

Fall 2017

The Reality of Augmented Reality and Copyright Law

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Recommended Citation

Mma Afoaku, *The Reality of Augmented Reality and Copyright Law*, 15 NW. J. TECH. & INTEL. PROP. 111 (2017).
<http://scholarlycommons.law.northwestern.edu/njtip/vol15/iss2/4>

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Note

THE REALITY OF AUGMENTED REALITY AND COPYRIGHT LAW

*Mma Afoaku**

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INTRODUCTION

Digital technology continually evolves in a variety of mediums. Innovation increases one's ability to express ideas and facts through new technological facets. In the realm of augmented reality ("AR"), this has taken on different forms by combining the physical and digital worlds through an augmentation or addition process.

The highly applicable nature of AR technology is part of what makes its advent so exciting. However, this also presents several issues. For example, is there originality when a work is created within an AR platform which warrants a copyright? If so, is it the programmer or the end user who owns the copyright to this creation?

The programmer develops the code which allows for the AR to exist. However, it is the end user who creates his or her own destiny within an interactive game sequence, for example. It is also the end user who can utilize the medium to create a piece of artwork. The line between who

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owns what becomes blurred as the end user is not a typical end user, but at the same time, he is dependent on the coding constraints developed by the programmer.

After issues pertaining to copyright and authorship have been addressed, one should also look at what rights may be infringed on or violated by a particular activity. In other words, what conflicts can be anticipated? What are the possible defenses to these potential infringements?

Based upon the myriad of possible copyright infringement scenarios, this Note will argue that AR should be treated differently from other forms of digital technology because by its very nature, AR is a combination of the physical and real world. For a person to meaningfully use AR to make new works, he is likely to be at stake of copyright infringement. Therefore, there needs to be a reconceptualization of what copyright protects with regards to AR.¹

Furthermore, it will be very difficult and inefficient to find potential copyright infringers based upon the sheer volume of works that can be created with AR and the way they can be stored, seeing as though many works may never make it into the public, but may instead remain stored within the AR equipment software.

BACKGROUND

AR has been around for quite some time in some shape or form. Think back to the days of Robocop and the superimposed images he saw as he scanned the premises for villains. Most recently, anyone who has watched an NFL game has seen AR used by sports broadcasters to draw a digital first down marker onto the field. AR is on the verge of becoming mainstream with the emergence of headset devices such as Microsoft HoloLens. Another strong indicator is the large amount of venture capital being poured into this space. In 2016, Alibaba led a Series C investment of \$793.5 million in Magic Leap, well before the company had any product on the market.² By 2018, the estimated annual capital investment in AR applications alone will exceed \$2.5 billion.³ In addition to investments,

¹ Greg Kipper and Joseph Rampolia, *Augmented Reality: An Emerging Technologies Guide to AR*, 107 (Elsevier Inc., 2013).

² Ingrid Lunden, *AR Startup Magic Leap Raises \$793.5M Series C at \$4.5B Valuation Led by Alibaba*, TechCrunch (Feb. 2 2016), <http://techcrunch.com/2016/02/02/ar-startup-magic-leap-raises-793-5m-series-c-at-4-5b-valuation-led-by-alibaba/> [https://perma.cc/HYX9-VKGN].

³ ABIresearch, *Developers to Invest \$2.5 Billion in Augmented Reality in 2018; Look for Enterprise to Drive Smart Glasses*, ABIresearch (Jul. 3, 2013), <https://www.abiresearch.com/press/developers-to-invest-25-billion-in-augmented-reali/> [https://perma.cc/2SYR-H9FT].

technology companies are beginning to make acquisitions as illustrated by Apple's decision to acquire an AR company, Metaio, in 2015.⁴

But what is AR exactly, and just how much of a market will there be for this technology? To begin with, let us define the term "augment." According to the Merriam-Webster Dictionary, it means "to make greater, more numerous, larger, or more intense."⁵ While it is similar in some ways to its technological cousin virtual reality ("VR"), "VR is closed and fully immersive, while AR is open and partly immersive—you can see through and around it."⁶ Where VR puts users inside virtual worlds, immersing them, AR puts virtual things into users' real worlds, augmenting them.⁷ While VR is great for complete immersion in video games, "AR has the potential to play the same role in our lives as mobile phones with hundreds of millions of users. You could wear it anywhere, doing anything."⁸ It has been predicted that AR technology will be utilized by 1 billion users by 2020 and 2.5 billion users by 2025.⁹

For these reasons, AR is likely to have more widespread usage in a variety of applications. Some of these will require a special headset or eyewear to enable digital enhancement. Others may use a smartphone to activate the AR features through a mobile application. A prime example of AR eyewear is Google Glass which garnered a lot of attention during its debut in 2013. AR will be useful in a variety of industries such as healthcare, architecture, and automotive. Volvo partnered with Microsoft in 2015 to use its HoloLens technology to create 3D holograms of digital Volvo car models that employees and customers can interact with to see various vehicle models, features, and styles.¹⁰ AR can also be used to create a layer of digital interface which enhances a physical environment. An example of this would be an interactive GPS map which has a digital layer of directions that the user would see transparently imposed upon the actual road during the course of a car ride. Imagine going to a shopping mall and seeing digital advertisements and descriptions appear while walking past

⁴ Ron Miller and Josh Constine, *Apple Acquires Augmented Reality Company Metaio*, TechCrunch (May 28, 2015), <http://techcrunch.com/2015/05/28/apple-metaio/#.cv8c2gs:GWup> [<https://perma.cc/QX2W-5F5Y>].

⁵ *Augment*, Merriam-Webster Collegiate Dictionary (11th ed. 2003), <http://www.merriam-webster.com/dictionary/augment> [<https://perma.cc/D3PN-UK6H>] (last visited Apr. 13, 2017).

⁶ VR is completely immersive, meaning that the user does not see the real physical world when he is a VR experience. AR, on the other hand, takes both the physical and digital worlds into account when creating the user's experience.

⁷ *Supra* note 4.

⁸ *Id.*

⁹ Brian D. Wassom, *Augmented Reality L., Privacy, and Ethics* 14 (Allison Bishop, 1st ed. 2015).

¹⁰ HoloLens: Your Questions Answered, Volvo, [<https://perma.cc/2KP4-4NR9>].

different stores. These are only a few examples of the way AR can transform the world. As the technology becomes more advanced, the possibilities will only be limited by human imagination.

With all of the potential applications, it is no wonder that AR is set to generate \$120 billion in revenue by 2020.¹¹ As with any technology, there will be a host of intellectual property (“IP”) issues that will come with the territory. “Although AR will raise patent and trademark issues, it is likely to raise a broader range of copyright matters . . . [because] copyright law is creative expression, an activity that (unlike innovation or the creation of commercial goodwill) is potentially available to all. AR is a medium in which all manner of creative ideas will be expressed.”¹²

To better understand the reasoning behind why copyright law is structured the way it is, one must look at the policy implications at hand.

As a matter of policy, copyright encourages making and distributing works that can communicate expression to others far and wide. . . . An expression only constitutes a copyrightable work if it can be reproduced, performed, displayed, or distributed. Copyright protects things that can be copied, not things that can be imitated.¹³

Before AR makes its big splash, it is imperative that copyright concerns are addressed because this can add value to the technology as a source of IP creation, and users will likely want to know what their property rights are for whatever they create within this enhanced new world in addition to their liability for copyright infringement.

A good place to start is by looking at copyright in context of the computer because AR is at its core computer programming technology.

I. COMPUTER COPYRIGHT

The Copyright Act of 1976 was established to “promote the Progress of Science and useful Arts.”¹⁴ However, this creates tension between the “encouragement of an individual author or creator, accomplished by protecting the individual’s creative works, and the promotion of a more general progress of science and art, accomplished by preventing an individual’s ‘exclusive rights’ from overreaching and becoming

¹¹ Joshua A.T. Fairfield, *Mixed Reality: How the Laws of Virtual Worlds Govern Everyday Life*, 27 Berkeley Tech. L.J. 55, 63 (2012).

¹² Wassom, *supra* note 9, at 125.

¹³ Evan Brown, *Fixed Perspectives: The Evolving Contours of the Fixation Requirement in Copyright Law*, 10 Wash. J.L. Tech. & Arts 17, 18-19 (2014).

¹⁴ Harris Weems Henderson, *Through the Looking Glass: Copyright Protection in the Virtual Reality of Second Life*, 16 J. Intell. Prop. L. 165, 176 (2008).

monopolistic.”¹⁵ Computer software programs were not immune to this tension. Therefore, “in 1976, the National Commission on New Technological Uses of Copyrighted Works (CONTU) discussed this tension as it related to computer software programs by looking at computer programs as literary objects.”¹⁶ During this discussion, CONTU developed four main objectives for copyright protection of computer software:

1. Copyright should proscribe the unauthorized copying of these works.
2. Copyright should in no way inhibit the rightful use of these works.
3. Copyright should not block the development and dissemination of these works.
4. Copyright should not grant anyone more economic power than is necessary to achieve the incentive to create.¹⁷

It would seem that these objectives should have resolved the question as to whether computer software warrants copyright protection. However, due the nature of the software itself, that has not been the case. Computer programs are comprised of unprotected elements, which have led some to argue that computer programs do not warrant copyright protection.¹⁸ Essentially, a computer program on its face seems irreconcilable with Section 102(b) of the Copyright Act which explicitly states that “‘any idea, procedure, process, system, [or] method of operation’ is not protected by copyright law.”¹⁹ In spite of this, CONTU “concluded that computer software should be treated primarily as literary writings.”²⁰ This notion gets more complicated with the increasing advancement of software such as AR.²¹ In order to determine whether AR fits within protectable copyright programs, one has to take the following three elements into consideration:

- (1) The “idea-expression” dichotomy,
- (2) the “process-expression” doctrine that precludes useful articles from protection, and
- (3) the merger doctrine, which denies protection to those expressions that are so closely related to the ideas themselves that they cannot be separated.²²

All three elements will be explored during the span of this Note.

¹⁵ *Id.* at 176.

¹⁶ Henderson, *supra* note 14, at 165.

¹⁷ *Id.*

¹⁸ *Id.*

¹⁹ *Id.*

²⁰ Henderson, *supra* note 14, at 177.

²¹ *Id.* at 178.

²² *Id.* at 177.

II. IT HAS TO BE FIXED.

What does it take for something to qualify for copyright protection? Two elements must be satisfied: fixation and originality.²³ First, with regard to the fixation element, Section 102(a) of the Copyright Act states that a work must be “fixed within a tangible medium of expression”²⁴ which means that “it must have some definite, perceptible form rather than just being evanescent sounds or an inchoate conception floating in someone’s head.”²⁵

From a policy perspective, “fixation is necessary because only fixed works are at risk of misappropriation by copying. “Copyright law is grounded in the incentivization of artistic *production*, not mere creativity.”²⁶ For AR, one has to determine whether there is an element of fixation that merges original and tangible work.²⁷ There are four elements which must be taken into consideration in order to determine whether subject matter created within AR can be subject to copyright. There must be “(1) encoding of expression (2) in a physical medium (3) that can convey that expression to others (4) and can persist unaltered for some appreciable time.”²⁸ Only the first element touches upon creativity while the other three focus on the “medium in which the author encodes the expression.”²⁹

How does this apply to AR which utilizes digital media? “Courts [find] that digital media [can] be a form of a fixed medium due to the set code.”³⁰ In the VR case of *FireSabre v. Sheehy*, the Court noted, “That someone else could come along and, with or without permission, alter the original piece of art does not mean the art was too transitory to be copyrighted in the first place.”³¹ This is applicable to an AR video game, for example, which uses copyrighted images even though the “arrangement of the audiovisual presentation depended on user input” because although the “actual course of the presentation [is] not fixed in the colloquial sense, . . . the player [is] interacting with copyrighted art and sound in set patterns determined by copyrighted instructions.”³² To elaborate on this

²³ Julie E. Cohen et al., *Copyright In A Global Information Economy* 47 (Vicki Been et al. eds., 2nd ed. 2006).

²⁴ *Id.* at 43.

²⁵ Wassom, *supra* note 9, at 126.

²⁶ Brown, *supra* note 13, at 18.

²⁷ *Id.*

²⁸ *Id.* at 20.

²⁹ *Id.*

³⁰ Brown, *supra* note 13, at 23.

³¹ *FireSabre Consulting LLC v. Sheehy*, 497 N.Y.S.2d 30 (2013).

³² Brown, *supra* note 13, at 23–24.

point, although AR “images are not actually in the physical environments in which they are made to appear, they nevertheless reside in a digital intermediary that is sufficiently ‘tangible’—such as on the lens of a head—mounted mobile device or in a cloud-based computer server.”³³ Therefore, AR technology satisfactorily fulfills the fixation requirement for copyright protection. Next, originality will be explored.

III. THIS IS AN ORIGINAL.

In order to qualify for copyright protection, a work must also be “original” as defined by copyright law. Instead of simply being copied, the work must be independently created with at least some minimal amount of originality.³⁴ The case of *Meshwerks, Inc. v. Toyota Motors Sales USA, Inc.*, 528 f.3d 1258, 1260 (10th Cir. 2008) illustrates how a digital replication does not warrant copyright protection. Toyota and its marketing partners decided that as part of Toyota’s 2004 campaign, they wanted to incorporate digital models of Toyota’s vehicles for use on Toyota’s media outlets.³⁵ The marketing partners subcontracted with Meshwerks to create digital computer models of Toyota vehicles using wire-framing techniques.³⁶ These digital models had many advantages over the traditional photography approach.³⁷ It enabled the marketing team to easily change elements of a car model, such as the color and its physical dimensions, with a few clicks of the mouse.³⁸ Before, the marketer had to take entirely new photos whenever Toyota made the slightest change to a vehicle.³⁹

In order to make accurate renditions of the vehicles, Meshwerks claimed that 90 percent of the data points for each model were the result of “skill and efforts its digital sculptors manually expended.”⁴⁰

After Toyota used the wire-frames beyond the scope of the original contract, Meshwerks contested that Toyota had infringed its copyright. The court of appeals affirmed that Meshwerks was not entitled to copyright protection for the wire frameworks because they were simply replications which did not add anything to the original designs created by Toyota’s design team, which was responsible for the expression creation.⁴¹

³³ Wassom, *supra* note 9, at 126.

³⁴ Cohen, *supra* note 22, at 58.

³⁵ *Meshwerks, Inc. v. Toyota Motor Sales U.S.A., Inc.*, 528 F.3d 1258, 1260 (10th Cir. 2008).

³⁶ *Id.*

³⁷ *Id.*

³⁸ *Id.*

³⁹ *Id.*

⁴⁰ *Id.*

⁴¹ *Id.* at 1264–65.

Essentially, the court reasoned that replicating an object in another medium does not warrant copyright protection regardless of the painstaking effort that went into making the replication. Another illustration of this issue is that when someone simply takes a photo of a vehicle, he does not receive copyright protection for the design of the car because he is replicating the car which was designed by someone else; he did not add any additional creativity to the design process. In order to satisfy the creativity element, Meshwerks' wire frames could have incorporated unique shading or lighting for example.⁴²

The same approach can be applied to AR technology. If someone uses AR to produce a replica of an object, it is unlikely to warrant copyright protection because the minimal creativity requirement has not been fulfilled. Instead, one must be careful so as not to infringe on copyrights when dealing with a reproduction or derivative work.⁴³ In order to avoid copyright infringement and satisfy the originality element for those seeking copyright protection, it will be imperative for those using AR to find ways of promoting creative expression instead of simply making replications of real-world structures.

As certain augmented digital elements become more commonplace, there may come a time when we view them as functional tools instead of expressive works.⁴⁴ A prime example of this is the "menu layouts of most word processing programs, or the graphics used to symbolize such functions as 'power on/off,' 'play,' and 'pause.'"⁴⁵ If only one computer program used these graphics, they may be copyrightable; however, this is not the case.⁴⁶ Instead, they are mainstream representations of organization so crucial to the functionality for thousands of computer programs that there is very little area for originality which would warrant copyright protection.⁴⁷ What is illustrated here is the "merger doctrine" which occurs when there is "only one or a limited number of ways exist to express an idea, the idea and expression merge into an uncopyrightable whole."⁴⁸ The merger doctrine and the related doctrine of *scenes à faire* "describ[e] elements of an expression that are so common to its genre that they can no longer be considered original."⁴⁹ Only time will tell how these doctrines

⁴² *Id.* at 1270.

⁴³ This will be discussed in more detail *infra* Section V.D.

⁴⁴ Wassom, *supra* note 9, at 130.

⁴⁵ *Id.*

⁴⁶ *Id.*

⁴⁷ *Id.* at 131.

⁴⁸ Cohen et al., *supra* note 23, at 77.

⁴⁹ Wassom, *supra* note 9, at 131.

will be applied to augmented reality. But it is feasible that certain augmented designs will become so commonplace and functional in nature that they will no longer warrant copyright protection.⁵⁰ On a more general scale, with current copyright laws, it will be increasingly difficult to protect AR works, prevent copious amounts of copyright infringement, and find potential copyright infringers.

IV. YOU ARE NOT THE FATHER.

In more traditional copyright works, it has been fairly easy to determine who should be granted authorship and thus be deemed the rightful copyright owner. For example, J.K. Rowling owns the copyright to her series of Harry Potter books because she created the original works, the Harry Potter books themselves, which are in a fixed medium or book print. However, in digital mediums, the issue of authorship becomes more difficult to surmise. Is it the platform, programmer, or user who should be entitled to the copyrightable work?

Let us first explore authorship from the platform's perspective. Oftentimes, when someone begins to use a virtual platform or software, that person (user) has to agree to the rights and rules as determined by the Terms of Service or End User License Agreement ("TOS/EULA").⁵¹ Oftentimes, these "provisions require that any rights that might be created by activity in that world are to be assigned to the platform as a term of using the platform."⁵² As a result, the platform essentially owns the rights to anything created within it, and the platform owner licenses back specific rights through the TOS/EULA.⁵³ Thus, the platform owner essentially controls what rights the user can exploit.⁵⁴ Linden Labs, the creator of VR game, Second Life, took a different approach. Instead, it opted to allow the users to retain rights to all of their creations.⁵⁵ Although the Second Life TOS still requires users to "license their creations for almost all types of use to Linden Labs, [they] control all other rights to their works."⁵⁶ Through this creative solution, Linden Labs has entitled its users to ownership of their creations, which can in turn be sold to other uses within the alternative universe. After all, without the creative works of their

⁵⁰ *Id.*

⁵¹ Todd David Marcus, *Fostering Creativity in Virtual Worlds: Easing the Restrictiveness of Copyright for User-Created Content*, 52 N.Y.L. Sch. L. Rev. 67, 79 (2008).

⁵² *Id.*

⁵³ *Id.* at 80.

⁵⁴ *Id.*

⁵⁵ *Id.*

⁵⁶ *Id.*

devoted user base, Second Life would not have gained the traction that it did, and arguably, its success would have been greatly diminished.

With AR, a user can create an image with tools provided by a particular application, for example. From this perspective, the user can be analogized to a painter, and the programmer of the application to a paintbrush. Looking at it this way, it seems as though the user should easily be entitled to the copyrights for the image she made. But should it truly be that simple? After all, one could argue that, “the creator of the tool has so much control that he or she deserves rights in the output from its use.”⁵⁷ Furthermore, one could argue that the “tools” within AR are restricted to the coded content which was generated by the programmer, and thus are more restrictive than a paintbrush. In VR, a programmer may likely make this sort of argument when he develops platform-style video games because the coding created by the programmer restricts what the users can create.⁵⁸ Although it may be the case that the users in Second Life are bound by the programmer’s coding restrictions, the users should not be denied authorship for their unique creations. For if this were to occur, it would disincentivize creation of original works.

V. WHAT IN INFRINGEMENT IS GOING ON HERE?

A. *What’s Your Type?*

There are two primary ways a person can create AR subject matter. The first is through user-generated work. For example, if an animator uses AR to create a 3D animated character, does he have a copyright to this creation? Is this only the case if it can be saved/printed into a “fixed” medium? The second is derivative works. If something is created based upon a preexisting work, who owns the copyright? Is the original copyright owner having his rights infringed upon if the derivative work is created and saved into some sort of fixed medium?

B. *Know Your Rights.*

By the very nature of its technology, AR can be used to reproduce preexisting works and create derivative works, which may result in copyright infringement.

Copyright infringement by definition requires a copyright owner to show a “substantial similarity” between the copyrightable expressions in

⁵⁷ Rachel Wenzel, *Ownership in Technology-Facilitated Works: Exploring the Relationship Between Programmers and Users Through Virtual Worlds*, 17 *Intell. Prop. L. Bull.* 183 (2013).

⁵⁸ *Id.* at 189.

the two works.”⁵⁹ In theory, it should be simple to find infringers when one work simply copies another. However, this is difficult for several reasons. Going back to the *Meshwerks* case, the wire frameworks that Meshwerks created for Toyota were ineligible for copyright protection because they were not original works. At the same time, Meshwerks was not liable for copyright infringement because they were not duplicating copyrighted works.⁶⁰ On the other hand, had the Toyota design been a copyrighted work, without permission from Toyota, if a company replicated the work, even if it was within another medium, this would have resulted in copyright infringement.

In the world of AR, where some users will have the desire to bring two-dimensional works to life in a digital medium, they will have to be careful to ensure that their digital works are not mere reproductions subject to copyright infringement.

However, this should not be the case because AR is essentially a combination of the physical and digital worlds. To impose this traditional notion of copyright law would render much of AR’s capabilities impracticable, as users will be unable to “enhance” the physical world through the addition of digital subject matter. As a result, the promotion of science and art in an increasingly digital world will also be inhibited as AR users risk infringing on the copyrights of others. To further complicate matters, finding infringers will prove to be increasingly difficult and highly impractical.

The sheer magnitude of video technology that AR applications rely upon will likely make finding infringers equivalent to finding a needle in a haystack. Someone wearing Google Glass may commit an “incidental capture of copyrighted material” of music or films for example and use them in movies or posts online.⁶¹ The infringer may knowingly use the copyrighted material due to the fact that his work may never be found, and thus they choose to take the risk. If the copyright owner does find the infringed material, they may simply order a takedown notice, and have the post removed from the social media outlet.⁶² However, there is also a chance that, depending on the nature of the infringement and the copyright owner, the copyright owner could sue for copyright infringement. But

⁵⁹ Wassom, *supra* note 9, at 131.

⁶⁰ *Id.* at 132.

⁶¹ Kerry O’Shea Gorgone, *Google Glass is Watching You: Are You Protected? Protecting Yourself From the Google Glass Invasion*, Social Media Explorer (Apr. 15, 2013), <https://www.socialmediaexplorer.com/media-journalism/google-glass-is-watching-you-are-you-protected/> [https://perma.cc/SH36-GBTD].

⁶² *Id.*

again, to get to this litigious stage, the copyright owner first must find the offending material. If a person uses Google Glass to make a work which is never posted online, the chances of finding the infringer decreases even more.

In contrast, due the “novelty” of AR, law officials may take an overly proactive approach to stop potential infringers. In the following example, “guilty until proven innocent” takes on a whole new meaning. In 2014, a customer was pulled out of a movie theater by federal agents for wearing Google Glass in the movie theater.⁶³ He was eventually released after he demonstrated that he had not activated the Google Glass’ recording function during the movie.⁶⁴ It is unclear whether any of the customers with smart phones were interrogated as well.⁶⁵ After all, many people go to movies with devices that have recording capabilities. However, it does demonstrate that as more wearable AR technologies become available, there will be a growing concern about copyrighted materials being reproduced. And as wearable devices such as Google Glass become more mainstream, like the smartphone, true copyright infringers will likely go undetected.

C. *Are you an Accomplice to Infringement?*

For copyright owners looking to file suit for infringement, they may look beyond the user to the AR platform owner because “platforms can be held liable for infringements committed by [u]sers, even where the [u]sers themselves are not sued, by virtue of a doctrine called secondary liability.”⁶⁶ This could occur in an instance where the platform does not mandate that an offending work be taken down. A platform may be able to safeguard itself from such liability by applying policies that exist within the scope of User Generated Content (“UGC”).⁶⁷ By “(1) . . . not materially contribut[ing] or induc[ing] the infringement; (2) . . . not receiv[ing] direct financial gain from the infringement; and (3) . . . not continu[ing] to provide its service” to someone that the platform “knows or has reason to know is engaging in infringement,” it will most likely be shielded from liability claims.⁶⁸ With AR, it will become especially difficult for platforms to safeguard themselves from secondary liability based on the first and

⁶³ Wassom, *supra* note 9, at 131.

⁶⁴ *Id.*

⁶⁵ *Id.*

⁶⁶ Po Yi et al., *Virtual Reality Creates Potentially Real Legal Issues*, Venable LLP (Jul. 9, 2015) https://www.venable.com/virtual-reality-creates-potentially-real-legal-issues-07-09-2015/?utm_source=Mondaq&utm_medium=syndication&utm_campaign=View-Original. [<https://perma.cc/S4K2-U54H>].

⁶⁷ *Id.*

⁶⁸ *Id.*

third prongs because they will have to demonstrate that they are not contributing user infringement and they will have to ensure they have proper mechanisms in place for finding potential infringers.

In *Sony Corp. v. Universal City Studios*, Universal City Studios alleged that Sony Corp.'s video tape recorders ("VTR") were allowing users to copy Universal's copyrighted public programming.⁶⁹ The Supreme Court held that Sony's sales of the VTR's did not constitute contributory infringement.⁷⁰ The Court noted that "the sale of copying equipment, like the sale of other articles of commerce, does not constitute contributory infringement if the product is widely used for legitimate, unobjectionable purposes, or, indeed, is merely capable of substantial noninfringing uses."⁷¹ In the case of Sony, the only contact it had with the users was at the point of sale.⁷²

In the case of *A&M Records v. Napster*, Napster is accused of contributory and vicarious copyright infringement because it facilitates the transmission of digital Motion Picture Experts Group ("MP3") files.⁷³ Users would "rip" compact disk ("CD") via a software, and the files were then stored on the users' computer in MP3 format.⁷⁴ Napster users could copy audio files from one another through the Internet free of charge.⁷⁵ The shared files could be played directly on a user's hard drive, or saved to a CD with either instance resulting in a slight diminishment of sound quality to the audio file.⁷⁶

A&M Records was able to show that they owned the files which were being shared, played, and downloaded with the aid of Napster's software; and that Napster violated at least one of their exclusive copyrights.⁷⁷ The court of appeals followed *Sony's* reasoning noting that the district court had put too much emphasis on Napster's current application as opposed to current and future noninfringing use.⁷⁸ The Court went on to state that unless a company has specific knowledge of infringing activity, they should not be held liable for contributory infringement, even if their system allows for such things to occur.⁷⁹ However, the court affirmed that Napster

⁶⁹ *Sony Corp. of America v. Universal City Studios, Inc.*, 464 U.S. 417, 774 (1984).

⁷⁰ *Id.*

⁷¹ *Id.* at 418.

⁷² *Id.* at 422.

⁷³ *A&M Records, Inc. v. Napster, Inc.*, 239 F.3d 1004, 1011 (9th Cir. 2001).

⁷⁴ *Id.*

⁷⁵ *Id.*

⁷⁶ *Id.* at 1012.

⁷⁷ *Id.* at 1013–14. (Court found there was a violation of reproduction and distribution rights).

⁷⁸ *Id.* at 1021.

⁷⁹ *Id.*

materially contributed to the infringement; Napster had the right and ability to police its services; and by failing to do so, it did not mitigate the exchange of copyrighted works.⁸⁰ Napster did not act on its ability to locate infringing material and terminate users who carried out infringing activity.

Both *Sony* and *A&M Records* demonstrate a few key issues that AR platforms may face with respect to secondary liability. First, because of AR's ability to mix the real and physical worlds to create new works, it seems likely that an AR platform has reason to know that it can contribute to enabling users to infringe copyrighted works from the physical world, or other digital works. This will force AR platforms to self-police themselves to demonstrate that they are trying to lessen the problem. Instead, it can be argued that this is not a proper solution because it will place too much of a burden on AR platforms to sift through enormous volumes of works for potential infringers.

D. I Derive the Right to Enjoy My Copyright.

What happens when a user creates a derivative work using AR? A derivative work occurs when there is an addition of a new expression to an existing work.⁸¹ The protection copyright law affords with regards to derivative works enables the copyright owner to have rights not only to the tangible expression of his work, but it “also protect[s] conceivable adaptations or transformations of the underlying expression.”⁸² Thus, further incentive for copyrightable works is created through the additional value which can be derived from offshoots of protected works. A good example of this is when a novel is turned into a movie.⁸³ The case of *DC Comics v. Towle* demonstrates what can happen when someone makes a derivative work based on another's copyrighted work.

Towle created physical replicas of DC Comic's “Batmobile” based on television show and motion picture renditions of Batman's vehicle.⁸⁴ *Towle* did not dispute that his replicas were based on the Batmobile.⁸⁵ After the Court found that DC Comics did indeed have a copyright for the Batmobile, it next turned to the issue of derivative works. During the Court's analysis of the exclusive rights of copyright holders, it focused on the right to create derivative works, or to allow for another to create a

⁸⁰ *Id.* at 1022–23.

⁸¹ Wassom, *supra* note 9, at 132.

⁸² Todd David Marcus, *Fostering Creativity in Virtual Worlds: Easing the Restrictiveness of Copyright for User-Created Content*, 52 N.Y.L. Sch. L. Rev. 67, 77 (2008).

⁸³ *Id.*

⁸⁴ *DC Comics v. Mark Towle*, 802 F.3d 1012, 1017 (9th Cir. 2015).

⁸⁵ *Id.* at 1023.

derivative work.⁸⁶ In the latter case, the original copyright holder still retains the right to the derivative work, with the third party only obtaining rights to substantial additions to the work.⁸⁷ The Court concluded that *Towle* was indeed infringing upon DC Comic’s underlying copyright through the creation of physical Batmobiles.⁸⁸

Similarly, the same court had previously held that Apple could bring a suit for copyright infringement against Microsoft based on the underlying principles of Apple’s copyright to its graphical user interface (“GUI”).⁸⁹ The court decided this was the case even though Apple had reached a licensing agreement with Microsoft which enable Microsoft to “use and sublicense derivative works generated by Windows 1.0 in present and future products.”⁹⁰

Along the same accord, the very nature of AR, which enables the user to enhance physical works, makes the likelihood of creating derivative works very high. As previously noted, AR gives one the ability to create a digital layer superimposed on the physical world in order to enhance items through changes or additions in their appearance.⁹¹ As a result, “a substantial portion of the original work exists in the new one, and the copyright owner’s rights have been infringed.”⁹²

For example, a person could use AR to create an artistic digital layer of data which appears when looking at a particular painting in the AR medium. One could argue that this is copyright infringement because the AR design is triggered by a particular painting and thus, could be viewed as copyright infringement. In addition, one could also argue that it is a derivative work because it is an elaboration based on another’s work. However, one could also argue that although the digital layer is triggered by the painting, the digital layer is simply an illusion which exists in another medium, and thus it technically remains separate from the physical painting.⁹³ In order to enable AR users to successfully utilize the technology, it is evident that the current copyright for derivative works will greatly restrict one’s ability to do so.

⁸⁶ *Id.*

⁸⁷ *Id.*

⁸⁸ *Id.* at 1025–26.

⁸⁹ *Apple Computer, Inc. v. Microsoft Corp.*, 35 F.3d 1435, 1448. (9th Cir. 1994).

⁹⁰ *Id.* at 1438 (Apple had previously accused Microsoft of copying its GUI design in Windows 1.0. As a result, they created a licensing agreement).

⁹¹ Wassom, *supra* note 9, at 132.

⁹² *Id.* at 132.

⁹³ Wassom, *supra* note 9, at 133–34.

E. *What is My Protection?*

For those who create copyrightable works in AR, it will likely be difficult to enforce those rights based on the characteristics of AR. For example, if someone creates a digital design in an application that is triggered by a particular location, an app user could potentially download and copy the digital image, thus resulting in copyright infringement. One can imagine how difficult it would be to track down the alleged copyright infringer. Many elements will have to be taken into consideration to find and prove infringement such as the “device to which virtual data was routed, but also where individual users were located, and in what direction they were looking, when the data was displayed.”⁹⁴

VI. IS IT FAIR USE OR ABUSE?

In circumstances in which someone alleges copyright infringement against another, one can always use an affirmative defense of fair use. However, this limitation on copyright owners’ exclusive rights cannot be predetermined by a potential infringer as it is left to the courts to decide whether there indeed is a valid fair use claim. The subjective guidelines set by Congress in the 1976 Copyright Act are as follows:

- (1) the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes;
- the nature of the copyrighted work;
- the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and
- the effect of the use upon the potential market for or value of the copyrighted work . . .⁹⁵

Fair use was purposely written so as to be left open to interpretation based on the facts of a particular case.⁹⁶ However, most cases that are likely to establish fair use as a valid defense are those that are “done for a limited and ‘transformative’ purpose, such as to comment upon, criticize, or parody a copyrighted work.”⁹⁷ Furthermore, most fair use analyses are either based upon a commentary and criticism or a parody.⁹⁸ For example, if a book reviewer criticizes a copyrighted novel using small excerpts of the novel,

⁹⁴ Wassom, *supra* note 9, at 140.

⁹⁵ 17 U.S.C. § 107 (2011).

⁹⁶ Wassom, *supra* note 9 at 137.

⁹⁷ Rich Stim, *What is Fair Use?*, Stanford University Libraries: Copyright & Fair Use, <http://fairuse.stanford.edu/overview/fair-use/what-is-fair-use/> [<https://perma.cc/BPN2-P7G6>].

⁹⁸ *Id.*

he has the right to do so because fair use would likely dictate that this sort of commentary is for the public's benefit. In the digital context, if an AR creation criticizes the poor songwriting ability of a recording artist by creating a caricature that quotes portions of his song, for example, the creator of this digital work should be entitled to do so because the criticism can be deemed beneficial to the public.

CONCLUSION

The realm of digital technology is going through a very exciting time with the rapid advancements taking place in the field. VR has become a way for users to become completely immersed in alternate reality. But for the user who does not want to completely escape, and instead wishes to enhance his world through digital technology, AR can provide him with endless opportunities. AR is not new by any means, but due to technological advances, it is picking up steam in popularity. Although its prime time debut was not entirely a success, Google Glass introduced the world to a wearable technology which enables users to enhance their physical surroundings through digital augmentation.

Since Google Glass, many other forms of AR have become a reality. As investors continue to pour money into AR startups, and as companies release their own AR devices, the potential for this technology is far from exhausted. With innovations in technology come intellectual property issues. And although intellectual property rights can fall under several different buckets, due to the expressive nature of AR, copyright is likely to be a major intellectual property concern for AR users.

Before authorship could be determined, it was verified that AR works are indeed entitled to copyright protection. After coming to the conclusion that AR works do satisfy both prongs of copyrightable works, one had to determine whether the user was indeed the author of the works he created within an AR platform. Based on the scope and purpose of copyright law, it only seems valid that users should bear the fruits of their creative labor because without it, AR's potential will likely go unrealized. Because AR uses digital images which are superimposed over the physical world, it was also essential to look at potential scenarios for copyright infringement.

The infringement issue will especially be complicated due to the vast amounts of digital data which will be created through AR, coupled with the fact that AR can be used to reproduce preexisting works and create derivative works, which may result in copyright infringement. For those who create copyrightable works through AR, it will be equally difficult to find infringers. In both instances, fair use can serve as an affirmative defense against copyright infringement. However, the unpredictability of

the fair use defense is such that a potential infringer cannot depend on it to determine his likelihood of violating another's copyright at the time of "creation." As a result, it may be imperative to reexamine the way that copyright law is applied to AR; otherwise the essence of the technology will not be accessible to users without running the risk of copyright infringement. As the world becomes increasingly digital, copyright laws will have to continue to try to keep up so as not to impede the expression of ideas. In the end, time will tell how copyright protection applies to AR and the impact copyright law will have on this burgeoning field of technology. However, it is safe to say that there will be increased tension between the traditional notions of copyright owners and infringers.