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# Attention Shoppers!

## Surveillance on Aisle 6



By Ronald P. Abrams  
and Michael A. Bernet

ONCE CONSIDERED PURE sci-fi fantasy, artificial intelligence is now a reality with very real implications for a variety of business areas, particularly fashion apparel retailing and fashion-related copyright protections. Companies like Apple, Google and Microsoft are investing billions of dollars<sup>1</sup> into the development of highly sophisticated computer systems that are capable of synthesizing mass amounts of data, solving complex problems, and even answering questions that its programmers never thought to ask.<sup>2</sup>

Artificial intelligence, or AI, is defined as “a branch of computer science that is concerned with the development of highly advanced computer systems that can perform

functions normally thought to require human mental processes, such as perception, reasoning and creativity.”<sup>3</sup>

AI systems are already a part of our everyday lives, and are in everything from our phones and cars to video games and thermostats—built not only to make our personal lives easier and more enjoyable, but also to save us time and money. Likewise, companies are developing AI systems that can supplement or replace human workers, which will not only cut overhead costs, but might even perform more efficiently.<sup>4</sup>

From entertainment,<sup>5</sup> to law,<sup>6</sup> and even medicine,<sup>7</sup> AI systems are emerging in every industry.

### Retail Shopper’s Eye in the Sky

Within the retail industry, AI systems

that collect and analyze online user data have been used for many years to tailor product and service offerings to individual consumers.<sup>8</sup> The technology is also being used to manage inventory based on predictive modeling, and even identify ideal store locations for certain products.<sup>9</sup> These systems have improved dramatically over time and are continually evolving.<sup>10</sup>

Many online shoppers are already familiar with AI-powered chat boxes that function as both salespersons and customer service representatives on retail websites.<sup>11</sup> Some retailers are even experimenting with camera systems and virtual reality headsets that track consumer body and eye movements as they shop both in stores and online.<sup>12</sup>



**Ronald P. Abrams**, of counsel at Brutzkus Gubner, counsels small and start-up companies on intellectual property matters, and litigates trademark and trade secret cases. **Michael A. Bernet** is an associate at Brutzkus Gubner whose practice is primarily devoted to intellectual property and general civil litigation matters. They can be reached at [mbernet@brutzkusgubner.com](mailto:mbernet@brutzkusgubner.com) and [rabrams@brutzkusgubner.com](mailto:rabrams@brutzkusgubner.com), respectively.

According to one survey from September 2015,<sup>13</sup> at least 27 percent of all retailers, 43 percent of the largest retailers, and 59 percent of fashion and apparel retailers, have used facial recognition technology in stores to prevent shoplifting,<sup>14</sup> identify VIP clients and potential big spenders,<sup>15</sup> and even interpret facial expressions as shoppers view merchandise,<sup>16</sup> although retailers may not want to admit it.<sup>17</sup>

Other companies are developing AI systems that can remember what a customer bought and tried on, and even the things they said.<sup>18</sup> These types of technological advances are not only lowering costs and increasing revenues, they are revolutionizing the way the retail industry does business.<sup>19</sup>

Interestingly, some AI systems, including IBM's Watson, are being used to determine not only what consumers are buying today, but forecast what they'll be wearing and purchasing tomorrow.<sup>20</sup>

Within the apparel industry, many are wondering whether it's possible for an AI system to predict fashion trends.<sup>21</sup> Indeed, some are already attempting to do exactly that.<sup>22</sup> Some AI systems are being used to create unique garment designs tailored to individual consumers based on their responses to a series of questions and user-created sketches.<sup>23</sup>

The question then becomes whether those AI-created garment designs can be copyrighted, and, if so, who owns the copyright? Brand owners and their attorneys may be in for a rude awakening when they seek copyright protection for such designs since the answers are anything but straight-forward.

### **Cognitive Dresses and Media Moods**

The primary difficulty lies in the application of old statutory language to modern day technological works, where the human element has been

severely limited (or even eliminated) in the creative process.

The Copyright Act only extends protection to "original works of authorship fixed in any tangible medium of expression."<sup>24</sup> While the Act provides that the medium must be fixed "by or under the authority of the author," it does not define the terms "author" or "works of authorship."<sup>25</sup> In 1984, the U.S. Copyright Office said that "[t]he term 'authorship' implies that, for a work to be copyrightable, it must owe its origin to a human being."<sup>26</sup>

In 1989, the U.S. Supreme Court indicated that the term "author" refers to "persons,"<sup>27</sup> and various circuit and lower courts have since then consistently said that not only does author mean "human beings,"<sup>28</sup> but the "work" itself requires "some element of human creativity."<sup>29</sup>

In 2014, the Copyright Office updated its practice guidelines for the first time since 1984, and declared that "[t]o qualify as a work of 'authorship' a work must be created by a human being."<sup>30</sup> "The Office will not register works produced by nature, animals, or plants," such as a "photograph taken by a monkey" or a "mural painted by an elephant," or works "purportedly created by divine or supernatural beings."<sup>31</sup>

Perhaps with AI in mind, the Copyright Office went so far as to say that it "will not register works produced by a machine or mere mechanical process that operates randomly or automatically without any creative input or intervention from a human author."<sup>32</sup> It appears then that the Copyright Office might register a work that is made by a human with the assistance of AI, however, in the context of AI, it remains to be seen what amount of human "creative input or intervention" will be required.

But what if a human and an AI system jointly create a work? For instance, last year fashion design

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house Marchesa teamed up with IBM's Watson to create a "cognitive dress" for the 2016 Met Gala, which was embedded with LED lights that changed colors in real time, according to the social media moods of users who were commenting on the gala through Twitter.<sup>33</sup> While it does not appear that any copyright dispute arose in that instance, or any other similar instance involving AI systems, it seems like a novel question.

The Copyright Act defines a "joint work" as "a work prepared by two or more authors with the intention that their contributions be merged into inseparable or interdependent parts of a unitary whole."<sup>34</sup> Even if Marchesa and Watson's dress meets this standard, the Copyright Office might refuse to register the design because one of the authors is not a human being, as some have suggested.<sup>35</sup> On the other hand, since the Copyright Office has said that machines cannot be authors, the Copyright Office might not consider it a joint work at all, but rather the sole and registerable work of Marchesa.<sup>36</sup>

### Use and Profit Entitlement

This AI-related copyright quandary, as with myriad other legal issues raised by AI, has yet to be resolved, and it may be quite some time until such issues are sorted out. In the meantime, intellectual property attorneys need to counsel apparel clients to protect their intellectual property rights and to steer them away from trouble. It might be advisable for a fashion design house such as Marchesa, and the owner of the partner-AI system such as IBM, to have a written agreement as to the nature of the work that will be created. A work for hire agreement, for instance, might be appropriate.

The Copyright Act defines a "work made for hire" as "a work prepared by an employee within the scope of his or her employment; or a work specially ordered or commissioned for use as a

contribution to a collective work . . . or other audiovisual work . . . if the parties expressly agree in a written instrument signed by them that the work shall be considered a work made for hire."<sup>37</sup> It should be cautioned, however, that the Copyright Office might still refuse to register the work if it considers an AI system to be one of the authors.<sup>38</sup>

Even if the Copyright Office refuses to register a work because of an AI system's purported involvement in its creation, the owner is still generally entitled to use and profit from the work, assuming it does not infringe on anyone else's rights. Further, just because registration has been refused, it doesn't necessarily mean that the owner lacks the means to protect itself from copycats.

The Copyright Act provides that if an application is delivered "in proper form and registration has been refused, the applicant is entitled to institute a civil action for infringement if notice thereof, with a copy of the complaint, is served on the Register of Copyrights."<sup>39</sup> In the context of AI systems, however, any such case would probably face an uphill battle since the defendant would likely raise the defense of non-copyrightable subject matter. If the court determines that the work does not involve a sufficient amount of human "creative input or intervention," the defense would probably defeat the copyright claim(s).<sup>40</sup> Discovery into the creative process and the AI system's role will be key to establishing this defense.

For example, what were the machine's contributions and what were the human contributions to the work? Are there human-created early drafts or other materials evidencing human involvement? How about the ability or inability of the purported author to recreate the same or a similar work during a deposition? In some circumstances, the Lanham Act might also provide relief if the

alleged improper use can be shown to amount to unfair competition or false designation of origin.<sup>41</sup>

### IP Infringement and Derivative Works

On the other hand, what if a client has used AI in some manner to create a design that is alleged to infringe on the intellectual property rights of another? How will the degree of human involvement, if any, in the creation of the accused design impact the case? While it remains to be seen how a court would handle this scenario (some believe that human involvement is a prerequisite to liability for infringement),<sup>42</sup> it is certainly possible that liability could be attributed to the owner of the allegedly infringing work.

What if the AI system was programmed to create designs that are similar to or based on other designs? The resulting work might be considered a "derivative work," and therefore an infringement.<sup>43</sup> If it can be demonstrated that this was intentional, then willful infringement might be found and statutory damages of up to \$150,000 per infringed work could be awarded.<sup>44</sup>


Fashion designers and brand owners interested in using an AI system to create designs should be made aware of the potential legal pitfalls and use caution when programming or adopting the AI system. Add to the equation the common misperception that it is permissible to modify an existing design by adding or subtracting some uncertain percentage of design elements without permission. If a work intentionally resembles any other work by any percentage, without permission from the rights holder, it may be considered an unauthorized derivative work, which constitutes copyright infringement.<sup>45</sup>

In other words, fashion designers and brand owners should be very careful when experimenting with

AI systems to create new works, not only because the works may not be protectable works of authorship, but because the AI-produced work may infringe on another's design.

Closely related to the AI copyright dilemma, apparel retailers and designers should also be aware of new digital computer programs able to scour the internet and instantly detect exact or similar apparel designs.

For years, audio fingerprint recognition technology has existed that enables music copyright holders to digitally detect unauthorized uses across the digital landscape by matching the audio "fingerprints" of the protected music.<sup>46</sup> In the apparel realm, "reverse image" searches can be used to search the internet for potentially infringing apparel designs.<sup>47</sup>

Perhaps now more than ever, intellectual property attorneys need to keep abreast of the latest technological advances, including AI, to provide sound advice to their apparel clients for protecting their intellectual property rights and for steering clear of potential infringement claims. 

<sup>1</sup> See Lisa Calhoun, *Artificial Intelligence Deals Top \$1 Billion*, INC. MAGAZINE, November 30, 2016

<sup>2</sup> See Charlie Rose, *Artificial intelligence positioned to be a game-changer*, 60 MINUTES, October 9, 2016.

<sup>3</sup> See, e.g., Kris Hammond, *What is artificial intelligence?*, COMPUTERWORLD, April 10, 2015.

<sup>4</sup> See Kevin Maney, *How Artificial Intelligence and Robots Will Radically Transform the Economy*, NEWSWEEK, November 30, 2016.

<sup>5</sup> Examples include subscription recommendation services, such as Pandora, Spotify, and Netflix that adapt their recommendations based on a subscriber's history, likes or dislikes, as well as those of other subscribers.

<sup>6</sup> See Chris Weller, *The world's first artificially intelligent lawyer was just hired at a law firm*, BUSINESS INSIDER, May 16, 2016.

<sup>7</sup> See Robert McMillan and Elizabeth Dvoskin, *IBM Crafts a Role for Artificial Intelligence in Medicine*, THE WALL STREET JOURNAL, August 11, 2015.

<sup>8</sup> See Leslie Hook and Lindsay Whipp, *Retailers look to artificial intelligence to bag sales*, FINANCIAL TIMES, November 9, 2016.

<sup>9</sup> See Bryan Pearson, *Using Artificial Intelligence Both In Apps And In The Aisles*, FORBES, January 30, 2017.

<sup>10</sup> See Kevin Kelleher, *3 Ways Artificial Intelligence Will Impact Marketing*, TARGET MARKETING MAGAZINE, July 21, 2016.

<sup>11</sup> See Shep Hyken, *How Artificial Intelligence Creates A Better Customer Service Experience*, FORBES, November 5, 2016.

<sup>12</sup> See Alison Embrey Medina, *Eye Tracker Technology for Retail*, DESIGN RETAIL ONLINE, June 2, 2016.

<sup>13</sup> *Next Generation In-Store Technology: Where Do Shoppers and Retailers Stand?*, COMPUTER SCIENCES CORPORATION, September 10, 2015.

<sup>14</sup> See Chris Frey, *Revealed: how facial recognition has invaded shops – and your privacy*, THE GUARDIAN, March 3, 2016.

<sup>15</sup> See Natash Singer, *When No One Is Just a Face in the Crowd*, THE NEW YORK TIMES, February 1, 2014.

<sup>16</sup> See Emily Chung, *Face-reading tech could make shopping more convenient — and creepier*, CBC NEWS, March 14, 2015.

<sup>17</sup> See Patrick Healy, *Facial Recognition Providers Offer Service That Retailers Want to Have, But Not Acknowledge*, NBC LOS ANGELES, December 12, 2016.

<sup>18</sup> See John Callan, *What's Driving Artificial Intelligence? How AI Will Make Consumers Fall for Brands*, TOTAL RETAIL, February 15, 2017.

<sup>19</sup> See, e.g., Shan Li, *How retail stores are using virtual reality to make shopping more fun*, LOS ANGELES TIMES, April 10, 2016.

<sup>20</sup> See Bryan Pearson, *Using Artificial Intelligence Both In Apps And In The Aisles*, FORBES, January 30, 2017.

<sup>21</sup> See, e.g., Kate Abnett, *Is Fashion Ready for the AI Revolution?*, BUSINESS OF FASHION, April 7, 2016; Haosha Wang, *Machine Fashion: An Artificial Intelligence Based Clothing Fashion Stylist*, UNIVERSITY OF GEORGIA, August 2014.

<sup>22</sup> See, e.g., Torrence Boone, *Fashion Trends 2016: Google Data Shows What Shoppers Want*, THINK WITH GOOGLE, August 2016.

<sup>23</sup> See, e.g., PROJECT MUSE.

<sup>24</sup> 17 U.S.C. §102(a).

<sup>25</sup> See 17 U.S.C. §101.

<sup>26</sup> *Compendium of U.S. Copyright Office Practices, Second Edition*, UNITED STATES COPYRIGHT OFFICE, 1984.

<sup>27</sup> *Cmty. for Creative Non-Violence v. Reid*, 490 U.S. 730, 737 (1989).

<sup>28</sup> See, e.g., *Kelley v. Chicago Park Dist.*, 635 F.3d 290, 304 (7th Cir. 2011); *Naruto v. Slater*, No. 15-CV-04324-WHO, 2016 WL 362231, at \*4 (N.D. Cal. Jan. 28, 2016).

<sup>29</sup> See *Urantia Found. v. Maaherra*, 114 F.3d 955, 958 (9th Cir. 1997).

<sup>30</sup> *Compendium of U.S. Copyright Office Practices, Third Edition*, UNITED STATES COPYRIGHT OFFICE, December 22, 2014.

<sup>31</sup> *Id.*

<sup>32</sup> *Id.*

<sup>33</sup> See, e.g., Brian Mastrojanni, Marchesa, *IBM Watson design "cognitive dress" for Met Gala*, CBS NEWS, May 2, 2016.

<sup>34</sup> 17 U.S.C. §101.

<sup>35</sup> See Chad Rutkowski, *The Monkey in the Machine*, COPYRIGHT, CONTENT, AND PLATFORMS, February 3, 2016.

<sup>36</sup> See *Compendium of U.S. Copyright Office Practices, Third Edition*, UNITED STATES COPYRIGHT OFFICE, December, 22, 2014.

<sup>37</sup> 17 U.S.C. §101.

<sup>38</sup> See *Compendium of U.S. Copyright Office Practices, Third Edition*, UNITED STATES COPYRIGHT OFFICE, December, 22, 2014.

<sup>39</sup> 17 U.S.C. §411(a).

<sup>40</sup> See, e.g., *Brandir Int'l, Inc. v. Cascade Pac. Lumber Co.*, 834 F.2d 1142 (2d Cir. 1987).

<sup>41</sup> See 15 U.S.C. §1125(a).

<sup>42</sup> See, e.g., Gregory Bufithis, *Comment: Artificial Intelligence and changing intellectual property standards*, LEGAL INSIDER, April 5, 2016.

<sup>43</sup> See 17 U.S.C. §101.

<sup>44</sup> See 17 U.S.C. §504(c)(2).

<sup>45</sup> See 17 U.S.C. §101.

<sup>46</sup> See, e.g., *Collective Digital Studio, LLC v. Freeplay Music, LLC.*, Case No. 15-cv-00936 JFW-RZ (C.D. Cal. 2015).

<sup>47</sup> See, e.g., <https://www.tineye.com>.

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