker and eliminates tolerated transgressions. Second, the courts should extend traditional prior restraint doctrine to protect individuals' freedom to engage in illegal speech. Such responses would help traditional individual rights coexist with the emergence of artificial intelligence. The automation of the process integrating detection and enforcement also involves important normative considerations. Discretionary enforcement and illegal speech capabilities promote the important societal values of free choice and political discourse.

Finally, these legal protections do not impose a ban of filtering technology for copyright enforcement purposes. Rather, the legal protections help create a landscape around which the technology can maneuver. While the First Amendment should prevent the technological elimination of discretionary enforcement, filtering technology could still prove extremely useful in allowing rightsholders to efficiently execute individualized determinations. Similarly, while the prior restraint doctrine would require that the speaker be allowed to publish infringing material, fingerprinting technology could promptly remove that material.⁴³ In sum, this analysis of copyright law offers a positive prescription: with a little agility and creativity, preexisting legal frameworks are ready and able to usher perfect enforcement technologies into the next century of law.

⁴³ Identifying when the removal of material becomes responsive versus preventative lies beyond the scope of this paper.