

Lights, Camera, AI: Artificial Intelligence Authorship and Copyright Ownership in the Entertainment Industry of Tomorrow

In 1964, American writer Isaac Asimov was asked by the New York Times to guess what the world would be like fifty years into the future. Setting the stage for the theme of the 1964 World's Fair, Asimov's article, *Visit to the World's Fair of 2014*, explored the technology he imagined would exist in the future, and the implications such advancements could have on society. The bulk of his predictions focused on the development of automation by "robot-brains," and the role robotic intelligence would have on the technology and society of the future.¹ As it turns out, Asimov's 1964 "robot-brain" prediction has materialized through the complex field of Artificial Intelligence (AI). Today, AI has begun to revolutionize the fields of transportation, communication, and health through its application to self-driving vehicles, voice recognition, and insight for physician decision-making. The advances in cognitive machine learning over the past ten years have surpassed the limits of our imagination. As such, lawyers, judges, and Congress will need to reexamine the legal framework of copyright law as it relates to AI work products, and the relationship between users, developers, and AI-systems in the creative process. As the AI paradigm continues to develop towards emulating human creativity quicker than the law can keep up, the entertainment industry and AI developers will need to take a self-governing approach to prepare for the legal issues that will likely arise out of assignments and ownership of copyright as AI takes on a growing role in the production of collective works.

Artificial Intelligence is a general term given to algorithms and software systems capable of adapting their code and actions based on both observable information and identifiable patterns in data.² In self-driving cars, AI operates by processing the data of traffic conditions, driver habits, and road conditions, and can be trained to deliver programmed results, or left to make their own judgments resulting from data patterns they spot.³ In speech recognition, AI allows for computer applications to transcribe human speech into program commands, constantly adapting to the speech patterns of the user. The premise of AI is that a machine can be trained to analyze data and algorithms to learn behaviors for each owner through a neural-like system of information and adapt to the needs of a particular task. Today, AI spans all industries – setting forth a cultural change in the way society interacts with technology. As competition increases, content creators, including Twentieth Century Fox, Netflix, Amazon, Apple, Google, and Disney have begun exploring ways in which the AI revolution can transform the entertainment industry.⁴

In 2016, Twentieth Century Fox partnered with IBM Research to explore the use of AI in developing the first-ever cognitive movie trailer for suspense film *Morgan*. The

¹ See Isaac Asimov, *Visit to the World's Fair of 2014*, *The New York Times*, August 16, 1964.

² See Roland Moore-Colyer, *OK Computer: The present and future of AI in wearables*, *Wearable* (2017), <https://www.wearable.com/wearable-tech/ai-smart-wearables-present-future-795>

³ *Id.*

⁴ PwC, *Sizing the prize: What's the real value of AI for your business and how can you capitalize?* (2017).

goal of the partnership was to implement an AI system that could take advantage of viewer response pattern data to create a compelling movie trailer.⁵ By “using machine learning techniques and experimental Watson APIs, [IBM’s] Research team trained a system on the trailers of 100 horror movies by segmenting out each scene from the trailers.”⁶ The AI system learned how to identify and understand what is scary, frightening, and suspenseful to a majority of viewers, and developed an understanding of the types of scenes that “categorically fit into the structure of a suspense/horror movie trailer.”⁷ By the end of the project, Twentieth Century Fox reported that the AI process of creating the movie-trailer for *Morgan* reduced the traditional labor-intensive editing time from ten to thirty days, down to twenty-four hours. The end product was a trailer that gave the film a darker, more suspenseful tone.⁸

Though the partnership between Twentieth Century Fox and IBM may seem like a publicity stunt, media companies have long realized the value that AI provides through machine-learning personalization (YouTube, Netflix, and Facebook use AI to tailor content recommendations based on user behavior). As the competitive battle lines in the entertainment industry continue to evolve, AI systems will become more involved in the creative process – developing scripts, plotlines, edits, and animations for media companies. While AI’s use in entertainment and media is expanding, current copyright law does not protect the work product of a non-human author.

The United States Constitution grants Congress the power to create copyright law under Art. I §8, cl. 8, the Patent and Copyright Clause. The clause allows Congress to “[p]romote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries.”⁹ Today, United States copyright law is codified in 17 U.S.C. §§ 101-810. Under 17 U.S.C. § 102(a), Subject Matter of Copyright, “copyright protection subsists, in accordance with this title, in original works of authorship[.]”¹⁰ The U.S. Copyright Office provides meaning to the term “authorship” in its 2017 version of the *Compendium of U.S. Copyright Office Practices, Third Edition*. The *Compendium* “provides . . . guidance to copyright applicants, practitioners, scholars, the courts, and members of the general public regarding institutional practices and related principles of law.”¹¹ Critical to the legal framework of copyright ownership of AI-produced works in the entertainment industry is the *Compendium*’s Human Authorship Requirement.¹² Under *Compendium: Copyrightable Authorship: What Can Be Registered*, Chapter 306, *The Human Authorship Requirements*:

⁵ See IBM Research Takes Watson to Hollywood with the First "Cognitive Movie Trailer", THINK Blog (2016), <https://www.ibm.com/blogs/think/2016/08/cognitive-movie-trailer/>

⁶ *Id.*

⁷ *Id.*

⁸ *Id.*

⁹ U.S. Const. art. I, § 8, cl. 8.

¹⁰ Subject Matter of Copyright, 17 U.S.C. § 102(a).

¹¹ COMPENDIUM OF U.S. COPYRIGHT OFFICE PRACTICES, § 101.

¹² *See id.*

The U.S. Copyright Office will register an original work of authorship, provided that the work was created by a human being. The copyright law only protects “the fruits of intellectual labor” that “are founded in the creative powers of the mind.” *Trade-Mark Cases*, 100 U.S. 82, 94 (1879). Because copyright law is limited to “original intellectual conceptions of the author,” the Office will refuse to register a claim if it determines that a human being did not create the work. *Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53, 58 (1884).¹³

In collective works like motion pictures, writers, directors, editors, and actors collaborate in creating a collection of copyrights, which include the screenplay, directing of talent, and actors’ performances.¹⁴ The rights are often granted and acquired by assignment or license, and documented for the film corporation to claim ownership of the film, satisfying the Copyright Office’s requirement that inventors be human beings.¹⁵ The same model cannot be applied to AI work products unless Congress implements a chain of title framework for AI creative works.

Questions of the legal personhood of cognitive computers and AI have long been debated, and as long as the law continues to define “person” in the traditional sense of the word, AIs will not have the legal standing to own a copyright. In the case of an AI system that autonomously writes a screenplay, who would have an ownership interest in the copyright? The media company? The developer of the AI? Neither?

New York University AI researcher, Ross Goodwin, and BAFTA-nominated filmmaker, Oscar Sharp, collaborated in 2016 to create *Sunspring*, a short film written entirely by AI for the Sci-Fi London 48 Hour Film Challenge.¹⁶ Goodwin and Ross, obsessed with figuring out how to make machines generate original pieces of writing, developed an AI system that could process natural language through a recurrent neural network to produce machine-assisted scriptwriting.¹⁷ The AI system, named Benjamin, was provided the scripts of science fiction films including *Interstellar*, *Ghostbusters*, and *The Fifth Element*, and eventually learned how to emulate the structure of a screenplay, including stage directions and character lines.¹⁸ Shortly after *Sunspring*’s debut, Canadian mathematician and software architect, Jack Zhang, used AI to analyze massive amounts

¹³ *Id.*

¹⁴ See Rob H. Aft, Charles-Edouard Renault & Hou Hsiao-Hsien, *From Script to Screen: The Importance of Copyright in the Distribution of Films* (2011).

¹⁵ *See id.*

¹⁶ See Annalee Newitz, *Movie written by algorithm turns out to be hilarious and intense*, *Ars Technica* (2016), <https://arstechnica.com/gaming/2016/06/an-ai-wrote-this-movie-and-its-strange/>

¹⁷ *See id.*

¹⁸ *See id.*

of movie data, and identify the plot combinations that audiences like.¹⁹ By processing thousands of screenplays, with their audience reactions in mind, Zhang’s AI suggested plot points to form the story of his feature film, *Impossible Things*.²⁰ While these trends in filmmaking will not replace the role of writers, the technology can surely augment the ways in which the entertainment industry can maximize returns on investment through an AI-assisted, data-centric approach to filmmaking. As AI authored creative works, similar to *Sunspring* and *Impossible Things*, continue to develop into the future, the entertainment industry should recognize the possibility that the works will enter the public domain once they are created. Under *Compendium: Copyrightable Authorship: What Can Be Registered*, Chapter 313.2, *Works That Lack Human Authorship*, “. . . the Office will not register works produced by a machine . . . that operates randomly or automatically without any creative input or intervention from a human author.”²¹ While it could be argued that the data fed to AI systems constitute creative input from a human author, the unresolved question of ownership could lead to a highly litigious future for media companies.

While license agreements between AI developers and media companies will likely govern assignments of copyright ownership, neither the courts, nor Congress, are prepared to deal with AI work product copyright litigation. The first time Congress contemplated an expansion of the subject matter covered in the United States copyright law was through the Copyright Act of 1976.²² The 1976 Act was designed to expand with technology, indicating that Congress did not want to limit protection to current technologies.²³ The broad language of the current Act was intended to allow courts to adapt the law to circumstances not contemplated at the time the Act was passed, but AI driven approaches to authorship will require Congress to reexamine the 1976 Act.²⁴ Further, a media company’s use of an AI’s work product may not satisfy the Copyright Act’s requirement of “originality.”²⁵ The originality requirement may be circumvented by the Act’s exception to the general rule for claiming copyright. The Act’s “Works Made for Hire” clause, states that “the employer or other person for whom the work was prepared is considered the author for purposes of this title, and, unless the parties have expressly agreed otherwise in a written instrument signed by them, owns all of the rights comprised in the copyright.”²⁶ If a collective work involves AI contribution, written “work-made-for-hire” agreements between media companies and the AI’s developer may solve some of the legal questions of ownership between the two entities – though the

¹⁹ See Kim Arlington, Meet the man helping a robot write a movie, *The Sydney Morning Herald* (2016), <http://www.smh.com.au/technology/innovation/artificial-intelligence-input-into-film-script-aims-to-shake-up-industry-with-impossible-things-20160826-gr244l.html>

²⁰ See *id.*

²¹ COMPENDIUM OF U.S. COPYRIGHT OFFICE PRACTICES, § 313.2.

²² See Yvette Joy Liebesman, THE WISDOM OF LEGISLATING FOR ANTICIPATED TECHNOLOGICAL ADVANCEMENTS, 10 *J. Marshall Rev.* 154 (2010).

²³ See *id.* at 160.

²⁴ See *id.*

²⁵ Subject Matter of Copyright, 17 U.S.C.A. § 102.

²⁶ Ownership of Copyright, 17 U.S.C.A. § 201.

legal question of whether the work will be rendered public, and non-copyrightable, will remain.

It's possible that the entertainment industry will adopt a similar model to the Watson Cloud License Agreement. In 2013, IBM began offering online access to one of the most powerful cognitive AI systems ever built – Watson. IBM provided app developers access to Watson through an API and software toolkit, which enabled companies to utilize a “Watson-ready knowledge database to make their own and other apps smarter in specific areas.”²⁷ Watson's open cloud access allowed companies to tap into an otherwise expensive technology, and provide advanced solutions and services for customers using a company's mobile app or website.²⁸ Johnson & Johnson has used Watson AI to help scientists identify genetic profiles and their response to drug samples, Australia and New Zealand Global Banking Group has used Watson AI to help financial planners deliver improved advice processes to clients, and online travel company Travelocity has used Watson AI to power WayBlazer, a travel concierge app that lets customers ask natural language questions.²⁹ IBM's accessibility of Watson's AI tools to developers through the pre-packaged API cloud-based subscription service, IBM Cloud, is conditional on agreeing to a revenue-sharing contract.³⁰ Section 2 of IBM's Cloud Services Agreement reads:

2. Content and Data Protection

a. Content consists of all data, software, and information that Client or its authorized users provides, authorizes access to, or inputs to the Cloud Service. Use of the Cloud Service will not affect Client's existing ownership or license rights in such Content.³¹

IBM's Cloud Services Agreement, which provides a framework for ownership of a client's existing original copyright and intellectual property assets, will likely be the model that the entertainment industry will rely on as projects like the *Morgan* trailer, and *Sunspring*'s AI written script, increase in popularity. However, the IBM Cloud Services

²⁷ See Bruce Upbin, IBM Opens Up Its Watson Cognitive Computer For Developers Everywhere, Forbes (2013), <https://www.forbes.com/sites/bruceupbin/2013/11/14/ibm-opens-up-watson-as-a-web-service/#6d030d477efd>

²⁸ See *id.*

²⁹ See Thor Olavsrud, 10 IBM Watson-Powered Apps That Are Changing Our World CIO (2014), <https://www.cio.com/article/2843710/big-data/10-ibm-watson-powered-apps-that-are-changing-our-world.html#slide11>

³⁰ See Luke Dormehl, IBM Watson Is Giving Developers Five New AI Tools To Play With Fast Company (2015), <https://www.fastcompany.com/3042047/ibm-watson-is-giving-developers-five-new-ai-tools-to-play-with>

³¹ IBM, IBM Cloud Services Agreement (2014).

Agreement is silent on the copyright assignments of original work products that may come out of a client's AI integration with Watson.

As technology and data continue their convergence through artificial intelligence to create works of art, Congress must recognize the need for a legal framework to provide AI developers and media companies with statutory guidance. After all, Congress' power to promote the progress of science and useful arts can only be realized if innovation is recognized and protected. While the legal question of copyright ownership and protection of AI-produced works remains unresolved in the United States, collective works similar to the Twentieth Century Fox and IBM *Morgan* trailer will likely continue to gain popularity as the entertainment industry pushes the boundaries of augmenting the creative process with AI. Though the possibilities seem endless, media companies will need to tread lightly and consider the possible legal impacts that the unanswered questions of law may have on their intellectual property portfolios.