CULTIVATING AN ENTERPRISING MINDSET FOR GROWTH IN THE SPORTS AND ENTERTAINMENT INDUSTRY

FORDHAM UNIVERSITY
THE SCHOOL OF LAW
150 West 62nd Street, New York, NY
(Between Columbus Ave. & Amsterdam Ave.)

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PANEL TOPICS

- Artificial Intelligence (AI) and Copyright Law: Examining the Challenges and Opportunities that AI Presents in the Entertainment Industry
- General Counsel's Panel will feature senior business and legal affairs executives from major media, entertainment and sports companies who will discuss career path planning, the skills and background needed to succeed in their ever-expanding role of general counsel, and will share insight into the keys to effectively managing a legal department today.
- Rainmaking: How to Create an Effective Business Development Strategy
- Mental Wellness for Athletes, Entertainers, and their Attorneys: A real discussion on how off the field and off the stage behavior issues impact the careers of athletes, entertainers and their attorneys. Industry professionals will share their medical and legal analysis of high profile case studies, warning signs in the workplace, root causes of certain behaviors, preventative measures, and best practices for promoting mental wellness for clients and their attorneys.

CLE Course Materials

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**Panel 2** General Counsel’s Panel

Duane Morris LLP *General Counsel’s Panel CLE Materials.* (View in document)

**Panel 3** Artificial Intelligence (AI) and Copyright Law Examining the Challenges and Opportunities that AI Presents in the Entertainment Industry

*AI and Copyright Law CLE Materials.* (View in document)
Black Entertainment & Sports Lawyers Association Mid-Year Conference
Speaker Bios

Mason Ashe  
**Founder & CEO**  
Ashe Sports & Entertainment Consulting, Inc.  
Founder & CEO of Ashe Sports & Entertainment Consulting, Inc., based in Bethesda, Maryland, has 29 years of experience as a sports and entertainment attorney, talent manager, industry advisor, and sports agent. He also teaches sports law as a member of the adjunct faculty at The Wharton School of the University of Pennsylvania, and the Howard University School of Law.

Mr. Ashe has served as the lead contract negotiator, legal advisor, and brand strategist for professional athletes, financial advisors, entertainers, on-air personalities, celebrity chefs, journalists, senior leadership at publicly traded and privately owned businesses, film producers, investors in delivery mechanisms designed to commercialize talent, producers of TV and web-based reality shows, and a few pioneers of online social networking and other New Media platforms changing the way digital content is created, published, distributed, and consumed.

Mr. Ashe earned a BA degree in Psychology from Hamilton College, and a Juris Doctor degree from the State University of New York at Buffalo Law School. He also completed The Procter & Gamble Distributing Company - Executive Sales Management Training Program before attending law school.

He has been listed twice by Sports Illustrated magazine on its “101 Most Influential Minorities in Sports” list, received the 2015 Sports Lawyer of the Year Award from the National Bar Association, and recently selected for a 2016 Distinguished Alumni Award in Business from the SUNY at Buffalo Law Alumni Association.

Dr. Valda Crowder  
**Managing Partner**  
Capital Health Partners  
Currently heading the National Football League’s Player Engagement Department as the Senior Vice President of Player Engagement. Responsible for overseeing the Player Engagement staff, developing, implementing and managing educational programs and services for NFL players which assists players in reaching their highest potential on and off the field by providing guidance, support and resources before, during and after their NFL experiences.

Art has also agreed to assist in providing a panelist at our mid-year symposium on one of the topics we are currently researching for consideration related to player wellness on and off the field.

Moreover, Dr. Valda Crowder has agreed to be a panelist and present her research and expertise on a topic currently under consideration for the symposium related to athlete, entertainer, and lawyer mental wellness. Her brief bio is as follows:

Dr. Crowder is currently Managing Partner with Capitol Health Partners. In that capacity, she has worked on projects that improve health outcomes for individuals and organizations.

She has led projects that have spanned from developing strategies for the heroin overdose crisis in Anne Arundel County to conducting violence research related to the National Football League (NFL) that led to a system wide clinical audit. She has also re-designing clinical services to improve health outcomes in hospital and correctional settings. Dr. Crowder has health care and policy expertise that has led to successful implementation of change at a national, state and local level.

Lisa E. Davis  
**Partner**  
Frankfurt Kurnit Klein & Selz P.C.  
Lisa E. Davis is a partner in our Entertainment Group representing businesses and celebrities in the film, television, publishing, music, theatre, and sports industries. She was recently recognized as a "Leading Woman Lawyer in NYC" by Crain's New York Business (2017), one of The National Law Journal's "Outstanding Women Lawyers" (2015), by Savoy magazine in their "Most Influential Black Lawyers of 2015", in The Best Lawyers in America 2019 (Entertainment), and in Variety's "Power of Women New York Impact Report" (2014).

Ms. Davis advises on a full range of transactional matters - focusing on film (both feature and documentary), television, publishing, live stage and branded entertainment. Ms. Davis represents directors, writers and performers in film and television, as well as playwrights and bloggers. In her sports practice, she represents top athletes in their "off the field" activities, including endorsements and investments.

Ms. Davis is chair of the board of the Urbanworld Film Festival Foundation. Prior to joining Frankfurt Kurnit, she clerked for the Honorable Constance Baker Motley in the United States District Court for the Southern District of New York. Ms. Davis is a graduate of Harvard University (BA, 1981) and New York University (JD, 1985), where she was a staff member of the New York University Law Review and a Root-Tilden scholar. She is admitted to practice in New York. Her popular blog, Journal of the Plague Years, chronicles the current political environment and offers tools for resistance (www.journaloftheplagueyears.com).
Mavis Fowler-Williams  
Principal  
Intellectual Property and Technology Law in the 21st Century

Mavis Fowler-Williams is the principal in her private practice, Intellectual Property and Technology Law in the 21st Century. She handles a full array of Intellectual Property matters for clients, primarily in the Entertainment industry.

Mavis began her career in Intellectual Property law as an associate for the patent boutique law firm of Cooper and Dunham. While she was an in-house attorney for Johnson and Johnson, she became a registered patent attorney working on numerous patent cases. Eventually, she joined the patent group in the New York Office of Anderson Kill, where she was a partner.

Mavis realized that while she enjoyed patents, she didn’t want a career that limited her to just handling one aspect of Intellectual Property. She garnered the experience and reputation as a transactional specialist, negotiating, revising and reviewing thousands of copyright, trademark and technology license agreements and other IP agreements, while at top corporations: Toys “R” Us, Nick at Nite and TV Land, CBS News, Al Jazeera America and ALM Media.

Intellectual Property and Technology Law in the 21st Century has afforded Mavis the opportunity to combine her experience in all areas of IP so she can better serve her clients’ interests and needs. Private practice has also provided the opportunity for Mavis to pursue another passion of hers, teaching. She teaches Intellectual Property Drafting at Fordham Law School and IP Transactional Practice: Counseling, Negotiating, and Drafting as well as the Negotiations Workshop at Columbia Law School. She hosted her Second Annual Intellectual Property Law in the 21st Century Panel of Artists and Lawyers in April, 2019.

Mavis is the author of numerous legal books and articles, i.e. on Copyright Law and Patent Law as well as articles on copyright, trademark and entertainment law. She has also appeared on CNN, Court TV and radio and has been featured in online publications.

Mavis Fowler-Williams is a graduate of the Columbia University School of Law, the Columbia University School of Engineering and Applied Science a/k/a The Fu Foundation School of Engineering and Applied Science (popularly known as SEAS) and The Bronx High School of Science.

In her spare time, Mavis enjoys spending time with her husband and two children biking, swimming, traveling, kayaking, playing tennis, snowboarding, juggling and doing community service. While they engage in these activities, Mavis cherishes capturing these special moments in photographs.

Jay Grant  
Executive Vice President & General Counsel  
Univision Digital and News Univision Communications, Inc.

As Executive Vice President and General Counsel of Univision Communications Inc.’s (UCI) Digital and News Divisions. He recently served as EVP and General Counsel of Fusion Media Group (FMG), the multi-platform, English language division of and home to the FUSION Cable Network, The Root, Gizmodo Media Group, and The Onion. He oversees legal matters for Univision Digital, Univision News, and UCI’s interest in the El Rey and Fusion Cable Networks. He is an officer of UCI and its more than two dozen broadcasting networks, cable networks, digital and mobile properties, and more than 120 television and radio stations. He advises senior management on strategic partnerships, new ventures, and content acquisition & distribution deals. He has held a variety of senior leadership positions in a career spanning Los Angeles to New York, managed corporate governance and transactions for UCI and its board of directors, served as group counsel for UCI’s corporate development & strategic growth group, and represented all UCI divisions.

Kimberley D. Harris  
Executive Vice President  
NBCUniversal

Kimberley D. Harris serves as Executive Vice President of Comcast Corporation and General Counsel of NBCUniversal.

In this role, Harris oversees all international government and regulatory affairs for Comcast, supporting the company’s businesses worldwide. Additionally as General Counsel of NBCUniversal, Harris provides legal advice to senior management team and oversees the legal function across all NBCUniversal divisions. She reports to Comcast Chairman and CEO Brian Roberts and NBCUniversal CEO Steve Burke.

Harris joined NBCUniversal in 2013 from Davis Polk & Wardwell, where she was a partner in the litigation department.

From 2010 to 2012, Harris served in the White House Counsel’s Office, and became the principal Deputy Counsel and Deputy Assistant to the President in 2011. At the White House, she advised senior Executive Branch officials on congressional investigations and executive privilege issues. In addition, Harris developed and implemented the White House response to congressional investigations, and managed litigation matters relating to the President.
From 2009 to 2010, she was Senior Counsel to the Assistant Attorney General, U.S. Department of Justice, Criminal Division.

Harris first joined Davis Polk & Wardwell as an associate in 1997 and was named a litigation partner in 2007. From 1996 to 1997, she served as a law clerk to the Honorable Charles S. Haight, Jr., U.S. District Court, S.D. New York.

She serves on the boards of directors for Advocates for Children of New York, an organization that provides legal and advocacy services to at-risk students in the New York City school system, and the Brennan Center for Justice at New York University School of Law. Harris is also a member of the Advisory Board for the Yale Law School Center for the Study of Corporate Law.

Harris graduated magna cum laude from Harvard University, and holds a law degree from Yale Law School. She lives in Westchester County, New York with her husband and three sons.

Keyes Hill-Edgar
Executive Vice President, Global Business Affairs and General Counsel
Viacom Media Networks

Media Networks. Previously, Keyes was Executive Vice President, Business Affairs and General Counsel of the VMN Music Group (MTV, VH1, CMT and Logo), and, prior to that, he was Senior Vice-President, Deputy General Counsel and Assistant Secretary of Viacom Inc., responsible for numerous areas including mergers and acquisitions. Prior to joining Viacom in 2000, Keyes was associated with the law firm of Shearman & Sterling, working in their mergers and acquisitions, specialized finance and arbitration groups, in both their Paris and New York offices. He graduated from Columbia School of Law in 1994 as a Harlan Fiske Stone Scholar, magna cum laude from Harvard College in 1991, and from St. George’s School in 1987. Prior to that, he attended school in Aix-en-Provence, France. Keyes is on the Board of Trustees of St. Hilda’s and St. Hugh’s School, a member of a number of professional organizations, involved with several charitable organizations and was a fellow in The Partnership for New York City’s David Rockefeller Fellowship program. He lives on the Upper West Side of New York City with his wife and three children.

Darrick Hooker
Partner
Akerman, LLC- Intellectual Property

Darrick Hooker is a counselor and a litigator who routinely counsels and represents clients with a variety of intellectual property issues, including patent litigation and counseling relating to litigation, as well as trade secret, trademark, copyright, and entertainment matters. He has extensive transactional and litigation experience representing clients, including but not limited to, the medical devices, pharmaceuticals, healthcare, computer software, chemicals, mechanical devices, industrial, renewable energy, utility, mechanical engineering, and automotive/transportation industries. Darrick has extensive experience in initial case evaluation and assessment, development of case strategy and settlement options, all phases of discovery, Markman hearings, trial strategy development, trial, and post-trial proceedings and appeal.

He also assists his clients with licensing, risk assessment and management, internal governance, compliance, and due diligence investigations in connection with licensing transactions, mergers, and acquisitions, namely those involving intellectual property portfolio acquisitions. As a result, he has developed a reputation for having an in-depth understanding of a client’s business and technology to successfully identify and manage global assets, such as licensing and “freedom to practice” analyses of products, methods, and packaging. This includes conducting patent landscape investigations, and opinion work such as patentability, validity, non-infringement, and freedom-to-operate opinions.

His entertainment practice includes advising and counseling clients on intellectual property, licensing and other contract rights, publishing rights, rights of publicity, and branding issues.

As a commercial litigator, Darrick has advised clients on and litigated cases involving complex commercial matters, including cyber security, product liability, premises liability, and breach of commercial agreements.

Darrick is admitted to practice before the United States Patent and Trademark Office. He serves on the Board of Directors of the Institute for Science & Education Technology, Free Spirit Media, and the Black Entertainment and Sports Lawyers Association. He is also a member of the Intellectual Property Advisory Board at the Maurer School of Law at Indiana University-Bloomington.

Damon Jones
Senior Vice President & General Counsel
Washington Nationals Basketball Club

Damon Jones is the Senior Vice President & General Counsel, Baseball & Business Operations of the Washington Nationals Baseball Club. Jones oversees the Legal Department, is a member of the Baseball Operations Department, and has oversight of the Human Resources Department. Jones’ Baseball Operations work includes player contracts, salary arbitration, grievances, Basic Agreement and Major League Rules issues, and overall strategy. Jones works closely with every other department
on deals, legal and business strategy, special projects, disputes, and other matters.

Jones is an alumnus of Harvard Law School, The Wharton School, and the University of California, Santa Barbara, where he played Division I Baseball. He previously practiced at the law firm of Williams & Connolly LLP, served as an inaugural law clerk to the Honorable Roger L. Gregory of the United States Court of Appeals for the Fourth Circuit, was a California State Senate Fellow, and was Adjunct Professor of “Sports and the Law” at Georgetown University Law Center. Jones received a J.D. from Harvard Law School and B.A. from the University of California, Santa Barbara. He is a frequent speaker and lecturer on the sports business.

Arnold Joseph
Owner
Joseph & Associates

Mr. Joseph is the Owner of Joseph & Associates in which he is involved in all aspects of civil and criminal litigation including appellate practice as well as quite an extensive transactional practice. His civil litigation practice involves representation of individual and institutional clients in personal injury, subrogation, product liability, domestic relations and commercial litigation matters in federal and state courts throughout the country. His criminal practice focuses on large-scale narcotics, tax and fraud matters in federal courts; narcotics and homicide matters in state courts and appellate matters in both federal and state courts. He has tried well over 500 civil and criminal matters to verdict.

Mr. Joseph’s transactional practice involves the negotiation and drafting of complex contracts in a variety of areas. Mr. Joseph has served as general counsel to Golden Boy Promotions, LLC, a Los Angeles, California based professional boxing promoter owned by former professional boxer Oscar De la Hoya. He negotiated and drafted distribution and content agreements with television networks (HBO, Showtime, ESPN and Telefutura, etc.), venues (Las Vegas MGM properties, New York Madison Square Garden and Barclays Center, etc.), boxers, boxing promoters and sponsors for boxing events throughout the United States, Mexico and Europe. He also litigated matters on behalf of Golden Boy in federal and state courts and before State Athletic Commissions and Boxing Sanctioning bodies.

Mr. Joseph currently serves as counsel to Haymon Boxing which is a company devoted to the provision of advisory and consulting services to some of the world’s most preeminent professional boxers. The services which Mr. Joseph performs for Haymon boxing include preparation, review and revisions of contracts similar to those referenced with respect to Golden Boy. Prior to forming Joseph & Associates, Mr. Joseph was a member of the Philadelphia based law firm Cozen O’Connor in the firm’s Commercial Litigation Unit in which he was involved in all aspects of civil and criminal litigation including appellate practice. Civil litigation practice involved representation of individual and institutional clients in insurance coverage, subrogation, product liability, Domestic Relations and commercial litigation matters. Criminal practice focused predominantly on Federal Trial and Appellate matters.

Mr. Joseph received his Bachelor of Arts degree from Hamilton College and his Juris Doctorate from Temple University School of Law. He has served as an adjunct professor of law at the Temple University School of Law and is currently an adjunct professor of law at Drexel University School of Law.

Anita LaRue
Assistant U.S. Attorney

U.S. Attorney’s Office for the District of Columbia

Anita LaRue, is an attorney in the U.S. Attorney’s Office of the District of Columbia. As a senior prosecutor, Anita has prosecuted almost every type of local and federal crime in District of Columbia. She has also had the opportunity to serve as a community prosecutor in many parts of the District of Columbia. As such, she works closely with a wide variety of community groups including young adults, parents, neighborhood watch groups, law enforcement groups, halfway house residents, re-entrants, college students, seniors, domestic violence victims, and elementary, middle and high school students.

Among her many duties, Anita has served as the assigned prosecutor in Mental Health Community Court in the Superior Court of the District of Columbia. Anita has also served as the Acting General Counsel in the D.C. Department of Corrections where she worked to improve the educational instruction in the District of Columbia Jail and the Correctional Treatment Facility.

Prior to the U.S. Attorney’s Office, Anita served as the Deputy Director of the Office of Intergovernmental Affairs, in the Department of Justice. In that role she worked with advocacy groups in the areas of law enforcement, civil rights, environmental, immigration, healthcare, welfare fraud, violence against women, and victim’s rights. She participated in a working group with members of the Civil Rights Division and others to research state and federal law to determine the effects of hate crime on prosecutions. She served on the Church Arson Task Force and played a key role in a major initiative to identify and address immigration fraud, which included chairing meetings at the New Jersey U.S. Attorney’s Office attended by federal and state law enforcement representatives and immigration advocacy groups.

Outside of her legal work, Anita serves on the Boards of
Chereece Lawson Martin  
**Vice President of Business and Legal Affairs**  
**Viacom Media Networks and BET Networks**

Chereece Lawson Martin currently serves as Vice President of Business and Legal Affairs for Viacom Media Networks and BET Networks where her responsibilities include structuring and negotiating a wide variety of development and production agreements, including without limitation, agreements with third-party production companies, on-camera talent, directors, producers, co-production deals, sponsorship agreements and licensing agreements for the original programming, music programming, specials, news, and digital media. While at BET Networks, Chereece has served as one of the lead attorneys for some of BET's tent-pole specials, including without limitation, agreements with third-party production companies, on-camera talent, directors, producers, co-production deals, sponsorship agreements and licensing agreements for the original programming, music programming, specials, news, and digital media.

Chereece received Bachelor of Arts degrees in Communications and Sociology from the University of Pennsylvania and her Juris Doctor from Fordham University School of Law. She serves on the Television Directors of Special Olympics D.C. and Joy of Motion Dance Center. She received her Bachelor of Arts from the University of Pennsylvania and her Juris Doctor from the UCLA School of Law. She lives in Washington, D.C. with her husband, Arthur and her daughter, Dylan.

Chereece has served as one of the lead attorneys for some of BET’s tent-pole specials, “106 & Park”, “Rap City,” “50 Central,” and BET’s Music Matters Campaign. Before officially joining BET, Chereece was an Associate at the entertainment law firm, The Roberts Law Group, PLLC, where she provided counsel to its clients on a variety of television production and music-related matters.

Chereece received Bachelor of Arts degrees in Communications and Sociology from the University of Pennsylvania and her Juris Doctor from Fordham University School of Law. She serves on the Television and Radio Committee of the New York State Bar Association and the Corporate Law and the Minorities in the Profession Committees of the New York City Bar Association. She also currently serves as Co-Chair of BESLA’s Film and TV Division.

**Anthony Mulrain**  
**Member/Co-Chair Sports Practice**  
**Mintz, Levin, Cohn, Ferri, Glovski & Popeo P.C.**

Anthony Mulrain handles a broad array of litigation matters for a myriad of sports, entertainment, and media clients. He represents professional athletes and entertainers in courts around the country and handles sensitive matters for entertainment companies. Another key focus of his practice includes representing sports agencies and professional athletes in fee dispute arbitrations. And he negotiates endorsement deals for athletes and television and motion picture contracts for actors, writers, producers and directors and broadcast licensing arrangements for Television Producers.

Anthony’s practice primarily focuses on commercial litigation and intellectual property with a focus on the sports, media and entertainment industry. His extensive experience includes advising and counseling professional athletes in the NBA, NFL and MLB, representing at least one number one overall draft pick in all three major sports. In his capacity as General Counsel to professional athletes and agencies, he has advised on matters related to, amongst other things, Player-Agent disputes before the NBPA and MLBPA, NCAA Regulatory Compliance, endorsement and sponsorship agreements, professional boxing promoter and licensing agreements and Title IX Sexual Assault Matters. Anthony has also been called upon to represent professional athletes in high profile domestic relations matters. His litigation practice is national in scope and has resulted in him handling matters in California, Florida, Georgia, Illinois, New Jersey, New York, South Carolina and Texas. Anthony is Co-chair of the firm’s Sports & Entertainment Practice.

Anthony has represented a wide variety of enterprises, including studios, television and cable networks, in highly sensitive litigation and business transactions. He has also represented some of Hollywood's brightest stars in negotiating hundreds of motion picture and television actor, writer, producer and director agreements, stage production agreements, and broadcast licensing arrangements.

Prior to joining Mintz, Anthony served as the founding and managing partner in the Atlanta office of a prominent national law firm. He was the chair of the firm’s national sports, media & entertainment law practice and a member of the commercial litigation and intellectual property practice groups.

**Clarence Nesbitt**  
**General Counsel**  
**National Basketball Players Association**

Nesbitt now serves as the General Counsel for the National Basketball Players Association (NBPA). In his role, he oversees a team of attorneys responsible for all aspects of the NBPA’s legal affairs. Previously, Nesbitt was the General Counsel and an inaugural member of the Board of Directors for THINK450. THINK450 is a wholly-owned subsidiary of the NBPA tasked with generating licensing and sponsorship revenues using the group license of the image rights of NBPA members. Nesbitt joined THINK450 from NIKE, Inc., where he last served as the Director of Global Brand Business Affairs. In that role, he led the global team responsible for securing key approvals, licensing and safeguarding NIKE’s Global Brand Marketing function against potential issues related to advertising and marketing. He worked in other capacities at NIKE in his 9.5-year career, most notably serving for four years as Sports Marketing Counsel at NIKE’s European headquarters in Hilversum, The Netherlands. In that role, he represented NIKE in its negotiations for sponsorship contracts with top-tier athletes, teams and federations across Europe, Middle
Dr. Nyaka NiiLampti
Vice President
National Football League

Nyaka NiiLampti, Ph.D. is currently the Vice President of Wellness and Clinical Services for the National Football League. In her role, she is responsible for the Total Wellness and Mental Health platforms and plays a strategic role in the Player Engagement department's mission to have a lifelong positive impact on individuals inside and outside of the NFL family.

Nyaka has most recently served as the Director of Player Wellness for the NFLPA, where she focused on providing resources and educating players on all aspects of wellness, including mental health and the NFL Program on Substances of Abuse. In addition, she served as an advocate for players by ensuring their rights are protected under the NFL Drug Policies.

Nyaka is a licensed psychologist with over fifteen years of clinical experience, and has worked extensively with organizations, sports teams, individuals and families in a variety of settings, including community mental health, college counseling centers, and in private practice. Before joining the NFLPA, Nyaka was a tenure-track Assistant Professor of Psychology at Queens University of Charlotte, where she taught undergraduate courses in multiple areas and served as the Faculty Athletic Representative to the NCAA. Her research focused on multiculturalism and mental health, particularly as those concepts relate to issues of resiliency and success.

Dr. NiiLampti also spent several years in private practice where she specialized in comprehensive services focused on performance related concerns and athlete well-being, also serving as a Treating Clinician for the NFL Program for Substances of Abuse and as an approved clinician for the NBA/NBPA Player Assistance/Anti-Drug Program. A former track and field college student-athlete, Nyaka has a bachelor’s degree from Princeton University, an M.A. with a concentration in Sport Psychology from the University of North Carolina-Chapel Hill, and a Ph.D. from Temple University.

Khadijah Sharif-Drinkard
Senior Vice President, Business and Legal Affairs
Viacom Media Networks

Khadijah Sharif-Drinkard serves as Senior Vice President, Business and Legal Affairs, Viacom Media Networks, where she oversees unscripted programming, music programming, tent poles, specials and news across BET Networks. She is a strong business partner with broad expertise and over 20 years of practicing law in the media and entertainment field. Khadijah structures and negotiates a wide variety of transactions in connection with the development, production, acquisition and distribution of content across platforms. Her experience as a skilled business executive and deal maker was paramount in her closing deals for a number of high profile projects, including, the Bobby Brown Story, the New Edition mini-series (the highest rated show ever on BET), and in bringing the Black Girls Rock! franchise to BET. Prior to working at BET Networks, Khadijah served as Vice President, Senior Counsel at Nickelodeon where she helped to launch such hits as Dora the Explorer, Diego and The Backyardigans. Khadijah serves as President of the Board of Directors for the Black Entertainment & Sports Lawyers Association (BESLA) and as Vice President of the Board for Columbia College Women (CCW). She received the Luminary Award for her business acumen and her commitment to diversity and inclusion from the National Association of Multi-Ethnicity in Communications (NAMIC), the inaugural Corporate Counsel of the Year Award from the Muslim Bar Association of New York (MuBANY) in 2018 and the Ruth Whitehead Whaley Award from Fordham Law School’s Black Law Students Association (BLSA) for being an outstanding alumna in 2019. Khadijah earned her Bachelor of Arts degree from Columbia University and her Juris Doctor from Fordham University School of Law. She lives in New Jersey with her husband and two daughters.

Olivier Sylvain
Director, The McGannon Center for Communications Research; Professor of Law
Fordham Law School

Olivier Sylvain is a Professor of Law at Fordham University School of Law. His academic interests are chiefly in information and communications law and policy. He has written a variety of law review articles, symposium pieces, essays, policy papers, news articles, op-eds, and blog posts on current controversies in communications policy, online intermediary liability, privacy, and copyright. He is part of a team of legal scholars, research engineers, and social entrepreneurs to whom The National Science Foundation in fall 2017
awarded a three-year one-million-dollar grant to prototype an "edge-cloud" network that is to be owned and operated as a “commons resource” for Harlem residents.

At Fordham, Olivier teaches Legislation & Regulation, Administrative Law, Information Law, and information law related courses. He is the Director of the McGannon Center for Communications Research. He is also affiliated with the Center for Law and Information Policy and the Center on Race, Law, and Justice. Before entering academia, Olivier was a Karpatkin Fellow in the National Legal Office of the American Civil Liberties Union in New York City and a litigation associate at Jenner & Block, LLC, in Washington, D.C. He is on the board of directors for the New York affiliate of the American Civil Liberties Union and teaches a class on modern American literature for local incarcerated men. Olivier received his J.D. from Georgetown University Law Center.

Karyn Temple
Acting Register of Copyrights and Director
U.S. Copyright Office
On October 21, 2016, Librarian of Congress Dr. Carla Hayden named Karyn A. Temple Acting Register of Copyrights.

Temple had served as Associate Register of Copyrights and director of policy and international affairs for the United States Copyright Office since January 30, 2013. Prior to that, she served as senior counsel in the Office of Policy and International Affairs. As Associate Register, she assisted the Register of Copyrights with critical policy functions of the Copyright Office, including domestic and international policy analyses, legislative support, and trade negotiations. She directed the Office of Policy and International Affairs, which provides regular support to Congress and its committees on statutory amendments and construction, and also represents the Copyright Office at meetings of government officials concerned with the international aspects of copyright protection and enforcement. Prior to joining the Copyright Office in 2011, Temple served as senior counsel to the deputy attorney general of the United States, assisting with the formulation of U.S. Department of Justice policy on sensitive legal issues and helping to manage the department’s Task Force on Intellectual Property. She also spent several years in private practice at the Recording Industry Association of America and at the law firm Williams & Connolly, LLP. She began her legal career as a trial attorney for the U.S. Department of Justice’s Civil Division through its Honors Program and also served as a law clerk to the Hon. Nathaniel R. Jones of the U.S. Court of Appeals for the Sixth Circuit. Temple earned her JD from the Columbia University Law School, where she was a senior editor of the Columbia Law Review and Harlan Fiske Stone Scholar. She earned her BA in English from the University of Michigan.

Joseph K. West
Partner and Chief Diversity and Inclusion Officer
Duane Morris LLP
Joseph K. West is a partner in Duane Morris’ Washington D.C. office, a member of the firm’s Partners Board and the firm’s Chief Diversity and Inclusion Officer. As a trial lawyer, Mr. West represents clients from start-ups to the Fortune 500 in complex commercial litigation, ranging from class actions and insurance litigation to products liability, and labor and employment. He has tried over 150 matters to verdict, and managed the largest class action in U.S. history. A nationally recognized authority on diversity and inclusion, he advises companies, their boards and CEOs on their corporate strategies in this area. Prior to Duane Morris, he served as President/CEO of Minority Corporate Counsel Association. Previously, he was Associate General Counsel at Walmart Stores Inc., where he managed 600 law firms worldwide and a $300 million budget; Associate General Counsel at Entergy Corporation; and prior, a partner in law firms in Louisiana.

Mr. West’s J.D. is from Tulane Law School, where he served as Adjunct Professor of Trial Advocacy, and his B.A. from Southern University. He currently lectures on corporate diversity at the George Mason Scalia School of Law, where he developed the first-of-its-kind curriculum on corporate diversity and inclusion.
INTRODUCTION

The subject of mental wellness, in general, is a topic that is often avoided or ignored in high-profile sports and entertainment industry workplaces. However, the pressure to perform, to compete, to meet the challenges set by demanding employers, and to adapt to transient work environments – all in order to earn lucrative incomes can take a serious toll on the mental health of the athletes, entertainers, and even their attorneys operating inside these unique ecosystems.

Consequently, it is imperative that organizations such as BESLA provide sessions like this for its constituents to learn more about the nuances of mental wellness, share experiences, and discuss best practices to help prevent or mitigate the harmful effects mental illness can inflict on the careers of BESLA attorneys and their clients.

Award-winning television personality and columnist Bill Rhoden, suggests that in the case of the athlete:

The larger problem is the deep-seated sports ethos that embraces a tradition of mental toughness, emotional fortitude and inner resourcefulness that makes it difficult, if not impossible, to say, “Help.”

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1 The Black Entertainment & Sports Lawyers Association (“BESLA”) is a 501(c)(3) nonprofit organization of lawyers, executives, legal educators, and law students established in 1980 to support a diversified, expert and informed group of professionals from entertainment, sports and affiliated industries to establish a learning and networking environment to share best practices and support each other. http://www.besla.org/history
2 Mason P. Ashe is Founder and CEO of Ashe Sports & Entertainment Consulting, Inc., and is an adjunct professor of sports law at Howard University School of Law. He received his Bachelor’s Degree in Psychology from Hamilton College, and his Juris Doctorate Degree from State University of New York at Buffalo School of Law. He is also a Board Member of BESLA, and co-chair of the BESLA Mid-Year Conference (April 15, 2019).
Athletes often need to be reminded that asking for help, in the form of advice or counseling, is not a sign of weakness. In fact, athletes who have experienced career longevity understand that having someone to lean on for guidance during career breakthroughs and setbacks, or simply knowing where to go to find professional support can actually be a competitive advantage.

Entertainers also need to understand the value of mental wellness during their pursuit of success in order to beat the odds and overcome the unpredictable adversities encountered along the way. It can be nerve-racking, and too often requires a perfect storm for entertainers to find necessary resources to perfect their craft, recruit trustworthy representation, commercially exploit their brands in deals that protect their interests, and eventually transition into the lifestyle of abundance they seek and hope to maintain for a lifetime.

Finally, the need for mental wellness in the legal profession is just as great. The mental health challenges that sports and entertainment lawyers experience while striving for the success, they individually define for themselves, closely resemble challenges confronted by their clients. A lawyer, just like his or her sports and entertainment client, must embrace the notion of “delayed gratification” in order to rationalize pushing themselves to work long hours under all sorts of circumstances to finish law school, pass the bar, maintain employment (or launch a solo practice), adapt to a variety of workplace environments (some healthy and some toxic), acquire positive traction in their chosen area of interest that hopefully generates substantially larger income over time until they reach a point when they feel financially secure enough to exercise control or at least influence over his or her destiny. In the meantime, too few lawyers take the time to fully appreciate the fluctuating status of their mental health during their race for success.

This session will involve a real discussion on how off-the-field and off-the-stage behavior issues specifically impact the careers of athletes, entertainers, and their attorneys. Industry professionals on the panel will share their medical and legal analysis of:

- Popular case studies that illustrate the dangers associated with mental illness,
- Warning signs in the workplace,
- Root causes of certain behaviors,
- Effects of ethical dilemmas that attorneys encounter,
- Preventive measures,
- Best practices for promoting mental wellness for clients and their attorneys
- Wellness programs, state and federal laws, and support groups that are available to assist clients and the legal community

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5 Id.
PANELISTS

1. Dr. Valda R. Crowder,\textsuperscript{6} Managing Partner, Capitol Health Partners (Moderator)
2. Dr. Nyaka Niilampti,\textsuperscript{7} Vice President, Wellness & Clinical Services, NFL
3. Arnold C. Joseph, Esq.,\textsuperscript{8} Joseph & Associates
4. Anita LaRue,\textsuperscript{9} Esq., Assistant U.S. Attorney, U.S. Attorney’s Office for the District of Columbia

TOPICS FOR DISCUSSION

What is Wellness?

In order to properly explore the causes and effects of mental wellness, it is important to first understand what it means. According to the U. S. Surgeon General:

Positive mental health allows people to realize their full potential, cope with the stresses of life, work productively, and make meaningful contributions to their communities. Early childhood experiences have lasting, measurable consequences later in life; therefore, fostering emotional well-being from the earliest stages of life helps build a foundation for overall health. \textbf{Anxiety, mood} (e.g., \textit{depression}), and \textbf{impulse control disorders} are associated with a higher probability of risk behaviors (e.g., tobacco, alcohol, and other drug use; risky sexual behavior),

\textsuperscript{6} Dr. Crowder designs and implements innovative models that allow a structured approach to federal, state and JCAHO compliance, utilization review, policy compliance, clinical quality and revenue review for hospital systems, health care clinics, physician offices and employee health programs.

\textsuperscript{7} Dr. Niilampti is responsible for the Total Wellness and Mental Health platforms and plays a strategic role in the NFL Player Engagement department’s mission to have a lifelong positive impact on individuals inside and outside of the NFL family.

\textsuperscript{8} Mr. Joseph is involved in all aspects of civil and criminal litigation including appellate practice as well as quite an extensive transactional practice. His civil litigation practice involves representation of individual and institutional clients in personal injury, subrogation, product liability, domestic relations and commercial litigation matters in federal and state courts throughout the country. His criminal practice focuses on large-scale narcotics, tax and fraud matters, narcotics and homicide matters in state courts and appellate matters in both federal and state courts.

\textsuperscript{9} Anita LaRue is a senior prosecutor who has prosecuted almost every type of local and federal crime in District of Columbia. She has also had the opportunity to serve as a community prosecutor in many parts of the District of Columbia. As such, she works closely with a wide variety of community groups including young adults, parents, neighborhood watch groups, law enforcement groups, halfway house residents, re-entrants, college students, seniors, domestic violence victims, and elementary, middle and high school students. She also has served as the assigned prosecutor in Mental Health Community Court in the Superior Court of the District of Columbia.
intimate partner and family violence, many other chronic and acute conditions (e.g., obesity, diabetes, cardiovascular disease, HIV/STIs), and premature death.\textsuperscript{10}

Likewise, according to the World Health Organization, mental wellness is defined as:

“A state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community.”\textsuperscript{11}

Our moderator and presenter, Dr. Valda Crowder, will submit that wellness should be discussed using the four following categories:

1. Medical / Psychiatric
2. Environment / Social
3. Occupational / Financial
4. Spiritual

**Important Facts About Undesirable Incidents**

Dr. Crowder asserts that wellness is measurable, can be tracked over time, and its deterioration is associated with warning signs or “red flags” that should not be ignored or taken lightly. When these signs are ignored, she says “undesirable incidents” occur.

Undesirable incidents can include violence, arrests, suicide, and death – which Dr. Crowder argues are all predictable with great specificity. Therefore, if they are predictable, then they are preventable.

The costs associated with the impact of undesirable incidents, especially in the sports and entertainment industries, include:

1. Damage to reputation, brand, and marketability
2. Reduction in money generated and earned
3. Decrease in competitiveness

Dr. Crowder will explain her belief that one of the biggest mistakes involved with the detection of mental illness is that too many incidents are mischaracterized as only personal choices or simply bad decisions made by an individual.


\textsuperscript{11} THE AMERICAN MENTAL WELLNESS ASSOCIATION (2019), https://www.americanmentalwellness.org/intervention/definitions/
Examples of Cases Outside of the Sports and Entertainment Industries

In this session, all of the panelists will also discuss their observations and opinions on cases they have personally encountered where mental health impacted the outcome of the situation.

Alvarado v. Potter,\textsuperscript{12} is a case where the mental illness was accurately detected and treated, so the U.S. Postal Service mail carrier who suffered from a psychiatric disorder was unable to prove disability discrimination because his impairment did not “substantially limit” a major life activity, according to the federal district court that ruled in this case. More specifically, the court stated that “a thorough review of the record revealed that with the help of his medication and psychological treatment, the employee [could] function without "substantial" limitations on his major life activities.”

In another recent federal court case, a grand jury indicted a former postal worker named DeShaune Stewart in Columbus, Ohio, because several witnesses saw him shoot one of his co-workers inside the post office and was later arrested near his supervisor’s home with a handgun after allegedly shooting and killing him too. According to the indictment, the defendant claimed he committed the incidents because he had been harassed by the co-workers.\textsuperscript{13}

How Does This Apply to Sports?

Dr. Crowder will present her research that evaluates data related to certain types of incidents involving professional athletes that play for different professional sports leagues, such as the NFL and NBA, over a period of ten years. Her analysis will draw assumptions about the levels of mental wellness or mental illness present on certain teams based on:

- Which teams have the least and most amount of player arrests
- What type of incidents are causing the arrests
- Correlations that may be made between player arrests and team wins

Cases involving professional athlete incidents are plentiful. All of the panelists will weigh in on a few high-profile sports cases that have received widespread media attention.

Amateur Athletics

Mental health initiatives are receiving a great deal of attention on all levels of amateur sports, including interscholastic athletics (before college) and intercollegiate athletics (during college). In 2014, a female student-athlete at University of Pennsylvania died by suicide at the


age of 19. Since that tragedy, sportswriter Justin Ching claims: “the sports community has struggled to address the root causes of [the female student-athlete’s] death: mental health.”

Furthermore, Chin adds:

“According to the American Psychiatric Association, women are ‘nearly twice as likely’ as men to develop depression, anxiety and eating disorders. Add in the stress of sports commitments and you have a dangerous combination. The majority of women interviewed pointed to eating disorders related to their sport as the top issue.

‘We talk about [body image] every day,’ said a group of University of Southern California lacrosse players. Anorexia or bulimia is twice as rampant among athletes versus the general population of women, according to the National Association of Anorexia Nervosa and Associated Disorders (ANAD).”

To help emphasize the severity of this challenge:

“In 2013, Chief Medical Officer [of the NCAA Sport Science Institute], Dr. Brian Hainline declared mental health as the No. 1 health and safety concern in the NCAA.”

Professional Athletics

Historically, information regarding any professional player arrests and player punishments by teams or leagues was difficult to obtain unless the player was well-known or the incidents were reported by local media that follow a particular team. More specifically, domestic violence committed by professional athletes began to receive dramatically more attention during the O.J. Simpson murder trial, which concluded with his acquittal for the murders of his ex-wife and her friend in 1995. According to Bethany Withers, that case attracted the public’s attention and concern for incidents such as domestic violence committed by athletes but not prosecuted -- more than ever before. She wrote:

One comprehensive study conducted by Jeff Benedict, former director of research at the Center for Sport in Society, found that 172 athletes were arrested for sex felonies between 1986 and 1995, yet only thirty-one percent were successfully

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14 Justin Ching, Mental Health Issues a Huge Challenge for NCAA in regard to Student-Athletes (October 8, 2018), FOXSPORTS.com, https://www.foxsports.com/other/story/madison-holleran-ncaa-student-athletes-mental-health-issues-032515
15 Id.
16 Id., quoting NCAA – Sport Science Institute, Meet the SSI Team, http://www.ncaa.org/sport-science-institute/about-ssi
17 Id.
prosecuted.\textsuperscript{19} The study also concluded that 150 athletes had domestic violence criminal complaints filed against them between 1990 and 1996, yet only twenty-eight resulted in convictions and the majority of cases were not prosecuted.\textsuperscript{20}

There is no doubt the O.J. Simpson case sparked a new level of scrutiny by fans and professional clinicians for and against athletes involved in incidents off-the-field based on a variety of theories for the cause of such behavior.\textsuperscript{21}

A more recent sports case involved the popular running back for the Baltimore Ravens, Ray Rice, who was caught on a hotel elevator video punching his wife during an altercation that allegedly involved heaving drinking. Rice’s head coach John Harbaugh, in the player’s defense after being charged by a grand jury for third-degree aggravated assault, was quoted saying:

“He’s a person of character. The thing that’s really important is to be able to support the person without condoning the action. He made a mistake. There’s no justifying what happened. When you drink too much in public, those kinds of things happen.”\textsuperscript{22}

New York Times columnist Charles Blow reacted to the coach’s perspective, as follows:

“Whatever one may think of Rice’s character, ‘those kinds of things’ don’t just ‘happen.’ That is too casual a dismissal of a very serious issue.”\textsuperscript{23}

In any event, to reduce the number of undesirable incidents involving athletes, there is clearly a need to pay closer attention to \textit{warning signs} in order to prevent them in the first place; do a better job of identifying and treating the root cause of the incidents in the workplaces and homes of the players; and establish a more consistent system to adjudicate the actions pursuant to a clear and balanced set of rules that apply to everyone without regard to the prominence of the player involved.

In an effort to meet the issue head-on, the NFL Players Association is attacking the situation from multiple perspectives. For instance, the website of The Trust\textsuperscript{24} states that it understands player mental wellness is just as important as a player’s physical health. So, it provides descriptions and links to additional resources and other associations dedicated to helping former players.\textsuperscript{25}

\textsuperscript{19} Bethany P. Withers, \textit{The Integrity of the Game: Professional Athletes and Domestic Violence}, 1 HARV. J. SPORTS & ENT. L. 146 (Spring 2010); quoting, JEFF BENEDICT, PUBLIC HEROES, PRIVATE FELONS: ATHLETES AND CRIMES AGAINST WOMEN 80 (1997).

\textsuperscript{20} Id.


\textsuperscript{23} Id.

\textsuperscript{24} The Trust was launched on November 12, 2013 to provide resources and earned benefits to former NFL players to ensure a successful transition post-career. http://playerstrust.com/about/our-history

\textsuperscript{25} Id., \textit{Mental Health}, http://playerstrust.com/service/mental-health
At the league level, the NFL declares that it is “committed to promoting a culture where everyone, including athletes, is encouraged to seek the assistance and support they need to achieve overall wellness.” In 2012, it launched the “Total Wellness” initiative, a program designed “to assist active players and NFL Legends, as well as the coaching community, in achieving physical and emotional wellness.”

To maximize the Total Wellness initiative, the NFL’s player engagement team makes sure:

“… the entire NFL family has access to NFL Total Wellness, which focuses on four main areas: physical, emotional, personal and financial strength. Total Wellness offers tools and training that the NFL player population needs to succeed in the game of life and includes everything from stress management resources to health coaching to financial planning services.”

The NBA and WNBA have also made mental health a priority, both because it is the right thing to do and the leagues have experienced their share of player incidents off-the-court. Some players have even been willing to speak up and share their perspectives. One such player is Kevin Love, who has admitted “the topic of mental health was never discussed among his family members, despite a history of depression that he believes has been passed down from generation to generation. Love says anything but ‘just sucking it up and dealing with it’ was perceived as weakness.”

The NBA Cares website states that “The NBA supports our fans, families, and communities by promoting healthy minds and bodies and increasing awareness around emotional well-being.” To make it crystal clear to its constituents, the NBA goes further to state:

YOUR MENTAL HEALTH MATTERS

Educate – Learn all you can about ways to recognize and manage stress, anxiety, and depression, and how to support one another. (with a link to support groups)

Communicate – It’s always OK to ask for help. Checking in and letting someone know you care can make a huge difference too.

Practice – Take really good care of your own physical and emotional health by practicing self-acceptance, eating and sleeping well, exercising, engaging with friends, and finding ways to relax.

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27 Id., Total Wellness Assists NFL with Physical, Emotional Wellness, News (August 17, 2018)
28 Play Smart, Play Safe, NFL.COM, https://www.playsmartplaysafe.com/resource/total-wellness/
Resources – If you are struggling with your mental wellness, it may be a good idea to take a free and confidential screening or ask someone you trust for help. If you or someone you know needs help immediately, then you should visit here to get help now.

How Does This Apply to Entertainment?

Mental wellness in the entertainment industry is receiving increased visibility and attention just as it is in sports. The deterioration of mental wellness experienced by entertainers is associated with similar warning signs as discussed earlier. At the breaking point, Dr. Crowder argues mental illness takes its toll and produces the undesirable incidents highlighted above which includes arrests, suicide, and death – all of which are preventable and too often mischaracterized as simply bad personal choices or just poor problem-solving by the individual that is suffering and needs help.

A recent article published by Harper’s Bazaar magazine, interviewed 39 celebrities willing to share their personal battles with mental health issues which provides proof that anxiety and depression can affect anyone. A few of the celebrities shared the following:

- Award-winning singer, Adele, admitted that she “can slip in and out of [depression] quite easily.”
- Michelle Williams, a former member of the singing group Destiny’s Child, shared that when she told her manager she was feeling depressed after signing a multimillion-dollar deal, the manager dismissed it because he didn’t see any reason why she could be depressed at such a positive time in her life.
- Superstar vocalist Miley Cyrus explained that after going through bouts of depression, mostly due to the way she felt about skin conditions that made her uncomfortable, she realized that “…[E]very person can benefit from talking to somebody. I’m the most anti-medication person, but some people need medicine, and there was a time where I needed some too.”
- Actor Dwayne Johnson shared: “I found that, with depression one of the most important things you could realize is that you’re not alone.” Moreover, he said,

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31 Mental Health America, MENTAL HEALTH SCREENING TOOLS, https://screening.mentalhealthamerica.net/screening-tools
34 Id.
35 Id.
36 Id.
37 Id.
“And I wish I had someone at that time who could just pull me aside and [say], ‘Hey, it’s gonna be OK. It’ll be OK.’ So, I wish I knew that.”

- Rapper Nicki Minaj shared that after a number of setbacks and disappointments, “At one point, I was, like, ‘What would happen if I just didn’t wake up?’ That’s how I felt. Like, ‘Maybe I should just take my life?’”

Some legal cases involving high profile celebrities make mention of an artist’s battle with mental health issues in legal proceedings that are highlighted by the media and can damage the artist’s reputation and negatively impact their ability to earn a living as a performer when demand for their services is diminished as a result. For example, in Whitney Houston v. The New York Post Co., singer Whitney Houston commenced a libel action in the U.S. District Court for the Southern District of New York after defendant New York Post falsely reported that Ms. Houston had been hospitalized following an attempted overdose of diet pills as a result of suffering from depression allegedly associated with her excessive weight gain.

In this instance, the defendant admitted the falsity of the article, and printed a correction soon thereafter. However, due to the heightened standard required for public figures to prove and win a defamation per se case, the court held that Ms. Houston failed to prove by clear and convincing evidence that the defendant acted with actual malice in publishing this particular defamatory falsehood. Fortunately, she did not experience any immediate or noticeable monetary damage to her career at the time.

**How Does This Apply to the Legal Profession?**

The campaign for widespread mental wellness is also at the forefront of issues promoted by bar associations, law firms, and employers of every kind in the legal profession. A recent article published in the New York State Bar Journal, written by Karen Peters, provides that:

“Too often we look at mentally ill or substance abusing clients or litigants as “them.” But we shouldn't. The problems they face are not just theirs, they are ours too. Mental illness and substance abuse impact our professional lives and our personal lives.”

Peters also added that:

The New York State Bar Association, through its Lawyer Assistance Program and Judicial Wellness Committee, provides confidential assistance to lawyers, judges and their family members, and formulates and recommends policies to

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38 Id., also see: 22 Male Athletes Speaking Out About Depression, https://headsupguys.org/22-male-athletes-speaking-depression/

39 Id.


41 Karen K. Peters, *Substance Abuse and Mental Health Issues: This Is Us* (November/December 2018), 90-DEC N.Y. St. B.J. 8
assist lawyers and judges in dealing with treatable mental illnesses such as addiction and depression.42

The movement in support for mental wellness within law firms is picking up momentum too. For instance, several large firms have agreed to “a seven-point pledge developed by an ABA working group to target substance-use disorders and mental-health issues among lawyers.”43

Finally, according to the law review article “Behavioral Legal Ethics,”44 which analyzes a survey conducted by the American Bar Association that found 118,054 ethics complaints were made against U.S. lawyers in 2010,45 it was determined that “concerns about ethics cut across all sizes and types of practice.”46

The psychology discussed by co-authors Sternlight and Robbennolt attempts to “help explain how ethical lapses can occur more easily and less intentionally than otherwise imagined when a lawyer is faced with complex and ambiguous ethical rules and standards, agency relationships, the ethos of the adversarial system, pressures of modern legal practice, positions or feelings of relative status or power, and cues or pressure from others that are all characteristics of the practice of law that attorneys need to pay closer attention to in order to avoid crossing ethical lines.”47

Our panelists will share their opinions and observations regarding the current status of ethics in their respective professions and discuss whether they believe mental wellness is having a positive or negative impact on the lawyers they encounter.

42 Id.
45 Id. at 1109-1110.
46 Id.
47 Id. at 1112.
General Counsel’s Panel
BESLA Mid-Year Conference

Fordham Law School
April 15, 2019
Meet the Panel

Kimberley Harris
General Counsel
NBCUniversal

Keyes Hill-Edgar
General Counsel
Viacom Media Networks

Damon Jones
General Counsel
Washington Nationals

Clarence Nesbit
General Counsel
National Basketball Players Association

Joseph K. West
Partner and Chief Diversity & Inclusion Officer
Duane Morris LLP (Moderator)
This session will discuss:

- The relationship between Diversity and Inclusion
- The impact of Implicit Bias
- Steps that GCs and their corporations have taken to incorporate D&I culture into their workplaces
- How GCs are holding law firms accountable going forward
What is Diversity & Inclusion?

• **What is Diversity?**
  – Diversity is the presence of differences that makes each person unique and can be used to differentiate groups and people from one another.

• **What is Inclusion?**
  – Inclusion is the process of involving others or leveraging the power of the many dimensions of diversity to achieve common objectives.
What is Diversity & Inclusion?

**Diversity**

Representation

**Inclusion**

Equitable access to opportunities for success for all
Various Elements of Diversity

- Family
- Marital/Partner
- Recreation
- Habits
- Generation

- Work Experience
- Industry
- Role/Function
- Tenure
- Status/Level

- Culture
- Beliefs/Practices
- Religion/Spirituality
- Political
- Attitudes

- Age
- Gender
- Appearance
- Sexual Orientation
- Physical Abilities

- Language
- Race
- Ethnicity
- Geography
- Education

- IQ
- Thinking
- Learning
- Communication
- Introvert/Extrovert

Relational
Physical
Occupational
Societal
Values
Cognitive
The Business Case for Diversity & Inclusion

**Recruitment & Retention**
Attract and keep top talent

**Quality**
Diverse teams and perspectives improve work products

**Credibility & Relevance**
Diverse teams may connect better with clients

**Culture**
Diversity and inclusion enriches the workplace culture
The Business Case for Diversity & Inclusion

**Client Expectations**
Clients and potential clients expect to work with diverse teams

**Litigation Risk**
Diversity and inclusion minimizes litigation risk

**Competitive Advantage**
Diversity and inclusion initiatives become a competitive advantage over peer firms

**Walk Your Talk**
Important to align your workplace with your diversity and inclusion goals
New Research:
Diversity + Inclusion
= Better Decision Making at Work
(Forbes, September 2017)

Diverse teams make better decisions up to 87% of the time.

What Is Implicit Bias?

**Implicit**
- Not known or explicit
- Not discrimination

**Unconscious**
- Reactive, not reflective
- Immediate, not deliberate

**Hidden**
- Not visible to the person with the bias or sometimes to the person facing the bias
- Not visible in intent but visible in impact
How Unconscious Bias Impacts Diversity & Inclusion

- Diverse employees are not promoted
- Attrition rates are higher amongst diverse employees
- Diverse employees are not included in meetings
- Diverse employees are not assigned important job assignments
- Diverse employees are not mentored/sponsored in a similar manner
- Impacts hiring decisions
- Interviews of diverse applicants are ranked negatively
- Less diversity during recruiting

Impacts
- The organization is unable to retain diverse employees
- The organization is not developing diverse employees
- The organization hires less diverse applicants

Minority & Female Representation in Law Firms

Open Dialogue: Successes and Challenges from the Panel

• National Basketball Players Association

• NBCUniversal

• Viacom Media Networks

• Washington Nationals
An Open Letter to Law Firm Partners:

We are General Counsels and Chief Legal Officers of more than 170 companies. We represent public and private companies, start-ups, and non-profit organizations. Our businesses span industries from advertising to technology, business and consumer facing products and services to retail and manufacturing, healthcare to software, publishing to life sciences, and hospitality to financial services. We engage law firms to help us launch IPOs, safeguard customers’ privacy and data protection rights, litigate “bet the company” suits, bring life-saving drugs to market, navigate challenging regulatory obstacles, and engage in high stakes mergers and acquisitions. Collectively, our companies spend hundreds of millions of dollars annually on legal services and we are committed to ensuring equality in the legal profession.

We expect the outside law firms we retain to reflect the diversity of the legal community and the companies and the customers we serve. We applaud those firms that have worked hard to hire, retain, and promote to partnership this year outstanding and highly accomplished lawyers who are diverse in race, color, age, gender, gender orientation, sexual orientation, national origin, religion, and without regard to disabilities. You and your firms have shown leadership by putting into place practices, policies, and priorities to ensure that a broad spectrum of attorneys are attracted to your firms, have a chance to demonstrate their talents, are able to successfully navigate both their professional and personal lives, and are rewarded for their exemplary performance. We believe that a diverse workplace is evidence that you have created an environment where all employees feel they belong and are accepted. We appreciate and acknowledge that effort and investment.

At the same time, we are disappointed to see that many law firms continue to promote partner classes that in no way reflect the demographic composition of entering associate classes. Partnership classes remain largely male and largely white. We have no doubt that those lawyers worked hard to earn partnership and deserve the success they have obtained at your firms. We also know that there are women, people of color, and members of the LGBTQIA community and others who are no doubt equally deserving, but are not equally rewarded. We are left to wonder if you and your partners value diversity enough to put into place programs to develop, promote, and retain talented and diverse attorneys. It is not enough to commit your firm to diversity during the recruiting process or to hire a diversity and inclusion officer and expect that person can effect change without the full commitment of each member of the firm. Instead, the reality is that you must consciously and personally invest in diversity and inclusion and interview, hire, mentor, support, sponsor, and promote talented attorneys who don’t always look like you or share your background.

We, as a group, will direct our substantial outside counsel spend to those law firms that manifest results with respect to diversity and inclusion, in addition to providing the highest degree of quality representation. We sincerely hope that you and your firm will be among those that demonstrate this commitment.

What steps can organizations take to implement a culture of D&I?

**WHAT YOU CAN DO TODAY**

**INCREASE VISIBILITY AND AWARENESS**
- Establish a D&I task force to increase awareness of diverse employees and cultures
- Ensure diverse role models have a voice
- Provide a platform for underrepresented groups to share success stories, such as employee resource groups or video streams
- Support cross-cultural mentoring and global talent rotations

**PUT STRUCTURE AND STRATEGY IN PLACE**
- Set and communicate D&I goals
- Appoint a chief diversity officer who partners with the CEO
- Remove process bias from talent attraction, development and retention – e.g., establish diverse hiring panels
- Create assisted succession planning for underrepresented groups
- Ensure the Chairman, board and senior leadership have an unbiased view of barriers to effective D&I strategy

**ENHANCE ACCOUNTABILITY**
- Develop dashboards and scorecards to track D&I metrics
- Tie performance, KPIs and compensation to D&I targets and behaviors
- Acknowledge & reward inclusive employees and managers
- Embed D&I objectives into business plans

**FOSTER AN INCLUSIVE CULTURE**
- Diagnose the company’s level of inclusion to uncover pain points
- Provide unconscious-bias training to all managers
- Hire and promote inclusive leaders, invest in inclusive leader assessment
- Develop an inclusive definition of great talent and ensure that the need for “culture fit” is not an excuse to reject diverse talent
Diversity & Inclusion Strategic Plan (Guide)

- **Inventory**
  - Comprehensive assessment of past, present and future initiatives to determine efficacy of each

- **Information**
  - Establishing the template and protocol for communicating, both internally and externally, the value of diversity and inclusion and ensuring full and consistent saturation of messaging

- **Accountability**
  - Identifying barriers to inclusion in existing practices, policies and procedures; eliminating those barriers and connecting reward with results

- **Business Case**
  - Maximizing business opportunities through a meaningful approach to diversity and inclusion
General Counsel’s Panel
BESLA Mid-Year Conference

Fordham Law School
April 15, 2019
Artificial Intelligence (AI) and Copyright Law: Examining the challenges and opportunities that AI presents in the entertainment industry.

The use of Artificial Intelligence (AI) provides the entertainment industry with fresh opportunities for innovation and creativity. This panel will look at examples of how AI is being considered and used in the entertainment industries and will discuss the copyright implications involved when AI is used to create new works or when copyrighted works are used to supply and inform AI systems. Intellectual Property practitioners, policy makers and academics will use case law and scholarly articles to aid in the discussion of this new frontier in the entertainment industry.

While not limited to the following, the panel will cover:

- Should AI-generated content be copyrightable?
- Who is considered the author of AI-generated content?
- What rights should and do the authors of copyrighted works used to inform AI systems have in the resulting AI-generated content, if any?
- What are the policy implications that result from the use of copyrighted works as part of machine learning (i.e. “fake news”, “deep fakes”, etc.)
- Developments regarding AI and copyright law to look out for in the future

Panelists:
- Olivier Sylvain, Professor, Fordham Law School [Moderator]
- Karyn Temple, Register of Copyrights, U.S. Copyright Office
- Mavis Fowler-Williams, Principal, Intellectual Property and Technology Law in the 21st Century
- Darrick Hooker, Partner, Intellectual Property – Ackerman, LLP

CLE Materials:
- *Naruto v. Slater*, 888 F.3d 418 (9th Cir 2018)
FOR PUBLICATION

UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

NARUTO, a Crested Macaque, by and through his Next Friends, People for the Ethical Treatment of Animals, Inc.,

Plaintiff-Appellant,

v.

DAVID JOHN SLATER; BLURB, INC., a Delaware corporation; WILDLIFE PERSONALITIES, LTD., a United Kingdom private limited company,

Defendants-Appellees.

No. 16-15469
D.C. No. 3:15-cv-04324-WHO

OPINION

Appeal from the United States District Court for the Northern District of California
William Horsley Orrick, District Judge, Presiding

Argued and Submitted July 12, 2017
San Francisco, California

Filed April 23, 2018

Before: Carlos T. Bea and N. Randy Smith, Circuit Judges, and Eduardo C. Robreno,* District Judge.

* The Honorable Eduardo C. Robreno, United States District Judge for the Eastern District of Pennsylvania, sitting by designation.
SUMMARY**

Copyright / Standing

Affirming the district court’s dismissal of claims brought by a monkey, the panel held that the animal had constitutional standing but lacked statutory standing to claim copyright infringement of photographs known as the “Monkey Selfies.”

The panel held that the complaint included facts sufficient to establish Article III standing because it alleged that the monkey was the author and owner of the photographs and had suffered concrete and particularized economic harms. The panel concluded that the monkey’s Article III standing was not dependent on the sufficiency of People for the Ethical Treatment of Animals, Inc., as a guardian or “next friend.”

The panel held that the monkey lacked statutory standing because the Copyright Act does not expressly authorize animals to file copyright infringement suits.

The panel granted appellees’ request for an award of attorneys’ fees on appeal.

Concurring in part, Judge N.R. Smith wrote that the appeal should be dismissed and the district court’s judgment

** This summary constitutes no part of the opinion of the court. It has been prepared by court staff for the convenience of the reader.
on the merits should be vacated because the federal courts lacked jurisdiction to hear the case. Disagreeing with the majority’s conclusion that next-friend standing is nonjurisdictional, Judge Smith wrote that PETA’s failure to meet the requirements for next-friend standing removed jurisdiction of the court.

COUNSEL

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OPINION

BEA, Circuit Judge:

We must determine whether a monkey may sue humans, corporations, and companies for damages and injunctive relief arising from claims of copyright infringement. Our court’s precedent requires us to conclude that the monkey’s claim has standing under Article III of the United States Constitution. Nonetheless, we conclude that this monkey—and all animals, since they are not human—lacks statutory standing under the Copyright Act.\(^1\) We therefore affirm the judgment of the district court.

FACTUAL AND PROCEDURAL BACKGROUND

Naruto was a seven-year-old crested macaque that lived—and may still live—in a reserve on the island of Sulawesi, Indonesia. In 2011, a wildlife photographer, David Slater, left his camera unattended in the reserve. Naruto allegedly took several photographs of himself (the “Monkey Selfies”) with Slater’s camera.

Slater and Wildlife Personalities, Ltd., (“Wildlife”) published the Monkey Selfies in a book that Slater created through Blurb, Inc.’s (“Blurb”) website in December 2014. The book identifies Slater and Wildlife as the copyright owners of the Monkey Selfies. However, Slater admits throughout the book that Naruto took the photographs at issue. For example, the book describes one of the Monkey Selfies as follows: “Sulawesi crested black macaque smiles at itself while pressing the shutter button on a camera.”

\(^1\) 17 U.S.C. § 101 et seq.
Another excerpt from the book describes Naruto as "[p]osing to take its own photograph, unworried by its own reflection, smiling. Surely a sign of self-awareness?"

In 2015 People for the Ethical Treatment of Animals ("PETA") and Dr. Antje Engelhardt filed a complaint for copyright infringement against Slater, Wildlife, and Blurb, as Next Friends on behalf of Naruto. The complaint alleges that Dr. Engelhardt has studied the crested macaques in Sulawesi, Indonesia for over a decade and has known, monitored, and studied Naruto since his birth. The complaint does not allege any history or relationship between PETA and Naruto. Instead, the complaint alleges that PETA is "the largest animal rights organization in the world" and "has championed establishing the rights and legal protections available to animals beyond their utility to human beings . . . ."

Slater, Wildlife, and Blurb filed motions to dismiss under Fed. R. Civ. P. 12(b)(1) and 12(b)(6) on the grounds that the complaint did not state facts sufficient to establish standing under Article III or statutory standing under the Copyright Act. The district court granted the motions to dismiss. In its order the district court stated the following with respect to Article III standing:

The Ninth Circuit has stated that Article III "does not compel the conclusion that a

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2 At oral argument Appellant’s counsel suggested that, upon remand, the complaint could be amended to state a significant relationship between PETA and Naruto. However, PETA and Engelhardt agreed not to seek amendment of the complaint, no doubt to procure our earlier hearing their appeal. Having procured the benefit of the bargain, we will hold them to their contract.
statutorily authorized suit in the name of an animal is not a ‘case or controversy.’” *Cetacean Cmty. v. Bush*, 386 F.3d 1169, 1175 (9th Cir. 2004). I need not discuss Article III standing further, because regardless of whether Naruto fulfills the requirements of Article III, he must demonstrate standing under the Copyright Act for his claim to survive under Rule 12(b)(6).

We are, of course, bound by the precedent set in *Cetacean Community* until and unless overruled by an en banc panel or the Supreme Court. *Miller v. Gammie*, 335 F.3d 889, 899 (9th Cir. 2003) (en banc).

The district court concluded that Naruto failed to establish statutory standing under the Copyright Act. PETA and Dr. Engelhardt timely appealed on Naruto’s behalf. However, after the appeal was filed, and with the permission of Appellees, Dr. Engelhardt withdrew from the litigation. Therefore, on appeal, only PETA remains to represent Naruto as his “next friend.”

**STANDARD OF REVIEW**

This court reviews *de novo* dismissals under Fed. R. Civ. P. 12(b)(1) and Fed. R. Civ. P. 12(b)(6). *See Rhoades v. Avon Prods., Inc.*, 504 F.3d 1151, 1156 (9th Cir. 2007). “All allegations of material fact are taken as true and construed in the light most favorable to the nonmoving party.” *Sprewell v. Golden State Warriors*, 266 F.3d 979, 988 (9th Cir. 2001).
DISCUSSION

I. Next Friend Standing

We gravely doubt that PETA can validly assert “next friend” status to represent claims made for the monkey both (1) because PETA has failed to allege any facts to establish the required significant relationship between a next friend and a real party in interest and (2) because an animal cannot be represented, under our laws, by a “next friend.”

First, “[i]n order to establish next-friend standing, the putative next friend must show: (1) that the petitioner is unable to litigate his own cause due to mental incapacity, lack of access to court, or other similar disability; and (2) the next friend has some significant relationship with, and is truly dedicated to the best interests of, the petitioner.” Coalition of Clergy v. Bush, 310 F.3d 1153, 1159–60 (9th Cir. 2002) (quoting Massie ex rel. Kroll v. Woodford, 244 F.3d 1192, 1194 (9th Cir. 2001)). Here, we are concerned with the second requirement. PETA does not claim to have a relationship with Naruto that is any more significant than its relationship with any other animal. Thus, PETA fails to meet the “significant relationship” requirement and cannot sue as Naruto’s next friend.\(^3\)

\(^3\) We feel compelled to note that PETA’s deficiencies in this regard go far beyond its failure to plead a significant relationship with Naruto. Indeed, if any such relationship exists, PETA appears to have failed to live up to the title of “friend.” After seeing the proverbial writing on the wall at oral argument, PETA and Appellees filed a motion asking this court to dismiss Naruto’s appeal and to vacate the district court’s adverse judgment, representing that PETA’s claims against Slater had been settled. It remains unclear what claims PETA purported to be “settling,” since the court was under the impression this lawsuit was about Naruto’s claims,
But, even if PETA had alleged a significant relationship with Naruto, it still could not sue as Naruto’s next friend. In *Whitmore v. Arkansas*, 495 U.S. 149 (1990), the Supreme Court discussed “next friend” standing in a habeas case in which a third-party litigant sought to challenge the death sentence of a capital defendant, Simmons, who had forsworn his right to appeal. In considering whether the third-party, Whitmore, had standing to sue on behalf of Simmons, the Court emphasized the limited nature of “next friend” standing and explained the rationale behind its limitations. For example, requiring a showing of incompetency and a “significant relationship” ensures that “the litigant asserting

and per PETA’s motion, Naruto was “not a party to the settlement,” nor were Naruto’s claims settled therein. Nevertheless, PETA apparently obtained something from the settlement with Slater, although not anything that would necessarily go to Naruto: As “part of the arrangement,” Slater agreed to pay a quarter of his earnings from the monkey selfie book “to charities that protect the habitat of Naruto and other crested macaques in Indonesia.” See *Settlement Reached: ‘Monkey Selfie’ Case Broke New Ground For Animal Rights*, PETA, https://www.peta.org/blog/settlement-reached-monkey-selfie-case-broke-new-ground-animal-rights/ (last visited Apr. 5, 2018). But now, in the wake of PETA’s proposed dismissal, Naruto is left without an advocate, his supposed “friend” having abandoned Naruto’s substantive claims in what appears to be an effort to prevent the publication of a decision adverse to PETA’s institutional interests. Were he capable of recognizing this abandonment, we wonder whether Naruto might initiate an action for breach of confidential relationship against his (former) next friend, PETA, for its failure to pursue his interests before its own. Puzzlingly, while representing to the world that “animals are not ours to eat, wear, experiment on, use for entertainment, or abuse in any other way,” see PETA, https://peta.org (last visited Apr. 5, 2018), PETA seems to employ Naruto as an unwitting pawn in its ideological goals. Yet this is precisely what is to be avoided by requiring next friends to have a significant relationship with, rather than an institutional interest in, the incompetent party—a point made by Chief Justice Rehnquist in *Lenhard v. Wolff*, 443 U.S. 1306, 1312 (1979). See *infra* page 9 for exact language.
only a generalized interest in constitutional governance” does not “circumvent the jurisdictional limits of Article III simply by assuming the mantle of ‘next friend.’” *Id.* at 164. In short, requirements of a significant interest in the subject party protect against abuses of the third-party standing rule. As the Court noted in a prior case, “however worthy and high minded the motives of ‘next friends’ may be, they inevitably run the risk of making the actual [party] a pawn to be manipulated on a chessboard larger than his own case.” *Lenhard v. Wolff*, 443 U.S. 1306, 1312 (1979). Based on the dangers inherent in any third-party standing doctrine, the Court declined to expand “next friend” standing beyond what was authorized by Congress in the habeas corpus statute. *Whitmore*, 495 U.S. at 164–165.

Here, we follow the Supreme Court’s lead in holding that “the scope of any federal doctrine of ‘next friend’ standing is no broader than what is permitted by the . . . statute.” *Id.* Although Congress has authorized “next friend” lawsuits on behalf of habeas petitioners, see 28 U.S.C. § 2242, and on behalf of a “minor or incompetent person,” see Fed. R. Civ. P. 17(c), there is no such authorization for “next friend” lawsuits brought on behalf of animals. Our precedent on statutory interpretation should apply to court rules as well as statutes: if animals are to be accorded rights to sue, the provisions involved therefore should state such rights expressly. See *Cetacean Cmty.*, 386 F.3d at 1179. Because we believe the Supreme Court’s reasoning in *Whitmore* counsels against court-initiated expansion of “next friend” standing, we decline to recognize the right of next friends to bring suit on behalf of animals, absent express authorization from Congress.
Even so, we must proceed to the merits because Naruto’s lack of a next friend does not destroy his standing to sue, as having a “case or controversy” under Article III of the Constitution. Federal Rule of Civil Procedure 17, which authorizes “next friend” lawsuits, obligates the court “to consider whether [incompetent parties] are adequately protected,” even where they have no “next friend” or “guardian.” *U.S. v. 30.64 Acres of Land*, 795 F.2d 796, 805 (9th Cir. 1986). Within this obligation, the court has “broad discretion and need not appoint a guardian ad litem [or next friend] if it determines the person is or can be otherwise adequately protected.” *Id.* (citing *Roberts v. Ohio Casualty Ins. Co.*, 2556 F.2d 35, 39 (5th Cir. 1958) (“Rule 17(c) does not make the appointment of a guardian ad litem mandatory.”)). *See also Harris v. Mangum*, 863 F.3d 1133, 1139 n.2 (9th Cir. 2017) (noting circumstances in which “appointing a guardian ad litem . . . could hinder the purpose of Rule 17(c),” and thus was not required). For example, “the court may find that the incompetent person’s interests would be adequately protected by the appointment of a lawyer.” *Krain v. Smallwood*, 880 F.2d 1119, 1121 (9th Cir. 1989) (citing *Westcott v. United States Fidelity & Guaranty Co.*, 158 F.2d 20, 22 (4th Cir. 1946). Indeed, courts have done just this, and the fact that those courts did not then dismiss the case proves that the lack of a next friend does not destroy an incompetent party’s standing. *See, e.g.*, *Westcott*, 158 F.2d at 22 (affirming judgment against minor who was represented by an attorney but not a guardian ad litem).4

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4 Here, we find that this case was briefed and argued by competent counsel who represented the legal interests of the incompetent party, but not a person, Naruto. Thus, his interests up to submission of the case following oral argument were adequately protected, notwithstanding any deficiencies in PETA’s “next friend” relationship.
Concluding otherwise would conflict with our precedent. In *Cetacean Community*, 386 F.3d at 1171, we held that a group of cetaceans could demonstrate Article III standing. There, the cetaceans had no purported “next friend.” Thus, were we to vacate the case we have before us now and remand with instructions to dismiss because of PETA’s failure to establish “next friend” standing, our jurisprudence would permit a case brought “directly” by animals without any allegation that the suit was brought by a “next friend”—as was the case in *Cetacean*—but would not permit a case brought by an organization as the “next friend” of the animal at issue if the organization failed to meet the relational requirements. That cannot be the law. We thus hold that Naruto’s Article III standing under *Cetacean* is not dependent on PETA’s sufficiency as a guardian or “next friend,” and we proceed to our Article III standing analysis.5

5 This is where we depart from the concurring opinion. First, Judge N.R. Smith seems to posit that we must restrict our inquiry into Article III standing and its effect on jurisdiction to an examination of the validity of the claimed Next Friend status, because that is how the complaint is stated. *See infra*, note 8 (Smith, J., concurring in part). In other words, since Naruto’s only stated basis for jurisdiction is Next Friend status, we can determine whether we have jurisdiction by examining only the validity of the Next Friend claim. But such a restriction is contrary to our long held and often restated duty to examine *sua sponte* whether jurisdiction exists, regardless how the parties have framed their claims. *See, e.g.*, Gonzalez v. Thaler, 565 U.S. 134, 141 (2012) (“When a requirement goes to subject-matter jurisdiction, courts are obligated to consider *sua sponte* the issues that the parties have disclaimed or have not presented. Subject matter jurisdiction can never be waived or forfeited.”) (internal citations omitted). We therefore respectfully reject this suggested limitation.

Next, although Judge N.R. Smith agrees that an animal cannot sue by next friend, he nevertheless limits his analysis to cases involving next friend suits under statutes which contain particular next friend provisions. Under *Whitmore* and *Coalition*, he argues, we must dismiss based on
II. Article III Standing

The *Cetacean* court held that all of the world’s whales, dolphins, and porpoises (the “Cetaceans”), through their self-appointed lawyer, alleged facts sufficient to establish standing under Article III. 386 F.3d at 1175. The Cetaceans alleged concrete physical injuries caused by the Navy’s sonar systems in a suit brought by the “self-appointed attorney for

PETA’s insufficiency as a “next friend.” But if we all agree that suits by animals cannot be brought under FRCP 17, because the rule refers only to “persons,” not “animals,” why would we want to follow and be bound by habeas cases for humans for which the statute (§ 2242) expressly provides next friend standing? The concurrence does not explain this point.

In our view, the question of standing was explicitly decided in *Cetacean*. Although, as we explain later, we believe *Cetacean* was wrongly decided, we are bound by it. Short of an intervening decision from the Supreme Court or from an en banc panel of this court, see *Miller v. Gammie*, 335 F.3d 889, 899 (9th Cir. 2003), we cannot escape the proposition that animals have Article III standing to sue. With this as a starting premise, how could it be that PETA’s deficiency as Naruto’s representative could destroy Naruto’s otherwise valid Article III standing? Again, the concurrence fails to explain.

Judge N.R. Smith insightfully identifies a series of issues raised by the prospect of allowing animals to sue. For example, if animals may sue, who may represent their interests? If animals have property rights, do they also have corresponding duties? How do we prevent people (or organizations, like PETA) from using animals to advance their human agendas? In reflecting on these questions, Judge Smith reaches the reasonable conclusion that animals should not be permitted to sue in human courts. As a pure policy matter, we agree. But we are not a legislature, and this court’s decision in *Cetacean* limits our options. What we can do is urge this court to reexamine *Cetacean*. See infra note 6. What we cannot do is pretend *Cetacean* does not exist, or that it states something other, or milder, or more ambiguous on whether cetaceans have Article III standing.
all of the world’s whales, porpoises, and dolphins.” *Id.* at 1171. The Ninth Circuit made clear that the “sole plaintiff in this case” is the Cetaceans and did not discuss “next friend” or third-party standing. *Id.* Although the Ninth Circuit affirmed the district court’s dismissal because the Cetaceans lacked statutory standing under the environmental statutes at issue in that case, the court stated that “Article III does not compel the conclusion that a statutorily authorized suit in the name of an animal is not a ‘case or controversy.’”*6 *Id.* at 1175.

Here, the complaint alleges that Naruto is the author and owner of the Monkey Selfies. The complaint further alleges

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*6 The use of the double negative here is problematic in that it creates unnecessary ambiguity in the court’s holding. Better, we think, to say a petition is “timely” than that it is “not untimely,” for example. Better here to have said the animal has Article III standing. “This type of litotes (the negation of an opposite) often makes language convoluted. George Orwell ridiculed it with this example: ‘A not unblack dog was chasing a not unsmall rabbit across a not ungreen field.’” BRYAN GARNER, GARNER’S MODERN AMERICAN USAGE 545 (2003) (citing “Politics and the English Language” (1946), in 4 COLLECTED ESSAYS, JOURNALISM AND LETTERS OF GEORGE ORWELL 127, 138 n.1 (1968)). But this language does not change our ultimate conclusion. If nothing about Article III compels the conclusion that animals lack standing, then it cannot also be true that animals lack standing simply by virtue of their being animals. In other words, *Cetacean* at the very least holds that it is possible for animals, like humans, to demonstrate the kind of case or controversy required to establish Article III standing. Although the claims in *Cetacean* sounded in physical harm to plaintiffs, and the claims in *Naruto* sound in economic harm to Naruto, that difference is not a point of distinction for Article III purposes. “Cases or Controversies” have described claims involving property interests, as well as claims involving personal injuries, since the Founding, and before, at common law. Thus, the sort of blanket exclusion of animals from Article III jurisdiction which Judge N.R. Smith advocates is, alas, fundamentally inconsistent with *Cetacean*’s holding.
that Naruto has suffered concrete and particularized economic harms as a result of the infringing conduct by the Appellees, harms that can be redressed by a judgment declaring Naruto as the author and owner of the Monkey Selfies. Under *Cetacean*, the complaint includes facts sufficient to establish Article III standing. Therefore, we must determine whether Naruto has statutory standing\(^7\) to sue for

\(^7\) Mindful that the term “standing” carries with it jurisdictional connotations, we clarify that our use of the term “statutory standing” refers to Naruto’s ability to sue under the Copyright Act, not his ability to sue generally. Thus, as we have observed in previous cases, “[t]hough lack of statutory standing requires dismissal for failure to state a claim, lack of Article III standing requires dismissal for lack of subject matter jurisdiction under Federal Rule of Civil Procedure 12(b)(1).” *Maya v. Centex Corp.*, 658 F.3d 1060, 1067 (9th Cir. 2011). The former is a determination on the merits, while the latter is purely jurisdictional.

While we believe *Cetacean* was incorrectly decided, it is binding circuit precedent that non-human animals enjoy constitutional standing to pursue claims in federal court. *See Cetacean*, 386 F.3d at 1175–76; *see also Ctr. for Auto Safety v. Chrysler Grp.*, LLC, 809 F.3d 1092, 1106 (9th Cir.), cert. denied sub nom. *FCA U.S. LLC v. Ctr. for Auto Safety*, 137 S. Ct. 38, 196 L. Ed. 2d 26 (2016) (“While we have the authority to distinguish precedent on a principled basis, we are not free to ignore the literal meaning of our rulings, even when the panel believes the precedent is ‘unwise or incorrect.’”) (quoting *Hart v. Massanari*, 266 F.3d 1155, 1170 (9th Cir. 2001)). Although we must faithfully apply precedent, we are not restrained from pointing out, when we conclude after reasoned consideration, that a prior decision of the court needs reexamination. This is such a case.

Animals have neither constitutional nor statutory standing. Article III standing “often turns on the nature and source of the claim asserted.” *Warth v. Seldin*, 422 U.S. 490, 500 (1975). Other than *Cetacean*, no case has held that animals have constitutional standing to pursue claims in federal court. *See e.g., Tilikum ex rel. People for the Ethical Treatment of Animals, Inc. v. Sea World Parks & Entm’t, Inc.*, 842 F. Supp. 2d 1259 (S.D. Cal. 2012) (Thirteenth Amendment prohibition on slavery and
copyright infringement.

III. Statutory Standing under the Copyright Act

In *Cetacean*, this court stated the following with respect to statutory standing for animals:

We agree with the district court in *Citizens to End Animal Suffering & Exploitation, Inc.*, that “[i]f Congress and the President intended to take the extraordinary step of authorizing animals as well as people and legal entities to sue, they could, and should, have said so plainly.” *In the absence of any such statement* in the ESA, the MMPA, or NEPA, or the APA, we conclude that the Cetaceans do not have statutory standing to sue.

involuntary servitude applied only to humans, and thus whales lacked Article III standing to bring action against operator of theme park under Thirteenth Amendment). Prior to *Cetacean*, no court ever intimated that animals possess interests that can form the basis of a case or controversy. As to statutory standing, Congress has never provided that animals may sue in their own names in federal court, and there is no aspect of federal law (other than *Cetacean*) that has ever recognized that animals have the right to sue in their own name as a litigant. To that point, Rule 17(a) requires that the suit be brought in the name of the “party in interest”; and that next friend or guardian representation obtains only for a *person*. *See Fed. R. Civ. P. 17(c)*. Because animals do not possess cognizable interests, it stands to reason that they cannot bring suit in federal court in their own names to protect such interests unless Congress determines otherwise.
Id. at 1179 (emphasis added). The court in Cetacean did not rely on the fact that the statutes at issue in that case referred to “persons” or “individuals.” Id. Instead, the court crafted a simple rule of statutory interpretation: if an Act of Congress plainly states that animals have statutory standing, then animals have statutory standing. If the statute does not so plainly state, then animals do not have statutory standing. The Copyright Act does not expressly authorize animals to file copyright infringement suits under the statute. Therefore,

8 In Citizens to End Animal Suffering & Exploitation, Inc. v. New England Aquarium, 836 F. Supp. 45, 49 (D. Mass. 1993), a dolphin and several animal-rights organizations filed suit against the United States Department of the Navy and the Department of Commerce under the Marine Mammal Protection Act (MMPA). The plaintiffs alleged that the dolphin’s transfer from the New England Aquarium to the Department of the Navy violated its rights under the MMPA. Without distinguishing between “statutory standing” and Article III standing, the district court granted the defendants’ motion for summary judgment because the dolphin lacked standing to sue under the MMPA. Id. (“This court will not impute to Congress or the President the intention to provide standing to a marine mammal without a clear statement in the statute.”). The plaintiffs did not file an appeal. Id.

9 PETA also argues that the Copyright Act contemplates statutory standing for animals because it permits statutory standing for corporations and unincorporated associations without express authorization for those non-human entities. That argument does not refute the requirement, established in Cetacean, that Congress plainly state any grant of statutory standing to animals. Also, the Supreme Court has held corporations to be “persons” for standing, both for constitutional and statutory purposes. See, e.g., Citizens United v. Fed. Election Comm’n, 558 U.S. 310, 341–42 (2010) (concluding that corporations—associations of persons—have speech rights under the First Amendment); Burwell v. Hobby Lobby Stores, Inc., 134 S. Ct. 2751, 2768 (2014) (concluding that the plaintiff corporation was a “person” under the Religious Freedom Restoration Act of 1993). Moreover, corporations and unincorporated associations are formed and owned by humans; they are not formed or owned by animals.
based on this court’s precedent in *Cetacean*, Naruto lacks statutory standing to sue under the Copyright Act.\(^{10}\)

Several provisions of the Copyright Act also persuade us against the conclusion that animals have statutory standing to sue under the Copyright Act. *See Davis v. Mich. Dep’t of Treasury*, 489 U.S. 803, 809 (1989) ("It is a fundamental canon of statutory construction that the words of a statute must be read in their context and with a view to their place in the overall statutory scheme."). For example, the “children” of an “author,” “whether legitimate or not,” can inherit certain rights under the Copyright Act. *See* 17 U.S.C. §§ 101, 201, 203, 304. Also, an author’s “widow or widower owns the author’s entire termination interest unless there are any surviving children or grandchildren of the author, in which case the widow or widower owns one-half of the author’s interest.” *Id.* § 203(a)(2)(A). The terms “children,” “grandchildren,” “legitimate,” “widow,” and “widower” all imply humanity and necessarily exclude animals that do not marry and do not have heirs entitled to property by law. Based on this court’s decision in *Cetacean* and the text of the

*See Bank of the U.S. v. Deveaux*, 9 U.S. 61, 92 (1806) (looking to “the character of the individuals who compose the corporation” in recognizing for the first time the capacity of corporations to sue in federal court).

\(^{10}\) PETA also argues that *Cetacean* is distinguishable because the statutes at issue in *Cetacean* represented a waiver of the United States’ sovereign immunity, and such waivers, unlike the Copyright Act, are narrowly construed. *See United States v. Nordic Vill., Inc.*, 503 U.S. 30, 34 (1992) ("[T]he Government’s consent to be sued ‘must be construed strictly in favor of the sovereign’ . . . ‘") (citation omitted). However this court never mentioned sovereign immunity in *Cetacean*, nor did it imply that it narrowly construed the statutory language of the four statutes at issue under the canon of construction described by PETA to reach its decision.
Copyright Act as a whole, the district court did not err in concluding that Naruto—and, more broadly, animals other than humans—lack statutory standing to sue under the Copyright Act.

IV. Attorneys’ Fees

Counsel for Slater and Wildlife requests that the court grant him appellate-stage attorneys’ fees and remand to the district court for the determination of the amount of those fees. Counsel for Slater and Wildlife is entitled to attorneys’ fees and costs for this appeal. See Fogerty v. Fantasy, Inc., 510 U.S. 517, 534 n.19 (1994). Thus, the request in the answering brief by Slater and Wildlife for an award of attorneys’ fees on appeal is granted. The determination of an appropriate amount of fees on appeal is transferred to the district court pursuant to Ninth Circuit Rule 39-1.8.

AFFIRMED.

11 See 17 U.S.C. § 505 (“In any civil action under this title, the court in its discretion may allow the recovery of full costs by or against any party other than the United States or an officer thereof. Except as otherwise provided by this title, the court may also award a reasonable attorney’s fee to the prevailing party as part of the costs.”). By stipulation, the parties have deferred the determination of trial-stage attorneys’ fees until the resolution of this appeal.

12 We do not speculate on the effect that any settlement agreement, such as that mentioned in the joint motion to dismiss and vacate, may have on Appellees’ ability to realize any such award. We note that the joint motion recited that Appellant Naruto was not a party to the settlement agreement.
N.R. SMITH, Circuit Judge, concurring in part:

I concur that this case must be dismissed. Federal courts do not have jurisdiction to hear this case at all. Because the courts lack jurisdiction, the appeal should be dismissed and the district court’s judgment on the merits should be vacated. *Coal. of Clergy, Lawyers, & Professors v. Bush*, 310 F.3d 1153, 1162–65 (9th Cir. 2002) (“Because we conclude that the Coalition lacks [next-friend or third-party] standing, we decline to reach the remaining questions addressed by the district court . . . . We therefore vacate those portions of the district court’s opinion which reached those questions.”). Indeed, where there is no standing, any further ruling “is, by very definition, for a court to act ultra vires.” *Id.* at 1165 (quoting *Steel Co. v. Citizens for a Better Env’t*, 523 U.S. 83, 101–02 (1998)). The Majority misses this point. I write to express my disagreement with the Majority’s conclusion that next-friend standing1 is nonjurisdictional.2

1 People for the Ethical Treatment of Animals, Inc. (PETA) grounded the jurisdiction for this suit in the next-friend standing doctrine. As pleaded: “[PETA] brings this action on behalf of, and as next friend[] to, Naruto, pursuant to Rule 17(b) of the Federal Rules of Civil Procedure, because Naruto’s rights cannot be effectively vindicated except through an appropriate representative.” Complaint at 3, *Naruto v. Slater*, No. 15-cv-04324 (N.D. Cal. Sept. 21, 2015).

Next-friend standing is an “alternative basis for standing” where the litigant pursues the action on behalf of the “real party in interest.” *Whitmore v. Arkansas*, 495 U.S. 149, 161–63 (1990). Next-friend standing requires (1) “an adequate explanation—such as inaccessibility, mental incompetence, or other disability—why the real party in interest cannot appear on his own behalf to prosecute the action”; and (2) “the ‘next friend’ must be truly dedicated to the best interests of the person on whose behalf he seeks to litigate, and it has been further suggested that a ‘next
As the Majority opinion highlights in its treatment of the merits, PETA brought a frivolous lawsuit here. The argument that animals have statutory standing to maintain a Copyright Act claim—or any property right claims—is an easy question. Under the holding in *Cetacean Community v. Bush*, 386 F.3d 1169 (9th Cir. 2004), the Copyright Act, and basic property law, animals have no such rights.

However, to reach its conclusion on the Copyright Act question, the Majority ignores its own conclusion regarding standing, instead determining that: (1) next-friend standing is nonjurisdictional; and (2) even if the elements of next-friend standing are not met, any third-party may still bring suit on behalf of anyone or anything—without the real party in interest’s permission—as long as (A) the real party in interest has an Article III injury; and (B) the real party in interest is “adequately protected” by the purported next friend’s (or self-appointed lawyer’s) representation. Maj. Op. at 9–11. That determination fails to follow United States Supreme Court or Ninth Circuit precedent. Let me explain.

friend’ must have some significant relationship with the real party in interest.” *Id.* at 163–64 (internal citations omitted).

2 The Majority states that “Naruto’s Article III standing under *Cetacean* is not dependent on PETA’s sufficiency as a guardian or ‘next friend.’” Maj. Op. at 11. Put another way, the Majority simply says that lack of next-friend standing is nonjurisdictional, and (regardless of “PETA’s sufficiency” to advance Naruto’s claim) it may nonetheless resolve this case.
The Supreme Court was explicit:

The burden is on the “next friend” clearly to establish the propriety of his status and thereby justify the jurisdiction of the court.

These limitations on the “next friend” doctrine are driven by the recognition that “[i]t was not intended that the writ of habeas corpus should be availed of, as matter of course, by intruders or uninvited meddlers, styling themselves next friends.” Indeed, if there were no restriction on “next friend” standing in federal courts, the litigant asserting only a generalized interest in constitutional governance could circumvent the jurisdictional limits of Art. III simply by assuming the mantle of “next friend.”

Whitmore, 495 U.S. at 164 (emphasis added & internal citations omitted) (quoting United States ex rel. Bryant v. Houston, 273 F. 915, 916 (2d Cir. 1921)). We have also been explicit: failing to meet the standing requirements for next-friend standing removes jurisdiction of the court. Coalition, 310 F.3d at 1162–65 (dismissing case and vacating lower ruling which reached the merits, after finding there was no next-friend standing); see also Massie ex rel. Kroll v. Woodford, 244 F.3d 1192, 1198–99 (9th Cir. 2001) (per curiam) (dismissing emergency motion for a stay of execution because purported next friend failed to meet the standing requirements).

To buttress these conclusions, I (1) outline the basics of Article III standing and the next friend exception to Article
III standing; (2) summarize the Majority’s reasoning and decision; and (3) demonstrate the legal errors in the Majority opinion.

I. The basics of Article III standing and next-friend standing.

Article III of the United States Constitution limits the Federal Judiciary’s power to “cases” and “controversies.” U.S. Const. Art. III, § 2, cl. 1. The “doctrine of standing” is one of the “landmarks” that “set[s] apart the ‘Cases’ and ‘Controversies’ that are of the justiciable sort referred to in Article III—‘serving to identify those disputes which are appropriately resolved through the judicial process.’” Lujan v. Defenders of Wildlife, 504 U.S. 555, 560 (1992) (original alterations omitted) (quoting Whitmore, 495 U.S. at 155); see also Warth v. Seldin, 422 U.S. 490, 498 (1975) (“In its constitutional dimension, standing imports justiciability: whether the plaintiff has made out a ‘case or controversy’ between himself and the defendant within the meaning of Art. III.”); Coalition, 310 F.3d at 1157 (“At its constitutional core, standing is a manifestation of the Article III case-or-controversy requirement; it is the determination of whether a specific person is the proper party to invoke the power of a federal court.” (emphasis added)). “[T]he core component of standing is an essential and unchanging part of the case-or-controversy requirement of Article III.” Lujan, 504 U.S. at 560. Accordingly, the Supreme Court has “deduced a set of requirements that together make up the ‘irreducible constitutional minimum of standing.’” Lexmark Int’l, Inc. v. Static Control Components, Inc., 134 S. Ct. 1377, 1386 (2014) (quoting Lujan, 504 U.S. at 560).
Part of the Article III case-or-controversy requirement is the obvious derivative premise that "the plaintiff generally must assert his own legal rights and interests." *Warth*, 422 U.S. at 499 (citing *Tileston v. Ullman*, 318 U.S. 44, 46 (1943); *United States v. Raines*, 362 U.S. 17, 21 (1960); *Barrows v. Jackson*, 346 U.S. 249, 255 (1953)); see also *Sessions v. Morales-Santana*, 137 S. Ct. 1678, 1689 (2017) ("Ordinarily, a party must assert his own legal rights and cannot rest his claim to relief on the legal rights of third parties." (alterations, internal quotation marks, and citations omitted)); *Caplin & Drysdale, Chartered v. United States*, 491 U.S. 617, 623 n.3 (1989) (identifying that "whether the litigant suffered some injury-in-fact, adequate to satisfy Article III's case-or-controversy requirement" is the first of two questions the Court asks "[w]hen a person or entity seeks standing to advance the constitutional rights of others"). "This Court, as is the case with all federal courts, 'has no jurisdiction to pronounce any statute, either of a state or of the United States, void, because irreconcilable with the constitution, except as it is called upon to adjudge the legal rights of litigants in *actual controversies*." *Raines*, 362 U.S. at 21 (emphasis added).

With only a single, narrow exception, a person filing a claim must assert a personal injury in fact\(^3\) to establish

\(^3\) Even in third-party standing (where a party has an Article III injury, but she must advance *someone else's* rights to achieve redress), the plaintiff must have suffered an injury. See, e.g., *Kowalski v. Tesmer*, 543 U.S. 125, 129 n.2 (2004) (assuming without deciding that plaintiffs alleged an adequate individual injury to satisfy the "constitutional minimum of standing" before continuing to address the standards for permitting a third party "to assert the rights of another"); *Lexmark Int'l, Inc.*, 134 S. Ct. at 1387 n.3 (noting cases articulating that the Article III basis for third-party standing is "closely related to the question whether a
standing. *Lujan*, 504 U.S. at 560–61. This exception is next- 
friend standing, where a third-party—without alleging its own injury—is allowed to bring suit on behalf of the named-party, who is either (1) an incompetent or minor; or (2) unable to access the courts because of imprisonment. With next-friend standing, the party in interest has an Article III injury, but because of the disabling aspect (minority, incompetence, or imprisonment), the real party cannot advance the action, except where another person (the next friend) stands in and advances the cause on the actual party’s behalf. *Whitmore*, 495 U.S. at 161–66.

A. The basics of next-friend standing.

The Supreme Court considers next-friend standing an “alternative basis” for standing in federal courts. *Id.* at 161. Specifically, it has “long been an accepted basis for jurisdiction in certain circumstances.” *Id.* at 162. These “certain circumstances” are deeply rooted in history and narrowly limited to: (1) habeas corpus actions; and (2) “infants, other minors, and adult mental incompetents.” *Id.* at 163, 163 n.4.

Next-friend standing allows a third-party to singularly advance a cause of action on another’s behalf. “A ‘next friend’ does not himself become a party to the . . . action in which he participates, but simply pursues the cause on behalf

person in the litigant’s position will have a right of action on the claim.” (quoting *Dep’t of Labor v. Triplett*, 494 U.S. 715, 721 n.** (1990))). In this case, PETA does not (nor could it) allege either individual or third-party standing. It does not have any cognizable Article III injury for the alleged Copyright Act violations against Naruto. Hence, I do not further address either of these bases for standing.
of the . . . real party in interest.” *Id.* at 163. To invoke next-friend standing, the purported next friend must establish: (1) “an adequate explanation—such as inaccessibility, mental incompetence, or other disability—why the real party in interest cannot appear on his own behalf to prosecute the action”; and (2) “the ‘next friend’ must be truly dedicated to the best interests of the person on whose behalf he seeks to litigate, and it has been further suggested that a ‘next friend’ must have some significant relationship with the real party in interest.” *Id.* at 163–64 (internal citations omitted). I agree with the Majority that there is no question PETA did not allege—in any way—sufficient facts to establish it could be Naruto’s next friend.

**B. Next-friend standing cannot apply to animals.**

I also agree with the Majority that animals cannot be represented by a next friend; I write to expand on the reasoning provided in the Majority opinion.

1. **Next-friend standing for animals is barred by Supreme Court precedent.**

The Supreme Court has clearly delineated the limits of next-friend standing: “[T]he scope of any federal doctrine of ‘next friend’ standing is no broader than what is permitted by . . . the historical practice.” *Id.* at 164–65; cf. *Town of Greece v. Galloway*, 134 S. Ct. 1811, 1818–19 (2014) (recognizing legislative prayer as a “historical” exception to the Establishment Clause); *District of Columbia v. Heller*, 554 U.S. 570, 626–27, 627 n.26, 626 (2008) (“[N]othing in our opinion should be taken to cast doubt on the longstanding prohibitions on the possession of firearms by felons and the mentally ill[.]” (emphasis added)). The Supreme Court noted
the two illustrations allowed by such "historical practice": imprisoned individuals using habeas corpus and mental incompetents or minors. *Whitmore*, 495 U.S. at 161–63, 163 n.4; see also 28 U.S.C. § 2242 (codifying next-friend standing for habeas corpus actions; Fed. R. Civ. P. 17(c)(2) (permitting next-friend standing for a "minor or an incompetent person who does not have a duly appointed representative" (emphasis added)). However, there is no historical evidence that animals have ever been granted authority to sue by next friend and, absent an act of Congress,\(^4\) it would be improper to expand this narrow exception to the actual injury requirement of Article III.

2. There is no textual support in either the habeas corpus statute or Rule 17 for animal next friends.

Neither of the two existing grounds for next-friend standing allow animal next-friend standing. First, a writ for habeas corpus "shall be in writing signed and verified by the person for whose relief it is intended or by someone acting in his behalf." 28 U.S.C. § 2242 (emphasis added). Therefore, textually, only a natural person can have a petition filed on her behalf. Further, any argument that animals are akin to "artificial persons" such as corporations, which are allowed to sue, see *e.g.*, *Cetacean*, 386 F.3d at 1176 (concluding that animals are no different from various "artificial persons" such as ships or corporations), makes no sense in the context of

\(^4\) Even if such a statute were enacted, such a statutory grant of standing would still need meet the Article III standing "case or controversy" requirement. Because it would lack the pre-constitutional historical use like habeas actions or actions on behalf of minors or incompetent persons, I have grave doubts this would succeed.
28 U.S.C. § 2242. Corporations cannot be imprisoned and, thus, there is no grounds to conclude “person” in 28 U.S.C. § 2242 could include anything other than natural persons.

Second, the Federal Rules only authorize next friend suits on behalf of “a minor or an incompetent person.” Fed. R. Civ. P 17(c) (emphasis added). Per the text, this can only apply to human persons, not any “minor” or “incompetent” corporations or animals. Importantly, the historical background of Rule 17(c) limits the use of next friends to only human persons. Rule 17(c) incorporated Rule 70 of the Federal Equity Rules into the Federal Rules of Civil Procedure. Fed. R. Civ. P. 17(c), Note to Subdivision (c). Rule 70 specifically provided, “All infants and other persons so incapable may sue by their guardians, if any, or by their prochei ami [next friend].” Fed. Equity R. 70. Finally, the provisions for corporate capacity are articulated in Rule 17(b). Fed. R. Civ. P. 17(b). This separate enumeration of rules for non-human entities, Rule 17(b), is a clear textual indication that the use of the term “person” in Rule 17(c) does not include non-human entities, such as corporations or animals.

3. Allowing next-friend standing for animals would violate the public policy behind next-friend standing.

In addition to its historical limits, next-friend standing is narrowly tailored in light of the public policy concerns associated with expanding the doctrine. Next-friend standing “is by no means granted automatically to whomever seeks to pursue an action on behalf of another.” Whitmore, 495 U.S. at 163. “Indeed, if there were no restriction on ‘next friend’ standing in federal courts, the litigant asserting only a
generalized interest in constitutional governance could circumvent the jurisdictional limits of Art. III simply by assuming the mantle of ‘next friend.’” *Id.* at 164. The specific requirements to become a next friend are intended to keep “intruders or uninvited meddlers, styling themselves next friends” out of the courts. *Id.* at 164 (quoting *Houston*, 273 F. at 916). Moreover, as Chief Justice Rehnquist (writing as the sole justice for the Supreme Court on a stay of execution) similarly noted: “however worthy and high minded the motives of ‘next friends’ may be, they inevitably run the risk of making the actual defendant a pawn to be manipulated on a chessboard larger than his own case.” *Lenhard v. Wolff*, 443 U.S. 1306, 1312 (1979).

Animal-next-friend standing is particularly susceptible to abuse. Allowing next-friend standing on behalf of animals allows lawyers (as in *Cetacean*) and various interest groups (as here) to bring suit on behalf of those animals or objects with no means or manner to ensure the animals' interests are truly being expressed or advanced. Such a change would fundamentally alter the litigation landscape. Institutional actors could simply claim some form of relationship to the animal or object to obtain standing and use it to advance their own institutional goals with no means to curtail those actions. We have no idea whether animals or objects wish to own copyrights or open bank accounts to hold their royalties from sales of pictures. To some extent, as humans, we have a general understanding of the similar interests of other humans.\(^5\) In the habeas corpus context, we presume other

\(^5\) I intentionally do not refer to the human-controlled entities such as corporations or ships, because those entities never have next-friend standing. They have corporate officers or owners to advance their claims. Indeed, a shareholder, who would likely meet the next-friend standing
humans desire liberty. Similarly, in actions on behalf of infants, for example, we presume the infant would want to retain ownership of the property she inherited. But the interests of animals? We are really asking what another species desires. Do animals want to own property, such as copyrights? Are animals willing to assume the duties associated with the rights PETA seems to be advancing on their behalf?⁶ Animal-next-friend standing is materially different from a competent person representing an incompetent person. We have millennia of experience understanding the interests and desire of humankind. This is not necessarily true for animals. Because the “real party in interest” can actually never credibly articulate its interests or goals, next-friend standing for animals is left at the mercy of the institutional actor to advance its own interests, which it imputes to the animal or object with no accountability. This literally creates an avenue for what Chief Justice Rehnquist feared: making the actual party in interest a “pawn to be

⁶ Participation in society brings rights and corresponding duties. The right to own property is not free from duties. One must pay taxes on profits from a royalty agreement for use of a copyrighted image. Are animals capable of shouldering the burden of paying taxes? Similarly, all people have a duty to obey the law and, for example, not commit intentional torts. Should animals liable for intentional torts as well? The concept of expanding actual property rights—and rights broadly—to animals necessitates resolving what duties also come with those rights and, because animals cannot communicate in our language, who stands in their shoes?
manipulated on a chessboard larger than his own case.” Lenhard, 443 U.S. at 1312.

II. The Majority opinion.

Although the Majority opinion recognizes these principles, it ignores them. The Majority opinion states that animals cannot have next-friend standing, but it nevertheless determines that, because Naruto has an Article III injury and he is “adequately protected,” the Majority may proceed to determine the merits of Naruto’s statutory standing claim under the Copyright Act. Maj. Op. at 9–15. In order to get there, the Majority concludes that next-friend standing is nonjurisdictional: “[W]e must proceed to the merits because Naruto’s lack of a next friend does not destroy his standing to sue, as having a ‘case or controversy’ under Article III of the Constitution,” and concludes that “Naruto’s Article III standing under Cetacean is not dependent on PETA’s sufficiency as a guardian or ‘next friend.’” Maj. Op. at 10, 11. I admit that the basis for the Majority’s conclusion is primarily grounded in its reading of Cetacean, in which a “self-appointed attorney” brought a suit on behalf of the world’s cetaceans. 386 F.3d at 1171–72. Cetacean concluded that animals may have an Article III injury—but, notably, did not examine whether next-friend standing was present. Given this analysis, the Majority concludes that, because the Cetacean panel allowed the case to go forward, it implicitly held that next-friend standing is nonjurisdictional. Maj. Op. at 11.

The Majority’s conclusion on the first point—animals can never have next-friend standing—is correct7 and should end

7 As such, I concur in the Majority’s opinion to that extent.
our inquiry. See infra. On the other hand, the second conclusion (that next-friend standing is nonjurisdictional) is not supportable. This conclusion is incorrect and the consequences associated with the Majority's holding are avoidable, if we follow precedent.

III. The Majority's conclusion that next-friend standing is nonjurisdictional is legally unsupportable.

A. The Majority's second conclusion violates Supreme Court and Ninth Circuit Precedent.

Both the United States Supreme Court and our Circuit have held next-friend standing is jurisdictional. In Whitmore, the petitioner brought suit on behalf of another death-row prisoner, Ronald Simmons. 495 U.S. at 152–54. Whitmore asserted both third-party standing and next-friend standing to justify the suit. Id. at 153–54. The Supreme Court held that Whitmore failed both standing tests and, ultimately held that "Jonas Whitmore lacks standing to proceed in this Court, and the writ of certiorari is dismissed for want of jurisdiction." Id. at 166 (emphasis added). The Supreme Court also clearly held that any purported next friend bears the burden "clearly to establish the propriety of his status and thereby justify the jurisdiction of the court." Id. at 164 (emphasis added) (citing Mo. Pub. Def. Comm'n ex rel. Smith v. Armontout, 812 F.2d 1050, 1053 (8th Cir. 1987); Grouseclose ex rel. Harries v. Dutton, 594 F. Supp. 949, 952 (M.D. Tenn. 1984)); see also Demosthenes v. Baal, 495 U.S. 731, 737 (1990) (holding that "federal courts must make certain that an adequate basis exists for the exercise of federal power" and dismissing the suit for failure to demonstrate next-friend standing).
We have also held that next-friend standing is jurisdictional. In *Coalition*, a coalition of clergy, lawyers, and professors brought suit on behalf of the prisoners detained in Guantanamo, Cuba. 310 F.3d at 1156. The district court held that the Coalition did not have standing and, even if they did, no federal district court—including itself—could have jurisdiction over such a suit. *Id.* On appeal, we agreed that the Coalition could not establish next-friend standing. *Id.* However, we noted that “[t]he question before us is not the scope of the rights and privileges of the detainees themselves under either our Constitution or other international laws or agreements.” *Id.* at 1164. Rather, we “consider[ed] only the rights of the members of the Coalition to assert standing on behalf of the detainees and to seek habeas review of their detention.” *Id.* at 1165 (emphasis added). We then dismissed the suit and vacated the district court’s other holding that no court, or itself, may entertain a habeas action on behalf of a detainee held in Guantanamo, Cuba. *Id.* Additional Circuit precedent stands for the same proposition. See *Massie*, 244 F.3d at 1199 (affirming the district court’s conclusion that a litigant seeking a stay of execution on behalf of another person “lacked standing” as a next friend under *Whitmore*).8

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8 The Majority argues that I err by using next-friend cases to conclude that we lack jurisdiction in this case. Maj. Op. at 11–12 n.5. But, next-friend standing is the only basis for jurisdiction PETA has alleged. Compl. at 3 (stating PETA “b[rought] this action on behalf of, and as next friend[,] to, Naruto”). Both the Majority and I agree that PETA does not have next-friend standing and that animals can never have next-friend standing. This should end our inquiry. Further, as a general rule, the proponent of a case must advance its own injury. *Warth*, 422 U.S. at 499. Next-friend standing is an exception to this rule. *Whitmore*, 495 U.S. at 161–63. Naruto did not bring his own claim, PETA does not assert its own injury, and both the Majority and I agree PETA cannot be Naruto’s next friend. There are no other jurisdictional bases on which to rest our authority to resolve this case.
B. Standing must be jurisdictional because of its preclusive effect.

Judgments are preclusive. See, e.g., Owens v. Kaiser Found. Health Plan, Inc., 244 F.3d 708, 713 (9th Cir. 2001) ("Res judicata, also known as claim preclusion, bars litigation in a subsequent action of any claims that were raised or could have been raised in the prior action." (citations omitted)). If the putative next friend is not the appropriate entity, but the case is allowed to go forward, an improper representative can create preclusive precedent that, forever, bars the real party in interest. This preclusive effect alone requires that the question of next-friend standing be decided before the merits question and, if there is no next-friend standing, the case must be dismissed so the proper party may bring the case if she so chooses.

C. Cetacean did not impliedly overrule Coalition or Whitmore.\(^9\)

The Majority’s conclusion that Cetacean somehow makes next-friend standing nonjurisdictional tortures the case and legal reasoning to reach such a conclusion. First, both Whitmore and Coalition were decided before Cetacean.

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\(^9\) The Majority accuses me of “pretend[ing] Cetacean does not exist, or that it states something other, or milder, or more ambiguous on whether cetaceans have Article III standing” and arguing for a “blanket exclusion of animals from Article III jurisdiction.” Maj. Op. at 11–12 n.5, 13 n.6. My conclusion does not “pretend Cetacean does not exist”; it simply requires Cetacean be applied within the legal framework that governs cases where a plaintiff’s claims are brought by someone else. Such claims may only be advanced by a next friend and, if one is not available or legally possible, those claims cannot be redressed. As I demonstrate in this section, Cetacean does not hold to the contrary.
Accordingly, those binding cases, which directly answer the question of whether next-friend standing is jurisdictional, were binding on the *Cetacean* panel as well.

Second, *Cetacean* is silent on next-friend standing. Indeed, even the briefing did not raise the issue. Rather, the *Cetacean* court seemed to conclude that animals may have Article III standing,\(^{10}\) and then examined the statutory standing questions before it. 386 F.3d at 1174–79. The *Cetacean* court did not (though it most certainly should have) examine whether it was appropriate for a “self-appointed attorney” to bring a case on behalf of the “Cetacean Community” and articulate “their” interests. *Id.* at 1171–72. There can be no reasonable argument that the lawyer in *Cetacean* spoke to, and received instructions from his client, the “Cetacean Community.” Rather, he functioned as a purported next friend, arguing that certain Navy sonar technology injured the members of the “Cetacean Community.” *Id.*

Third, it is simply incorrect to conclude that an implied holding from a case that did not even address the question—in any form—somehow overrules explicit prior United States Supreme Court and Ninth Circuit precedent. “[U]nstaned assumptions on non-litigated issues are not precedential holdings binding future decisions.” *Sakamoto v. Duty Free Shoppers, Ltd.*, 764 F.2d 1285, 1288 (9th Cir. 1985); *see also Morales-Garcia v. Holder*, 567 F.3d 1058, 1064 (9th Cir. 2009) (stating that panels are bound by “prior decision[s],” but “the term ‘decision,’ however, encompasses only those issues that are raised or discussed” (citations

\(^{10}\) Although binding precedent, I agree with the Majority that granting Article III standing to animals was an incorrect conclusion.
omitted)). Indeed, *Cetacean* itself noted: “'[W]here a panel confronts an issue germane to the eventual resolution of the case, and resolves it after reasoned consideration in a published opinion, that ruling becomes the law of the circuit, regardless of whether doing so is necessary in some strict logical sense.'” *Cetacean*, 386 F.3d at 1173 (emphasis added) (quoting *United States v. Johnson*, 256 F.3d 895, 914 (9th Cir. 2001) (Kozinski, J., concurring)); *see also Brecht v. Abrahamson*, 507 U.S. 619, 630–31 (1993) (refusing to follow prior cases where the issue had not been “squarely addressed”). Rather, the appropriate reading of *Cetacean*, because a three-judge panel cannot overrule a prior panel, *see Miller v. Gammie*, 335 F.3d 889, 899 (9th Cir. 2003) (en banc), is that the *Cetacean* panel (1) ought not have reached the question it did; and (2) the fact that it seemed to conclude that an animal may have Article III standing does not remove the appropriate standing question that determines if the next friend may bring the action at all. It is simply unsupportable to conclude that a panel that did not address an issue somehow overrules prior binding decisions that did address the issue.

Fourth, the simple fact that *Cetacean* found that animals could have an Article III injury does not, automatically, create some form of right for third-parties to advance those claims (or, make next-friend standing nonjurisdictional and, as the Majority holds, simply inapplicable)! There are a multitude of Article III injuries that occur regularly, which people choose not to pursue. Because the individual with the injury opts not to pursue the claim does not somehow make the injury “public domain,” so any random entity may bring the claim. Next-friend standing serves as a bar to such meddling, and *Cetacean* did not impliedly eviscerate that conclusion.
Not only did *Cetacean* not address animal next-friend standing, but no court has ever done so. See *Mount Graham Red Squirrel v. Madigan*, 954 F.2d 1441, 1448 n.13 (9th Cir. 1992) ("No party has mentioned and, notwithstanding our normal rules, we do not consider, the standing of the first-named party [Mount Graham Red Squirrel] to bring this action."); *Palila v. Hawaii Dep't of Land & Nat. Res.*, 852 F.2d 1106, 1107 (9th Cir. 1988) ("As an endangered species . . ., the bird . . . also has legal status and wings its way into federal court as a plaintiff in its own right." (emphasis added)), abrogated in part by, *Cetacean*, 386 F.3d at 1173 (9th Cir. 2004) ("*Palila IV*’s statements [regarding standing] are nonbinding dicta."); *Citizens to End Animal Suffering & Exploitation, Inc. v. New England Aquarium*, 836 F. Supp. 45, 49–50 (D. Mass. 1993) (finding named dolphin, Kama, lacked standing because "[t]he MMPA does not authorize suits brought by animals," and addressing the fact that Rule 17(b) would hold that animals lack “capacity” to be sued because they are property of their owners, concluding that "the MMPA and the operation of F.R.Civ.P. 17(b) indicate that Kama the dolphin lacks standing to maintain this action as a matter of law," and allowing “the removal of Kama’s name from the caption of [the] case"); *Hawaiian Crow (‘Alala) v. Lujan*, 906 F.Supp. 549, 551–52 (D. Haw. 1991) (finding that in *Northern Spotted Owl, Palila*, and *Mount Graham Red Squirrel*, no party had challenged the named standing of the animal itself and the case had other parties in the litigation and ultimately concluding that “the cited cases do not directly support plaintiffs’ position here” and concluding that “the plain language of Rule 17(c) and section 1540(g) [did] not authorize the ‘Alala to sue” because it was “clearly neither a ‘person’ as defined in section 1532(13), nor an infant or incompetent person under Rule 17(c)”); *Northern Spotted Owl v. Lujan*, 758 F. Supp. 621
(W.D. Wash. 1991) (failing to address standing for named first-party); *Northern Spotted Owl v. Hodel*, 716 F. Supp 479 (W.D. Wash. 1988) (failing to address standing for named first-party).

D. The Majority’s reliance on both Rule 17 and cases discussing “adequate protection” in the context of Rule 17 are simply inapplicable.

There is a crucial distinction between the cases cited by the Majority for the proposition that the only requirement for next friend suits is to ensure the “[incompetent parties] are adequately protected,” Maj. Op. at 10 (quotation marks omitted and alterations in original), and the facts of *this* case and next-friend standing broadly. Each case cited is an example of an incompetent person bringing suit on his own behalf or such a person being sued by another party. I list the cases cited by the Majority to emphasize:

- *Krain v. Smallwood*, 880 F.2d 1119, 1121 (9th Cir. 1989) ("Lawrence Krain appeals the dismissal with prejudice of eight lawsuits *he* filed, *in pro se*, in the district court.” (emphasis added)).

- *United States v. 30.64 Acres of Land*, 795 F.2d 796, 797 (9th Cir. 1986) ("The United States *filed a complaint against Starr* . . . to establish just compensation for 30.64 acres of Starr’s land taken by the government . . . .” (emphasis added)).

- *Harris v. Mangum*, 863 F.3d 1133, 1136 (9th Cir. 2017) ("Plaintiff-Appellant Jason
Harris, an Arizona state prisoner, *filed pro se a lawsuit* in state court that was subsequently removed . . . .” (emphasis added)).

- *Roberts v. Ohio Cas. Ins. Co.*, 256 F.2d 35, 37, 39 (5th Cir. 1958) (finding where “Ohio Casualty Insurance Company . . . filed suit to set aside a ruling . . . against the claimants—the children and their grandmother,” and children had not been represented by a guardian ad litem, the lower judgment granting relief to the plaintiff must be reversed and remanded for further proceedings (emphasis added)).

- *Westcott v. U.S. Fid. Guar. Co.*, 158 F.2d 20, 21 (4th Cir. 1946) (“The United States Fidelity & Guaranty Company . . . brought a civil action . . . seeking a declaratory judgment to the effect that it was not liable on a public liability policy . . . . The defendants in the civil action . . . were the insured, . . . George Mann, a minor.”) (emphasis added)).

Quite simply, there is *no* Article III jurisdiction question in *any* of these cases. Of course, the court would ensure such incompetent *persons* were adequately represented. The parties sought either redress in court as plaintiffs (but were not competent, and thus needed to be protected), or were pulled into court as defendants (and, thus, the court was required to ensure they were protected).
These circumstances do not exist here. Our question is whether a third-party (PETA) has next-friend standing—such that it can invoke the authority of this court—to stand in Naruto’s shoes and advance his claims. It is not a question of whether Naruto was properly protected or was brought into this litigation as a defendant. Unlike the cases cited, Naruto (1) did not file this case himself; and (2) is not a defendant. PETA and Dr. Engelhardt initiated this suit on Naruto’s behalf. As such, the cases cited by the Majority are simply inapplicable.

IV. Conclusion

The question of PETA’s next-friend standing was squarely before our panel. It was briefed and argued. By both concluding that next-friend standing is nonjurisdictional and reaching the merits of the Copyright Act question, the Majority allows PETA (with no injury or relationship to the real party in interest) to sue on Naruto’s behalf, because it obtained legal counsel to allegedly represent Naruto. I cannot support this conclusion.¹¹

¹¹ Indeed, this case is a prime example of the abuse the Majority opinion would now allow. In 2011, Slater (a photographer) went to the Tangkoko Reserve in Indonesia and setup a camera. Naruto, a crested macaque, pushed the shutter. Slater and Wildlife Personalities subsequently included the photographs in a book published by Blurb. In 2015, PETA—with no evidence it has any relationship whatsoever to Naruto—brought the instant suit claiming that Slater, Wildlife Personalities, and Blurb had violated Naruto’s rights under the Copyright Act. PETA alleged that it “had a genuine concern for Naruto’s well-being and was dedicated to pursing his best interests in this litigation” and that it “had the financial and operational resources and the professional expertise to administer and protect Naruto’s copyright in the Monkey Selfies.” Compl. at 4. PETA sought, inter alia, a court order
“permitting [PETA] to administer and protect Naruto’s authorship of and copyright in the Monkey Selfies.” *Id.* at 10.

PETA lost at the district court and appealed. When Dr. Engelhardt moved to be dismissed from the case, PETA twice affirmatively stated it would “fulfill the duties of a next friend.” *Notice of Withdrawal of Next Friend Antje Engelhardt* (May 4, 2016); see also *Motion to Correct Caption* (May 10, 2016) (“PETA shall remain responsible for maintaining this litigation and fulfilling the duties of a [n]ext [f]riend pursuant to Federal Rule of Civil Procedure 17(c).” (emphasis added)).

However, PETA quickly changed its tune after oral argument. On September 11, 2017, PETA and Defendants moved to dismiss the appeal and vacate the lower court’s judgment. *Joint Motion to Dismiss Appeal and Vacate the Judgment* (Sept. 11, 2017). But, unlike a normal settlement, the purported plaintiff, Naruto, was not a party. “Dismissal with vacatur is just and proper where, as here, the Plaintiff [Naruto] is not a party to the settlement.” *Id.* at 1 (emphasis added). Rather, his purported next friend, PETA, settled its own claims: “the settlement resolves all disputes arising out of this litigation as between PETA and Defendants.” *Id.* (emphasis added). It remains a mystery to me what “claims” PETA (a non-party) could settle. Nevertheless, even though PETA only settled its own claims, it maintained that “the settlement also renders moot the appeal filed on behalf of the Plaintiff Naruto.” *Id.* Indeed, PETA went so far as to claim “[t]here is thus no longer any live case or controversy before this Court.” *Id.* at 3.

Though it had previously attested it would “fulfill[] the duties of a next friend,” PETA forgot its self-appointed role. “A ‘next friend’ does not [itself] become a party to the … action in which [it] participates, but simply pursues the cause on behalf of [the party in interest].” *Whitmore*, 495 U.S. at 163 (emphasis added). Whatever PETA did or did not do for Naruto (it only made representations to this court regarding what it obtained), PETA made sure to protect itself and with the *Joint Motion* sought to manipulate this court to avoid further negative precedent contrary to its institutional objectives. PETA cleverly argues that, because Naruto is not a party to the settlement and Defendants have maintained that PETA does not have next-friend standing, Naruto should not be bound by judgments entered because of PETA’s actions. But, clever arguments
hardly conceal what is really occurring and the flip by PETA is quite surprising. One day, PETA maintains it will advance Naruto’s interests, the next it maintains that Naruto cannot be bound by PETA’s actions. It is clear: PETA’s real motivation in this case was to advance its own interests, not Naruto’s. PETA began this case purportedly seeking not only an injunction, but also a judgment “[d]eclaring Naruto to be the author and copyright owner of the Monkey Selfies with all attendant rights and privileges under law” and disgorgement. Compl. at 9–10. After oral argument, none of those objectives are, apparently, worth pursuing. Rather, when it came down to a possible negative, precedential ruling from the panel, PETA quickly sought to protect the institution, not the claimed real party in interest. PETA used Naruto as a “pawn to be manipulated on a chessboard larger than his own case.” Lenhard, 443 U.S. at 1312 (Rehnquist, J., writing for the full Supreme Court).

Unfortunately, PETA’s actions could be the new normal under today’s holding.
ABSTRACT

For more than a quarter century, interest among copyright scholars in the question of AI authorship has waxed and waned as the popular conversation about AI has oscillated between...

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* © 2012, Annemarie Bridy. Fellow, Princeton University Center for Information Technology Policy (CITP); Associate Professor of Law, University of Idaho College of Law. This article has greatly benefited from the input and feedback of participants in the Southeastern Association of Law Schools 2010 Annual Meeting, the Tenth Annual Intellectual Property Scholars Conference, the Lewis and Clark Northwestern School of Law “IP in the Trees” Scholarly Workshop, and the Whittier Law School IP Colloquium. I owe particular thanks to Dan Burk, Megan Carpenter, James Grummeimann, Steve Hetcher, Andy Johnson-Laird, Lydia Loren, Joe Miller, John Perry, David Post, Betsy Rosenblatt, and Molly Van Houweling, each of whom helped to bring some part of this project into better, sharper focus.

exaggerated predictions for its future and premature pronouncements of its death. For policymakers, the issue has sat on the horizon, always within view but never actually pressing. To recognize this fact, however, is not to say that we can or should ignore the challenge that AI authorship presents to copyright law’s underlying assumptions about creativity. On the contrary, the relatively slow development of AI offers a reprieve from the reactive, crisis-driven model of policymaking that has dominated copyright law in the digital era.

By engaging and extending insights from two relatively discrete lines of existing scholarship—the postmodern critique of romantic authorship and the more pragmatic literature on copyright in works produced with the aid of computers—this Article seeks to answer the vexing copyright questions that attend the artificially intelligent production of cultural works. It does so by developing the argument that all creativity is inherently algorithmic and that works produced autonomously by computers are therefore less heterogeneous to both their human counterparts and existing copyright doctrine than appearances may at first suggest.

INTRODUCTION

The PC revolution of the 1980s caused a seismic, permanent shift in consumer attitudes and practices concerning the reproduction of copyrighted works. The Internet revolution of the 1990s had the same effect with respect to the distribution of those works. As any witness to the head-on collision between intellectual property rights and digital technology will attest, these two shifts have exerted extreme pressure on the existing legal infrastructure for protecting and enforcing copyrights. While this crumbling infrastructure has been propped up by both statutory and technological buttresses designed to curb the unauthorized copying and distribution of digital content, few on either side of the “copyrights” would argue that the system is not broken, and many believe it is irretrievably so.2

This Article is about the copyright consequences of a third computer-enabled technological shift—in the means of creative and artistic production. It is not about the “remix” culture or the ways in which computers are enabling people to produce art and other creative works in new ways. That ground has already been covered extraordinarily well by others.3 It is, instead, about the ways in which people are enabling computers to produce art and other creative works in new ways, virtually all by themselves. Although the first putatively computer-authored work was presented for copyright registration sometime before 1965, prompting the Register of Copyrights to voice concern over the indeterminate legal status of works created with the aid of computers,4 the problem of how to treat works created relatively autonomously by machines has not become a pressing one since then. The delay can be attributed in large part to slower-than-predicted progress in the development of artificial intelligence (AI).5

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2 See, e.g., JAMES BOYLE, THE PUBLIC DOMAIN: ENCLOSING THE COMMONS OF THE MIND 15 (2008) ("Copyright, intended to be the servant of creativity, a means of promoting access to information, is becoming an obstacle to both."); LAWRENCE LESSIG, FREE CULTURE 173 (2004) (asserting that "copyright has become unbalanced, tilted toward an extreme"); JESSICA LITMAN, DIGITAL COPYRIGHT 112 (2001) (characterizing our current copyright law as "complicated, arcane, and counterintuitive"); Lydia Pallas Loren, Untangling the Web of Music Copyrights, 53 CASE W. RES. L. REV. 673, 674 (2003) ("The copyright system is broken. Merely retooling it will not work. What is needed is a redesign."); Pamela Samuelson, Preliminary Thoughts on Copyright Reform, 3 Utah L. Rev. S51, S55 (2007) (arguing that we need "a simpler copyright law . . . to provide a comprehensible normative framework for all of us who create, use, and disseminate works of authorship.").

3 See, e.g., BOYLE, supra note 2, at 122-59; LAWRENCE LESSIG, REMIX 51-83 (2008); JOHN PALFREY & URI GASSER, BORN DIGITAL 111-29 (2008).


5 Expectations for rapid development of an artificial general intelligence (AGI) in the 1960s and 1970s turned out to be unrealistically inflated, which led to a dwindling of interest in and funding for AI research the 1980s. Patrick Tucker, The AI Chase, THE FUTURIST, Mar.-Apr. 2008, at 15. Lately, the field has become revitalized, and "narrow AIs," dedicated to performing specific tasks, are increasingly a part of daily life. Id. These programs operate mostly invisibly to the public, managing urban vehicle traffic and corporate supply chains, automating the delivery of electricity and the trading of stocks. Id. Many experts continue to believe that an AGI is on the horizon, but they have become more cautious in their predictions about the timing. See J. STORKS HALL, BEYOND AI 35 (2007) ("It is a virtual certainty that AI is coming . . . . The only serious question is timing will we have general human-level AI in eight, forty, twenty, or ten years?). Narrow AIs that generate art, literature, music, and audiovisual works are now in wide enough circulation that the time is upon us to consider their relationship to copyrights and the legal
As the state of the art continues to advance in AI and related areas, however, we are moving incrementally but surely into an age of digital authorship, in which digital works (i.e., software programs) will, relatively autonomously, produce other works that are indistinguishable from works of human authorship. The generative art movement, for example, is dedicated to the exploration of "computational creativity" through a set of creative practices whereby the artist "cedes control to a system" that is "self-contained enough to operate autonomously." In the realm of computer gaming, the increasingly sophisticated technology of procedural content generation (PCG) has enabled real time, in-game production of highly detailed virtual landscapes and cityscapes—displays that were once designed by hand. Developments like these put an algorithmic twist on the postmodern "death of the author" and lead to difficult questions of authorship, including how and when the law of copyrights should evolve—if, indeed, it can evolve within constitutional limits—to accommodate the birth of artificially intelligent authors.

This Article seeks to answer these questions, primarily by interrogating longstanding legal and philosophical assumptions about the nature and sources of creativity. Part I considers the requirement of authorship as a constitutional limit on the scope of copyrightable subject matter. It begins with a discussion of romantic authorship as the foundational principle for copyright and moves on to consider the co-evolution of technologies for cultural production and the legal constructs of authorship, originality, and creativity. Part II traces the relationship between computational creativity and human creativity, arguing for a significant kinship between the two that proponents of AI embrace and skeptics reject. Part III takes up the legal question of whether AI authors can be authors within the current frame of copyright law. Finally, Part IV grapples with the thorny ownership issues that flow from embracing the products of generative code as copyrightable works. Although the Article is not concerned first and foremost with producing a doctrinal solution to the ownership problem, Part IV concludes that the work made for hire doctrine is a sound mechanism for vesting ownership of copyrights in AI authored works.

I. THE LEGAL LIMITS OF "AUTHORSHIP"

Copyright scholars working across the fields of law and literature have written at length on the close relationship between legal and literary constructions of "authorship." These scholars have mapped, in Peter Jasi’s words, "the ways in which the cultural figuration of the 'author,' as the inspired creator of works of art, has interacted with the legal notion of the 'author' as the bearer of

construction of authorship on which copyrights depend. Some examples of these programs are discussed infra in Part II.


The term "generative art," as Galanter uses it, is methodological and not substantive or stylistic. See Philip Galanter, What is Generative Art? Complexity Theory as a Context for Art Theory, PHILIP GALANTER 4 (2003), http://philipgalernter.com/downloads/g2003_paper.pdf. It is also, in Galanter’s formulation, "uncoupled from any particular technology," so it doesn’t necessarily involve computers. Id. The term is commonly understood, however, to denote autonomous or semi-autonomous cultural production by computers. See Margaret A. Boden & Ernest A. Edmonds, What is Generative Art?, 20 DIGITAL CREATIVITY 21, 24 (2009) (explaining that "[b]oth in music and in visual art, the use of the term has now converged on work that has been produced by the activation of a set of rules and where the artist lets a computer system take over at least some of the decision-making (although, of course, the artist determines the rules)") (emphasis in original).

7 PCG has been used since the early days of computer gaming. See Noel Llopis, Procedural Content Creation, GAME DEVELOPER, Aug. 2009, at 41. The term refers to the automatic creation of game content (e.g., game levels, art assets, narratives, and characters) through the use of algorithms. See Julian Togelius et al., Search-Based Procedural Content Generation, in APPLICATIONS OF EVOLUTIONARY COMPUTATION 149 (C. DiCillo et al. eds. 2010). The virtues of PCG from a game publisher’s point of view are many: procedurally generated content (1) saves memory, because it can be compressed until needed; (2) saves money, because it eliminates the need for manual production of game content; (3) creates the possibility for endless games with nearly infinite replay value; and (4) augments human imagination and can inspire game designers to create new kinds of content and narratives. See id. at 141–42.

portable rights in literary and artistic property." The rich cross-disciplinary body of scholarly work on authorship, most of which dates from the early 1990s, was inspired by the writings of Roland Barthes and Michel Foucault, whose poststructuralist critiques of authorship sought to expose as historically and culturally contingent the idea of the author as an individual creative personality, a solitary originator of stylistically consistent works. Referencing the work of Foucault and drawing to varying degrees on his insights about the role of the "author function" in the attribution and ownership of literary texts, Jaszi, Martha Woodmansee, and Mark Rose have each argued persuasively that the figure of the romantic author sits monolithically at the core of copyright law, obscuring important realities about the collective nature of creativity and misrepresenting the actual processes of cultural production—both past and present. To quote James Boyle, who argues in the same vein, the individualized figure of the romantic author "blinds us to the pragmatic, moral, and distributive claims of both 'sources' and audience" when it comes to the regulation of information products.

To understand how the romantic author came to occupy this privileged and monolithic position, one must return to the English origins of the copyright and its rather seamless integration into the legal framework of the early American republic. When the framers of the Constitution delegated to Congress the power to grant exclusive rights to "Authors and Inventors" in their respective Writings and Discoveries, they had for a model England's Statute of Anne, in which the literary notion of the author as originator merged with Locke's economic theory of possessive individualism to produce the legal construct of the author as proprietor. The influence of this individualistic and proprietary understanding of authorship on the framers is evident in Federalist 43, in which James Madison approvingly invoked the English copyright system and its support for personal ownership of creative and inventive works. Madison appears to have thought it self-evident that England's recognition of individual rights in authors and inventors was logically sound, publicly beneficial, and therefore worth replicating. From 1790, the year in which Congress enacted the first copyright statute, the defining question of U.S. copyright law has been how far the Constitution permits Congress to go in protecting the "Writings" of "Authors." In early cases testing the constitutional

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8 Jaszi, On the Author Effect, supra note 8, at 294.
9 See ROLAND BARTHES, IMAGE-MUSIC-TEXT 142-43 (1977) ("The author is a modern figure, a product of our society introjected as, emerging from the Middle Ages with English empiricism, French rationalism and the personal faith of the Reformation, it discovered the prestige of the individual, if, as it is more nobly put, the 'human person'.") \ MICHEL FOUCAULT, THE FOUCALUT READER 101 (1984) ("The coming into being of the notion of 'author' constitutes the privileged moment of individualization in the history of ideas, knowledge, literature, philosophy and the sciences.") (emphasis in original).
10 See supra note 8, at 3 ("Copyright is founded on the concept of the unique individual who creates something original and is entitled to reap a profit from those labors. Until recently, the dominant modes of aesthetic thinking have shared the romantic and individualistic assumptions inscribed in copyright. But these assumptions obscure important truths about the processes of cultural production."). Jaszi, The Author Effect, supra note 8, at 295 ("The persistence of the notion of 'authorship' in American copyright law makes it difficult for any new legal synthesis, which would focus on the reality of collective creativity, to emerge."). Woodmansee, On the Author Effect, supra note 8, at 292 ("The law has yet to be affected by the 'critique of authorship' initiated by Foucault. . . . It would seem that as creative production becomes more corporate, collective, and collaborative, the law invokes the Romantic author all the more insistently.").
11 James Boyle, A Theory of Law and Information: Copyright, Splinters, Blackmail, and Insider Trading, 80 CAL. L. REV. 1413, 1423 (1992). In an earlier article, Boyle elegantly describes Foucault's "author" as "the principle of theft in the production of meaning, a device that limits and disciplines the range of meanings to be found in the text." James Boyle, The Search for an Author: Shakespeare and the Framers, 37 AM. U. L. REV. 625, 626 (1980).
12 See supra note 8, at 36. Rose locates the formation of the construct of the author as proprietor at the nexus of three historical phenomena: the emergence in England of a mass market for books; the valorization of the individual genius, as reflected in the writings of Samuel Johnson and others; and the development of Locke's philosophy of possessive individualism. Id. As Diane Leenheer Zimmerman points out, the Statute of Anne vests copyright in the first instance in authors, but it takes account of the interests of many parties, including printers and booksellers. See Diane Leenheer Zimmerman, It's an Original[?]! In Pursuit of Copyright's Elastic Essence, 28 COLUM. J. L. & ARTS 187, 194 (2005). At the time of the Statute's adoption, the realities of the publishing trade were such that authors did not control publication of their own works and usually signed away their rights before publication, which was the moment at which copyright attached. Id. Zimmerman's analysis of the Statute of Anne against the backdrop of existing trade practices suggests that the landmark legislation made authors proprietors of their works more in theory than in practice. See id. (arguing that the presence of authors in the statute was largely for rhetorical purposes).
13 The FEDERALIST NO. 43 (James Madison) (1788) ("The copyright of authors has been solemnly adjudged, in Great Britain, to be a right of common law. The right to useful inventions seems with equal reason to belong to the inventors. The public good fully coincides in both cases with the claims of individuals.").
14 Id.
limits of the Congressional power, that question tended to decompose into two separate but related constitutional inquiries: Who can be counted as an author, and what can be counted as a writing?

Since the days of the *Trade-Mark Cases*, when works covered by the Copyright Act were expressly limited to specific categories, courts have liberally construed both terms. In doing so, they have consistently formulated the threshold requirements for authorship in terms of mind and intellect. For example, the Supreme Court in the *Trade-Mark Cases* limited "writings" to "only such as are original, and are founded in the creative powers of the mind." Unlike the symbols that can constitute trademarks, the Court explained, works eligible for copyright protection are limited to "the fruits of intellectual labor" and "depend upon work of the brain."

In *Burrow-Giles Lithographic Co. v. Sarony*, the Court considered the constitutionality of extending copyright protection to photographs, which were, to a certain way of thinking, purely mechanical reproductions of their subjects, lacking the requisites of originality and creativity established in the *Trade-Mark Cases*. Burrow-Giles argued in the case that Napoleon Sarony's photograph of Oscar Wilde was neither a writing nor the production of an author—an argument to which the Court, inclined to give both terms a broad meaning, was unreceptive. The Court defined authorship and copyright in broadly humanistic terms, citing the Framers' reliance on English law: an author is "he to whom anything owes it origin; originator, maker; one who completes a work of science or literature;" copyright is "the exclusive right of a man to the production of his own genius or intellect." Authorship could also be understood, the Court concluded, in terms of causation: the author is "the cause of the picture" and "the man who...gives effect to the idea, fancy, or imagination." The camera took the photo, but the composition originated with the person behind the camera. As the originator of the photograph, the motive force without which it could not have come into existence, the photographer was held to be an author for copyright purposes, regardless of his reliance on a machine.

According to the Court's reasoning in *Burrow-Giles*, the machine taking the picture mediated but neither negated nor co-opted the process of artistic production, which could be traced quite directly back to the governing consciousness and sensibility of the photographer, the person behind the lens who posed the subject just so and altered the lighting just so. The camera functioned merely as an instrument, a means to the end of realizing the human operator's creative vision, which is the basis for copyright in the resulting photograph. The Court in *Burrow-Giles* expressly declined to decide whether unstaged photographs lacking visible signs of active human intervention in their composition could properly be regarded as having been authored for copyright purposes, but it

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14 *Trade-Mark Cases*, 100 U.S. 82 (1879).
15 *Id.* at 94-96.
16 *Id.* at 94.
17 *Id.*

20 See *Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53, 58-59 (1884) ("But it is said that...the photograph is the mere mechanical reproduction of the physical features or outlines of some object... and involves no originality of thought or any novelty in the intellectual operation connected with its visible reproduction in shape of a picture.").
21 *Id.* at 56 ("It is insisted in argument, that a photograph being a reproduction on paper of the exact features of some natural object or of some person, is not a writing of which the producer is the author.").
22 *Id.* at 57-58.
23 *Id.* at 61. The authorship-as-cause formulation recurs in later cases. See, e.g., Remick Music Corp. v. Interstate Hotel Co., 58 F. Supp. 523, 531 (D. Neb. 1944) ("Thus the term 'author' is defined as 'the beginner... or first mover of anything; hence, efficient cause of a thing..."") (citing WEBSTER'S NEW INTERNATIONAL DICTIONARY (1st ed. 1925)).
24 *Burrow-Giles*, 111 U.S. at 61.
25 *Id.*
26 See *id.*
27 Christine Haight Farley situates *Burrow-Giles* in the context of the early history of photography—an exercise that reveals how easily the case could have gone the other way in light of the rhetoric that camera manufacturers and early adopters used to explain (and market) the seemingly miraculous new invention to the public. See Christine Haight Farley, *The Lingering Effects of Copyright's Response to the Invention of Photography*, 65 U. PITT. L. REV. 385, 389 (2004) ("When photography was first invented, it was explicitly promoted as being a mechanical science whereby the machine was able to produce a direct transcription of the scene before it. It was argued that the image was not mediated by the human operator of the machine—it was produced directly by the technology.").
suggested in dicta that they could not. This dicta laid the groundwork for a dichotomy between creative and mechanical labor that appears frequently in later cases, both those that actually involve machine-mediated cultural production and those that do not. It also helped to establish a tacit, powerful, and persistent assumption in the law of copyrights that automation is antithetical to authorship.

In *Bleistein v. Donaldson Lithographing Co.*, the Court augmented its early jurisprudence of authorship, but departed from the developing focus on creativity and genius. Writing for the Court, Justice Holmes offered a conception of authorship grounded in the inherent uniqueness of human personality: "The copy is the personal reaction of an individual upon nature. Personality always contains something unique ... something irreducible, which is one man's alone. That something he may copyright." Even this more modest conception of authorship-as-personality dispenses with the language of genius and intellect, it reinforces the individualization of authorship and the human element on which the court insisted in *Burrow-Giles*. From *Burrow-Giles* to *Bleistein*, one can trace an evolution—or, perhaps, devolution—in the legal construction of authorship from genius or artistry to mere personality. Concomitant with this (de)evolution is a retreat from the proposition that judges deciding copyright cases are called upon to make aesthetic judgments about the works in question.

By opening up the world of copyrights to lowly advertising posters—work that "attracts the crowd"—the Court in *Bleistein* established that originality for copyright purposes does not require a relationship to the fine arts or high culture; it requires only the imprint, however humble, of an individual personality. This democratizing recalibration of the originality standard marks the jurisprudential moment at which copyright protection became virtually guaranteed for any work produced by a human hand, regardless of its perceived creativity or aesthetic merit.

In later cases applying *Bleistein*, including the Second Circuit's decision in *Alfred Bell & Co. v. Catalda Fine Arts, Inc.* and the Eighth Circuit's in *Anschel v. Puritan Pharmaceutical Co.*, the standard for originality in copyright law reached a low watermark: "The artistic work must be 'original,' but this means no more than that the work must not be copied from another artistic work of the same character." In *Bell*, the court held that "original" for copyright purposes does not mean "startling, novel or unusual, a marked departure from the past." A creative standard that high is reserved, the

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28 *Burrow-Giles*, 111 U.S. at 59; *see also* Meshwerks, Inc. v. Toyota Motor Sales U.S.A., Inc., 528 F.3d 1258, 1263 n.5 (10th Cir. 2008) (asserting that photographs are not per se copyrightable). But *see* Jewelers' Circular Pub. Co. v. Keystone Pub. Co., 274 F. 932, 934-935 (D.C.N.Y. 1921) ("[I]n no photograph, however simple, can be unaffected by the personal influence of the author, and no two will be absolutely alike. . . . The suggestion that the Constitution might not include all photographs seems to me overstrained.").

29 *See* Feist Publ'n, Inc. v. Rural Tel. Serv. Co., 499 U.S. 340, 362 (1991) (stating that "the selection and arrangement of facts cannot be so mechanical or routine as to require no creativity whatsoever"); Southco, Inc. v. Kanebridge Corp., 390 F.3d 276, 284-285 (3d Cir. 2004) (holding that the Southco part numbers are not protected by copyright because they are mechanically produced by the inflexible rules of the Southco system); Courier Lithographing Co. v. Donaldson Lithographing Co. 104 F. 993, 995 (6th Cir. 1900) (stating that "a photograph might be something more than a mere mechanical and chemical product, and might rise to the dignity of art, through the blending of the mechanical parts of the process with the original intellectual conceptions of an artist"); Shapiro, Bernstein & Co. v. Miracle Record Co., 91 F. Supp. 473, 474 (D. III.1950) (stating that "the purpose of the copyright law is to protect creation, not mechanical skill"); Armstrong v. Edward B. Marks Music Corp., 11 F. Supp. 533, 536 (S.D.N.Y. 1935) (referencing patent law standards and distinguishing between "an exercise of inventive genius" and "mere mechanical skill").

Even before *Burrow-Giles*, the dichotomy between the creative and the mechanical appeared in copyright cases. See Daly v. Palmer, 6 F. Cas. 1132, 1137 (C.C.N.Y. 1868) ("The original air requires the aid of genius for its construction, but a mere mechanical in music can make the adaptation or accompaniment.").


31 *Id.* at 250.

32 *See id.* at 251 ("It would be a dangerous undertaking for persons trained only to the law to constitute themselves final judges of the worth of pictorial illustrations . . . .").

33 To use Zimmerman's words, the originality standard in *Bleistein* and its progeny "was reduced to such a state of feebleness that failing to find it was aberrational." Zimmerman, supra note 13, at 204.


35 *Bell*, 191 F.2d at 102.
court said, for patent law.\textsuperscript{36} “Original” in copyright law means only that “the particular work ‘owes it origin’ to the ‘author.’”\textsuperscript{37} On this reading, “original” is more a designation of source than it is a metric of creativity.

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Notably absent from these post-\textit{Bleistein} decisions are words like “genius,” “intellect,” “fancy,” and “imagination,” which functioned as synonyms for authorship in \textit{Burrow-Giles}. Further divorcing the concepts of originality and authorship from the notion of purposive creativity, the court in \textit{Bell} held that even unintentional or accidental variations (e.g., “a shock caused by a clap of thunder”) may be claimed by an author as his or her own, as long as those variations are more than merely trivial.\textsuperscript{38} Sidestepping the usual talk of genius and imagination, these cases avoid the focus on creative intention that was well established in the earlier case law.

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Other courts, however, continued to insist on something more than independent creation to justify copyright. In \textit{Baltimore Orioles, Inc. v. Major League Baseball Players Association},\textsuperscript{39} the Seventh Circuit sought to clarify that originality \textit{qua} lack of copying is not sufficient to make a work an “original work of authorship” for copyright purposes:

It is important to distinguish among three separate concepts—originality, creativity, and novelty. A work is original if it is the independent creation of its author. A work is creative if it embodies some modest amount of intellectual labor. A work is novel if it differs from existing works in some relevant respect. For a work to be copyrightable, it must be original and creative, but need not be novel. (Thus, in contrast to patent law, a work that is independently produced by two separate authors may be copyrighted by both.)... Although the requirements of independent creation and intellectual labor both flow from the constitutional prerequisite of authorship and the statutory reference to original works of authorship, courts often engender confusion by referring to both concepts by the term “originality.” For the sake of clarity, we shall use “originality” to mean independent authorship and “creativity” to denote intellectual labor.\textsuperscript{40}

\textsection{17}
The Seventh Circuit here echoes \textit{Bell’s} conclusion that novelty in the patent sense is not required in copyright law; however, the court pointedly teases apart the concepts of originality and creativity, thus departing from \textit{Bell’s} unitary focus on originality and its conflation of two discrete constitutional requirements into a single criterion.

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The task of giving more definite shape to the nebulous (and nebulously related) concepts of authorship, creativity, and originality fell ultimately to the Supreme Court in \textit{Feist Publications, Inc. v. Rural Telephone Service Co.}.\textsuperscript{41} In \textit{Feist}, the Court was asked to decide whether the white pages of a telephone directory were an “original work of authorship” for statutory purposes. By this time, creativity had come to occupy an uncertain place in the copyright inquiry. Did it matter at all in the analysis? If so, what did it mean? Helpfully, the Court in \textit{Feist} answered the first question in the affirmative: “As a constitutional matter, copyright protects only those constituent elements of a work that possess more than a \textit{de minimis} quantum of creativity.”\textsuperscript{42} Unhelpfully, however, the Court was less than forthcoming on the second question. Readers of the opinion are left to cobbler together a definition of creativity from the Court’s scattered observations about Rural’s authorial failings. For example, the opinion tells us that Rural’s alphabetizing the surnames of its subscribers could not sustain a copyright because that method of selecting and organizing information “could not be more obvious.”\textsuperscript{43} Additionally, the Court said, the organization of Rural’s white pages was “garden-
variety,” “entirely typical,” “firmly rooted in tradition,” and “commonplace.” From these statements, one might infer that obviousness is fatal to statutory protection, much as it is in patent law, but the Court says elsewhere in the opinion that the “spark of creativity” required for copyright can actually be “crude, humble or obvious.”

¶19 In other places in the opinion, the Court’s guidance about the meaning of creativity seems equally equivocal, and the concepts of originality and creativity—which the Seventh Circuit in Baltimore Orioles was at pains to keep distinct—are conflated: “As mentioned, originality is not a stringent standard; it does not require that facts be presented in an innovative or surprising way. It is equally true, however, that the selection and arrangement of facts cannot be so mechanical or routine as to require no creativity whatsoever.” Such statements, which are concerned more with what creativity is not than with what it is, make it virtually impossible to discern from Feist where on the spectrum between the surprising and the routine to locate the break between eligible and ineligible subject matter. Given the logic of the opinion, the line must certainly be drawn much closer to routine than to surprise, but how close it can get to routine before the necessary “spark of creativity” is extinguished is anyone’s guess. Feist’s unequivocal rejection of the routine and the mechanical does, however, implicitly place the work that machines do beyond the copyright pale, reinforcing the longstanding assumption from Burrow-Giles that purely mechanical labor is per se not creative.

¶20 Perhaps the least equivocal statement Feist makes about the nature of creativity comes in the form of a quote from Burrow-Giles: “[A]n author who claims infringement must prove ‘the existence of... intellectual production, of thought, and conception.” The Court’s invocation of intellectual labor, harking back to the Trade-Mark Cases, logically grounds Feist’s repudiation of cases holding that “sweat of the brow” or “industrious collection” will sustain a copyright. It is not thus enough, contrary to Bell, for a work to be original only in the sense that it was not copied from another work. The Court makes at least that much clear by casting creativity as a necessary (even if ultimately ineffable) component of originality. The quote from Burrow-Giles implies, too, that creativity must be purposive or intentional; it can’t be accidental or externally motivated, like the Bell court’s hypothetical clap of thunder. Beyond these indistinct outlines, however, Feist does not provide much guidance concerning the shape of copyright’s creativity requirement. It may be that after Feist creativity has become to copyright law what obscenity is to First Amendment law: hard to define, but putatively easy to recognize.

¶21 Copyright scholars have been nearly uniformly critical of the Court’s failure in Feist to give any real content to the creativity requirement. Leo Raskind has written of Feist’s devaluation of the authorship component of the copyright analysis and of the opinion’s undue focus on the requirement of originality. Diane Lenheer Zimmerman faults the Court for failing to articulate an originality standard with any teeth, even as it demands something more of copyright claimants than sweat of the brow. Michael Madison argues that copyright’s creativity standard has become so empty after Feist, and excludes so little as a practical matter, that it would be more productive to put it to one side.

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44 Id. at 362.
45 Id. at 362.
46 Id. at 362.
47 Id. at 362 (quoting Burrow-Giles Lithographic Co. v. Sarony, 111 U.S. 53, 59-60 (1884)).
48 See id. at 352-56 (explaining why the industrious collection rationale violates the Constitution’s originality mandate).
49 See id. at 348 (stating that “choices as to selection and arrangement, so long as they are made independently by the compiler and entail a minimum degree of creativity, are sufficiently original that Congress may protect such compilations through the copyright laws”) (emphasis added); id. at 358 (stating that “[o]riginality requires only that the author make the selection or arrangement independently (i.e., without copying... from another work), and that it display some minimal level of creativity”) (emphasis added).
50 The famous saying is from Jacobellis v. Ohio:
   I shall not today attempt further to define the kinds of material I understand to be embraced within that
   shorthand description [i.e., “hard-core pornography”]; and perhaps I could never succeed in intelligently doing
   so. But I know it when I see it, and the motion picture involved in this case is not that.
52 See Zimmerman, supra note 13, at 209.
focusing instead on copyright as a mechanism for producing and disseminating knowledge.\textsuperscript{53} Asserting that “creativity has exhausted itself conceptually” as an anchor for copyright law, Madison advocates the re-conceptualization of copyright as “knowledge law.”\textsuperscript{54} Such a wholesale shift in perspective has the potential to redirect the conversation about the purpose and scope of copyright out of the creativity cul-de-sac in which Feist has trapped it.\textsuperscript{55} At the end of the day, however, creativity after Feist is (quite unworkably) both the sine qua non and the je ne sais quoi of copyright; the opinion makes it all but impossible for courts and advocates to maneuver around it.

II. THE QUESTION OF COMPUTATIONAL CREATIVITY

A. Theorizing Computational Creativity

Given copyright law’s abortive attempt to produce a workable definition of creativity, it should surprise no one that the project has been equally vexed in the fields of artificial intelligence and cognitive psychology. Among researchers in these fields, it is an open and contentious debate whether computers will ever be creative in the sense that humans are creative—whatever that sense is.\textsuperscript{56} The answer, of course, depends almost entirely on how creativity is defined, and there is certainly no dearth of competing definitions.\textsuperscript{57} If creativity is defined in terms of human consciousness— as it is, always at least implicitly, in much of the copyright case law surveyed in the preceding section—then machines ex vi termini will never be able to achieve it, no matter how sophisticated they become.\textsuperscript{58} AI skeptics are fond of quoting Ada Lovelace, who, in 1843, cautioned against over-optimism about the potential of Charles Babbage’s proposed Analytical Engine:

It is desirable to guard against the possibility of exaggerated ideas that might arise as to the powers of the Analytical Engine. The Analytical Engine has no pretensions whatever to originate anything. It can do (only) whatever we know how to order it to perform.\textsuperscript{59}

\textsuperscript{53} See Michael J. Madison, Beyond Creativity: Copyright as Knowledge Law, 12 VAND. J. ENT. & TECH. L. 817 (2010).

\textsuperscript{54} Id. at 831. “Copyright began as knowledge law,” Madison contends, “and knowledge law it should remain.” Id.

\textsuperscript{55} Joseph Scott Miller has argued, conversely, that Feist’s insistence on creativity represents a “definitive tug upward on originality’s constitutional minimum” and an opportunity to raise the threshold for copyright protection so that it aligns more closely with patent law’s rigorous standards. Joseph Scott Miller, Hours of Peril: Feist’s “Fatality” and the Crisis of Copyright Protection, 13 CARDOZO L. REV. 1, 20 (2001). Miller acknowledges, however, that in the wake of Feist “a fog remains of the widespread pre-Feist belief that originality meant only the absence of copying from another.” Id. at 461. Indeed, some courts deciding cases after Feist have actually ignored the criterion of creativity, focusing exclusively on originality as the absence of copying. See, e.g., Mag Jewelry Co. v. Cherokee, Inc., 496 F.3d 108, 116 (1st Cir. 2007) (“[A] work is original and may command copyright protection, even if it is completely identical with a prior work, provided it was not copied from such prior work but is rather a product of the independent efforts of its author.”) (quoting Melville B. Nimmer & David Nimmer, NIMMER ON COPYRIGHT § 2.01[A] (2007)); Ross, Brovins & Oehmke, P.C. v. Lexis Nexis Group, 463 F.3d 478, 485 (6th Cir. 2006) (“Copyright law extends protection to works that are ‘independently created by the author as opposed to copied from other works.’”) (citation omitted); Waldman Publishing Corp. v. Landell, Inc., 43 F.3d 775, 782 (2d Cir. 1994) (quoting Melville B. Nimmer & David Nimmer, NIMMER ON COPYRIGHT § 8.21[E] (2007)). These cases suggest that the “tug upward” on originality in Feist (via the criterion of creativity) was less definitive than it could have been.

\textsuperscript{56} AI researchers generally fall into two camps: those who believe in “strong AI” and those who believe in only “weak AI.” Selmer Bringsjord, Chari is Too Easy, TECH. REV., Mar.-Apr. 1998, at 23-24. Believers in strong AI “hold[ ] that all human thought is completely algorithmic, that is, it can be broken down into a series of mathematical operations.” Id. at 23. Believers in weak AI subscribe to “the notion that human thought can only be simulated in a computational device.” Id. at 23-24. Proponents of strong AI believe that “AI engineers ... will eventually replicate the human mind and create a genuinely self-conscious robot replete with feelings and emotions.” Id. at 23. Proponents of weak AI are less ambitious and believe that “future robots may exhibit much of the behavior of persons, but none of these robots will ever be a person; their inner life will be as empty as a rock’s.” Id. at 24.

\textsuperscript{57} See DAVID GELENTNER, THE MUSE IN THE MACHINE: 83 (1994) (“Creativity is a fascinating phenomenon and it has been studied endlessly ... No master key has been discovered.”); Roger Schank & Christopher Owens, The Mechanics of Creativity, in THE AGES OF INTELLIGENT MACHINES 394 (Raymond Kurzweil ed., 1991) (asserting that “the search for a rigorous philosophical definition of creativity has been overworked”). Calvin W. Taylor, an academic psychologist specializing in creativity research during the 1960s, when AI was a new field, cataloged over fifty definitions of creativity derived from different sources. See DAVID LEVY, ROBOTS UNLIMITED: LIFE IN A VIRTUAL AGE 149 (2006).

\textsuperscript{58} See Schank & Owens, supra note 57, at 394 (describing a critique of AI premised on the idea that machines can never really be creative because creativity is “inherently mystical” and defies reduction to rules and procedures).

\textsuperscript{59} LEVY, supra note 57, at 149 (quoting Lovelace). Babbage, considered by many to be the inventor of the first digital computer, was never able to bring his plans for the Analytical Engine to fruition, and the project remained unexecuted at his death, due at least in part to a lack of venture financing. See id. at 11-12. Ada Lovelace, the daughter of Lord Byron, was Babbage’s collaborator. Id. at 12, n.4. The Ada programming language is named after her. Id.
Notwithstanding its age and the technological advances that have occurred since its utterance, Lovelace’s critique remains credible. Even though today’s computers are exponentially more powerful than their early ancestors in terms of memory and processing, they still rely on humans in the first instance to dictate the rules according to which they perform. Like the photographer standing behind the camera, an intelligent programmer or team of programmers stands behind every artificially intelligent machine. People create the rules, and machines obediently follow them—doing, in Lovelace’s words, only whatever we order them to perform, and nothing more. Lovelace’s quote also suggests that it is the rule-bound, deterministic nature of computer behavior that forecloses the possibility of machine creativity. Her logic implies that creativity lies in the ability to do the unpredictable, to deviate from or defy rules, to break from the routine.

One response to Lovelace’s argument is that computers can, in fact, be programmed to produce unexpected results by incorporating elements of randomness into their processing.\(^{60}\) If we take unpredictability as a proxy for creativity, we can make machines creative by ordering them to behave unpredictably in some of the choices they are coded to make.\(^{61}\) “The true literature machine,” said the avant-garde novelist Italo Calvino, “will be one that itself feels the need to produce disorder, as a reaction against its preceding production of order: a machine that will produce avant-garde work to free its circuits when they are choked with too long a production of classicism.”\(^{62}\) For those committed to the belief that creativity requires human consciousness, however, simply making machines do things that we associate with creativity (e.g., producing disorder or breaking rules) will never be enough to make machines truly creative.\(^{63}\) Computational creativity, in this view, can never be anything more than an oxymoron, and no proxy for creativity can ever stand in for the “real” thing.\(^{64}\)

A more provocative response to Lovelace is that the human brain is something of a machine in its own right—a “meat machine,” to borrow an eloquent phrase from the AI pioneer Marvin Minsky.\(^{65}\) The suggestion is heresy for some.\(^{66}\) So, too, is Calvino’s conclusion that “writers, as they have always been up to now, are already writing machines,” processing existing works, extrapolating rules from their examples, and then applying those rules to the task of composition.\(^{67}\) How is it really

\(^{60}\) See id. at 150-51.

\(^{61}\) See id. at 151 (“By instructing the computer to employ randomness we are making it creative....The use of randomness breeds creativity because the very process of creativity requires that some decisions be taken for no particular reason.”); see also DAVID COPE, COMPUTER MODELS OF MUSICAL CREATIVITY 12 (2005) (asserting that programmed randomness produces output that is apparently original much more often than it produces output that is predictable).

\(^{62}\) ITALO CALVINO, THE USES OF LITERATURE 13 (Patrick Creagh trans. 1982).

\(^{63}\) See BRINGSFORD & FERRUCCI, supra note 1, at xvi-xvii (identifying and arguing against proponents of computational creativity).

\(^{64}\) The most often cited articulation of the AI skeptic’s position comes from John Searle, who proposed a thought experiment in which a person who speaks only English sits alone inside a room and manipulates Chinese characters according to instructions given to her in English. Although it appears to someone sitting outside the room that she speaks Chinese, the person inside the room actually understands nothing of the language. The thought experiment is intended to show by analogy that while computers can be programmed to apply linguistic rules correctly, they have no capacity to actually comprehend language. See John R. Searle, Minds, Brains, and Programs, 3 BEHAVIORAL & BRAIN SCIENCES 417 (1980).

\(^{65}\) See PAMELA MCCORDUCK, MACHINES WHO THINK: A PERSONAL INQUIRY INTO THE HISTORY AND PROSPECTS OF ARTIFICIAL INTELLIGENCE 70 (1979). Ironically enough, as Anne Balsamo and others have pointed out, the term “computer” initially referred to human beings, specifically to female office workers who operated electromechanical (i.e., pre-electronic) calculators. See, e.g., ANNE BALSAMO, TECHNOLOGIES OF THE GENDERED BODY: READING CYBORG WOMEN 133 (1996); N. KATHERINE HAYLES, MY MOTHER WAS A COMPUTER: DIGITAL SUBJECTS AND LITERARY TEXTS 1 (2005).

\(^{66}\) See DOUGLAS HOPSTADTER AND THE FLUID ANALOGIES RESEARCH GROUP, FLUID CONCEPTS & CREATIVE ANALOGIES: COMPUTER MODELS OF THE FUNDAMENTAL MECHANISMS OF THOUGHT 310 (1995) (“People seem to want there to be a absolute threshold between the living and the non-living, and between the thinking and the ‘merely mechanical,’ and they seem to feel uncomfortable with the thought that there could be ‘shadow entities,’ such as biological viruses or complex computer programs, that bridge either of these psychologically precious gulfs.”); MCCORDUCK, supra note 65, at 70 (“People who are scandalized by such a statement take it as one more instance of the generally irrelevant, even misanthropic, attitudes that they are convinced pervade artificial-intelligence work.”).

\(^{67}\) Calvino, supra note 62, at 15. Calvino contrasts aesthetic theories holding that poetry is “something intuitive, immediate, authentic, and all-embracing that springs up who knows how,” with his own experience of writing, which he characterizes (rather less romantically) as “a constant series of attempts to make one word stay put after another by following certain definite rules; or, more often, rules that were neither definite nor definable, but that might be extracted from a series of examples, or rules made up for the occasion—that is to say, derived from the rules followed by other writers.” Id. The process of writing, as he describes it, is more an exercise in finding and applying rules than in channeling a muse.
plausible, the skeptics wonder, that human creativity could itself be computational or algorithmic. Avant-gardists like Calvino raise the possibility that humans and machines, if we consider the rule-bound nature of their respective outputs and the pre-existing models they are wont to emulate, are really not as different as we are conditioned to believe. Calvino belonged to a still-extant experimental writing group known as Oulipo, an acronym for Ouvroir de Littérature Potentielle (Workshop for Potential Literature).

Oulipo was founded in 1960 by novelist/mathematician Raymond Queneau and poet/chess master François Le Lionnais to explore the possibilities of incorporating mathematical structures into literary creation. Oulipian invention provides a rigorous investigation of the program as a generative agent in literary work, and its methods provide a useful reference point for considering algorithmic generation of poetry.

The Oulipian method of writing requires writers to compose under self-imposed external constraints, often based on mathematical equations. Probably the most well known Oulipian work is Georges Perec's _La disparition_ (translated as _The Void_), a full-length detective novel written entirely without the letter “e.”

The chapters of another of Perec's novels, _La Vie mode d'emploi_ (translated as _Life: A User's Manual_), are plotted within the layout of an apartment building in Paris to emulate a knight's tour of a chessboard. By creating new literary works within these rigid constraints, Oulipians bring to the fore the dialectical relationship between rules and innovation, determinism and choice that is inherent in all processes of cultural production. Since the founding of Oulipo, similar workshops have come into being to explore human-mediated algorithmic production in the domains of painting (Oupeinpo) and music (Oumupo), for example. In the musical realm, composers throughout history—long before the founding of Oulipo and its offshoots—experimented with algorithmic composition, "building" stylistic models from constraints, preferences, and procedural descriptions of the act of making a composition. Schoenberg is a famous example; he sometimes required of his compositions that they use the full range of the chromatic scale, and at other times, he avoided or reduced the range.

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68 See, e.g., Peter Kassan, _Art Gone Ajar: The Finite Quest for Artificial Intelligence_, 12 SKEPTIC 30, 34 (2006) ("The way people actually reason can't be reduced to an algorithmic procedure like arithmetic or formal logic.").

69 See Allison James, _Automatism, Arbitrariness, and the Oulipian Author_, 31 FRENCH FORUM 111, at 122 (2006) (arguing that Calvino "divides the process of creation into mechanical and human components, suggesting that the author . . . can work both with and against the automatism of the machine").


71 Id.

72 The constraints within which Oulipians write vary in their complexity. For example, Oulipians are known for employing the S+7 method, where each noun in a given text, such as a poem, is systematically replaced by the noun to be found seven places away in a chosen dictionary. See generally James, supra note 69, at 112-18. Another Oulipian technique for producing poems is to apply the snowball (boule de neige) constraint: each line of the poem is a single word, and each successive word is one letter longer than the word before. See WARREN F. MOTTE JR., (ED. & TRANS.), OULIPO: A PRIMER OF POTENTIAL LITERATURE 201 (1986). Queneau's 100,000,000,000,000 Poems (100 Trillion Poems) consists of 10 fourteen-line sonnets, each line of which can be interchanged with the corresponding line in any other sonnet. Given that each sonnet has fourteen lines, and that each line of each sonnet can be interchanged with its homologue from any of the remaining nine sonnets, the "combinatory ensemble" yields 10^14 individual sonnets. See id. at 3.

73 See MOTTIE, supra note 72, at 5.

74 See HARRY MATHEWS ET AL., OULIPO COMPENDIUM 172 (1998). Here is Perec's description of how he plotted the novel:

1 decided to use a principle derived from an old problem well known to chess enthusiasts as the Knight's tour; it requires moving a knight over the 64 squares of a chess-board without its ever landing more than once on the same square. . . . For the special case of _Life: A User's Manual_, a solution for a 10 x 10 chess-board had to be found. . . . The division of the book into six parts was derived from the same principle: each time the knight has finished touching all four sides of the square, a new section begins.

Id.

75 See Bill Seaman, OULIPO IN YOUR REDEMPTIVE POETICS, 34 LEONARDO 423, 425 (2001) ("As we trace the development of OULIPO we see an expansion of Oulipian explorations into the use of computer based systems as well as many other fields. OULIPO and PO (where x = the field in question), for example, was defined by François Le Lionnais and functions as a generative means to enable infinite expansion into new fields.").

76 Charles Amos, _Artificial Intelligence and Music Composition_, in _THE AGE OF INTELLIGENT MACHINES_, supra note 58, at 389. According to Amos, the tradition of algorithmic composition in music "reaches from Pythagoras and Arithmetik of antiquity . . . through the Baroque composer Jean-Philippe Rameau, through more recent composers as diverse as Arnold Schoenberg, Henry Cowell, Paul Hindemith, Harry Partch, and Joseph Schillinger to contemporaries such as Pierre Boulez and Iannis Xenakis." Id.
mandated repetition of certain notes or strings of notes. Perhaps not surprisingly, given the extent to which algorithmic methods of composition undermine the notion of romantic authorship and the model of creativity on which it is predicated, critics of Oulipian express fear that the movement and its tenets reduce writers to the role of the machine, unmooring the creative process from the aesthetic intention that makes it meaningful and worthwhile.

Oulipian's embrace of rules and constraints, however, can productively be understood as a means of making a virtue of necessity; it isn't as if writers (or any other kind of artist, for that matter) can ever really break free of rules—of grammar, of syntax, of diction, etc. Calvino recognized the impossibility of producing work that is completely original, that breaks completely with existing codes and canons; his embrace of "radical formalism" constitutes an acknowledgement that all cultural production is inherently derivative and algorithmic. By Calvino's logic, if there is a difference in the apparent rulishness of human and machine outputs, it can only be a difference in degree; as a qualitative matter, computers are as capable (or incapable) of originating things (i.e., of breaking rules) as people are. As Margaret Boden puts it, "[p]eople often think that talk of 'rules' and 'constraints'—especially in the context of computer programs—must be irrelevant to creativity, which is an expression of human freedom. But far from being the antithesis of creativity, constraints on thinking are what make it possible." Without rules, in other words, there can be no creativity—in humans or machines. Alison James makes a similar point in defense of Oulipian methods, arguing that "the strength of Oulipian writing lies precisely in the negotiation of the tension between the mechanical and the human, or between the arbitrary, external constraint, and inner poetic necessity."

Calvino's figure of the author as a writing machine is about as radical a deconstruction of the figure of the romantic author as a good post-modernist could wish for, and it is arguably one whose time has come in the discourse on copyright law. Jaszi and others have critiqued the ways in which the individualization of the author elides the collective nature of creativity. Perhaps the time has come to extend the critique of romantic authorship to the ways in which the implicit humanization of the author figure prevents us from confronting openly both the rulish nature of human creativity and the potential unruliness of machine production. Copyright law has come to require so little in the way of creativity from human authors that it is worth asking whether it makes sense to require more of machines, particularly in instances where it is impossible to tell whether the work in question was produced manually by a person or procedurally by generative computer code.

For their part, AI researchers tend to prefer running code to running philosophical debates, so they put their stock in operational definitions of creativity. Boden, whose work in the field of

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78 See James, supra note 69, at 111 (summarizing Gersed Genette's critique of Oulipian's techniques as a "game of roulette").
79 See Mott, supra note 72, at 11 ("Every literary work begins with an inspiration (at least that's what its author suggests) which must accommodate itself as well as possible to a series of constraints and procedures that fit inside each other like Chinese boxes. Constraints of vocabulary and grammar, constraints of the novel (division into chapters, etc.) or of classical tragedy (rule of the three unities), constraints of general versification, constraints of fixed forms (as in the case of the rondeau or the sonnet), etc.") (quoting Oulipian Francois Le Lionnais).
81 Boden, supra note 77, at 29. Similarly, Robert W. Weisberg critiques the "genius" view of creativity, which posits that geniuses exhibit "special thinking processes that allow [them] to break away from the habitual and the ordinary, in what is often called "breaking the set." Robert W. Weisberg, Creativity: Beyond the Myth of Genius 7 (1993). Weisberg argues instead that creativity comes through ordinary thinking based on continuity with the past: "The new must begin as a variation on old themes." Id. at 21; see also COPE, supra note 61, at 28 ("'New' art, then, consists of a reassembly of already existing art.")
82 Mozart, commonly regarded as one of the most creative minds in the history of music, also experimented with algorithmic composition in his Musicalische Wurffspiel, or musical dice games, which were designed to generate a seemingly infinite number of "new" works by combining a finite number of discrete musical elements according to a method involving both rules of composition and pure chance. See David Cope, Rambunctious Music: Using the Computer to Explore Musical Style, 24 COMPUTER 22 (July 1991) (explaining how Mozart's Klavier 516f can produce 45,545,729,863,572,161 different and stylistically correct musical combinations from two 8 by 11 matrices containing the numbers 1 through 176).
83 Boden, supra note 77, at 82.
84 See Jaszi, On the Author Effect, supra note 8.
85 See Schank & Owens, supra note 57, at 394 ("Our goal is to come up with an algorithmic definition of creativity, a set of
computational creativity has been enormously influential across the disciplines of art, psychology, and computer science, defines creativity as “the ability to generate novel, and valuable ideas.” With respect to the novelty of creative ideas, she distinguishes between two levels or senses of creativity: psychological creativity (P-creativity), which entails the production of novel ideas that are novel for the individual mind that produced them but not novel in absolute terms, and historical creativity (H-creativity), which entails the production of ideas that are novel for the whole of human history. “H-creativity is the more glamorous notion,” Boden asserts, “and is what people usually have in mind when they speak of ‘real’ creativity.”

Boden’s bi-partite framework for creativity maps fairly neatly onto existing creativity standards in intellectual property law: H-creativity aligns with the standard of novelty in patent law, which has as its point of reference the state of the art rather than the state of an individual inventor’s mind. P-creativity, which focuses on the newness of an idea relative only to the person thinking it and not to society or history as a whole, aligns with the originality standard in copyright law and with copyright law’s requirement of independent creation as opposed to absolute novelty. A work can still be considered original under copyright law even if another person has already created it, as long as the second work is not copied from the first. By contrast, the work of a second-comer under patent law could not be considered novel, because the patent system requires novelty in absolute terms.

Like Boden, Roger Schank and Christopher Owens define creativity in terms of novelty and the specific cognitive skills required to produce it. For them, a creative solution to a problem is “one that uses an object, technique, or tool in a useful and previously undiscovered way.” In trying to

processes and steps that can account for the kind of creative thinking that we observe in people.”

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Joseph Scott Miller has argued that there should be a closer alignment than there is between copyright and patent law standards of originality. See Miller, supra note 55, at 464. Jeanne Fromer argues that the lower creativity standard in copyright law relative to patent law is consistent with psychological research showing that people don’t like artistic works that are “too new.” See Jeanne Fromer, A Psychology of Intellectual Property, 104 NW. U. L. REV. 1441, 1496-98 (2010). By contrast, in the science and engineering domains, large degrees of newness are embraced by the public. Id at 1472. Others scholars have also recently explored the affinity (or lack thereof) between the model of creativity and various models of creativity from the social sciences. See e.g., Gregory N. Mandel, To Promote the Creative Process: Intellectual Property Law and the Psychology of Creativity, 86 NOTRE DAME L. REV. 1635.

Schank & Owens, supra note 57, at 395.
design software whose output meets the more rigorous standard of novelty associated with patent law, AI researchers like Schank and Owens have set a higher bar for their machines than the Supreme Court in Feist set for human authors. And the evidence is already in that generative software can be H-creative when it comes to solving engineering problems; John Koza’s apparatus for improved general-purpose PID and non-PID controllers, a control component that can be found in everything from thermostats to automotive cruise control systems, is both the product of a generative computer program and the subject of an issued patent. Koza played no direct role at all in the component’s design. Instead, he designed a program into which he input the constraints he needed the component to satisfy. The software took it from there.

Bracketing abstract questions about the essence of creativity, AI researchers focus instead on building machines that pass for creative, software machines like Koza’s whose autonomously produced output can be readily (mis)taken for the product of human creativity and ingenuity. In various artistic domains, including literature, drawing, and music, programmers over the years have achieved substantial success in this regard—a prospect that the writer Roald Dahl foresaw in the 1950s with a mix of dread and bemusement.

B. Imagining Computational Creativity

The protagonist of Dahl’s 1954 short story “The Great Automatic Grammatizator” is a diffident young engineer named Adolph Knipe, who, as the story opens, has just played a pivotal role in the invention of a “great automatic computing engine” for the government. Following his success with the project, Knipe, an aspiring (but terrible) writer of fiction, becomes obsessed with the prospect of harnessing the technology embodied in the new machine to overcome his reluctant muse and mass-produce works of literature. Although he is at first troubled by “the old truth that a machine, however ingenious, is incapable of original thought,” he concludes that the rule-bound nature of the English grammar and the computing engine’s prodigious memory can be effectively exploited to compensate for its lack of inspiration: “Give it the verbs, the nouns, the adjectives, the pronouns, store them into the memory section as vocabulary, and arrange to have them extracted as required. Then feed it with plots and leave it to write the sentences.” Moreover, Knipe discovers as his vision comes to fruition that through “an adjustable coordinator between the ‘plot-memory’ section

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91 See ROBERT PLOTKIN, THE GENIE IN THE MACHINE: HOW COMPUTER-AUTOMATED INVENTING IS REVOLUTIONIZING LAW AND BUSINESS 1-3 (2009). Koza’s controller is the subject of U.S. Patent No. 6,847,851, granted in 2005. Id. at 1 n.6. Koza also holds a patent on the genetic program that produced the controller. Id. at 3.

92 Id.

93 Id.

94 Id.

95 Id.

96 See BRINGSJORD & FERRUCCI, supra note 1, at xxvi (“As we uncover reasons for believing that human creativity is in fact beyond the reach of computation, we will be inspired to nonetheless engineer systems that dodge these reasons and appear to be creative.”) (emphasis in original); Schank & Owens, supra note 57, at 394 (“Whether or not a philosopher would agree that the resulting machine truly embodied creativity is almost irrelevant to us: building machines that act in ways that appear to be creative would be a significant enough step to take.”) (emphasis in original). In keeping with the focus on the appearance of creativity, the famous Turing Test for AI is an “imitation game” designed to assess whether a computer program can simulate human conversation well enough that a human posing a series of questions blindly to the program and another human has no more than a 70 percent chance of correctly identifying which interlocutor is the human and which is the computer after five minutes of questioning. See Graham Oppy & David Dowe, The Turing Test, in THE STANFORD ENCYCLOPEDIA OF PHILOSOPHY (2008), http://plato.stanford.edu/entries/turing-test/ (last visited Feb. 5, 2012). The computer’s ability to fool the human interrogator enough of the time is treated as a rough proxy for intelligence. See id.


98 Id. at 3.

99 Id. at 5-7. Dahl’s own muse was apparently also reluctant: “He was not, by his own admission, a quick writer and might take six months on a story—sometimes as much as a month on the first page.” Master of the Unexpected: Dahl’s Writing for Adults, ROALD DAHL BIOGRAPHY, http://www.roalddahl.com/ (last visited Feb. 5, 2012).

100 Dahl, supra note 100, at 6.

101 Id. at 7.
and the ‘word memory’ section,” he can produce stories in any style he wants, “simply by pressing the required button.”

By the end of a few months of tinkering, Knipe has a working prototype covered in buttons, dials, and levers—an ungainly contraption that Dahl describes as looking like an elaborately instrumented airplane cockpit. By the story’s end, Knipe has perfectly calibrated his literary machine to produce an endless supply of stories and novels to feed the reading public’s insatiable appetite for formulaic fiction. Leveraging technology to overcome his writer’s block, our (anti-) hero corners the market on magazine fiction and thereby consigns to poverty and oblivion principled writers with the courage to resist “the machine.”

On one level, Dahl’s dystopian vision of a literary market saturated by machine-authored drivel registers a moment of historical anxiety within the creative class about the evolution of computing and its potential impact on the artistic enterprise. The story can as easily be read, however, as a satire on contemporary popular magazine editors and their uninspired approach to evaluating and selecting human-authored fiction. If it was true for Dahl in 1954 that authors should fear “the machine,” it was also apparently true in 1954 that the machine had already arrived—in the very human form of commodifying editors pandering to the reading public’s lowest common denominator. While it would surely be a stretch to suggest that Dahl and Calvino were fellow travelers in the literary avant-garde, each clearly accepted some version of the proposition that all writers to a greater or lesser degree are compelled by the circumstances of literary production to be algorithmically creative.

C. Coding Computational Creativity

In 2003, not quite 50 years after Dahl gave the world Adolph Knipe and his infernal machine, Raymond Kurzweil was granted United States Patent No. 6,647,395 for a “computer-implemented method of generating a poet personality including reading poems, generating analysis models, ... and storing the analysis models in a personality data structure.” Kurzweil’s invention, which he dubbed the Cybernetic Poet, is designed to be used either as “a poet’s assistant” or as an automatic poetry generator. The program is “provided with an input file of poems written by a human author or authors. It analyzes these poems and creates a word-sequence model based on the poems it has just read. It then writes original stanzas of poetry using the model it has created.” The resulting stanzas, according to the patent’s written description, “will have a similar style to the poem(s) originally analyzed and contained in the author analysis model, but will be original poetry generated by the process.” An example of the Cybernetic Poet’s work is a haiku called “Moon Child,” written in the

105 Id. at 11.
106 See id. at 20.
107 See id. at 18, 26.
108 The story concludes with the narrator, a writer who has refused to sign a contract with Knipe, praying on behalf of himself and his fellow hold-outs for “strength, Oh Lord, to let our children starve.” Id. at 26.
109 In 1950, just a few years before Dahl published “The Great Automatic Grammatizator,” Alan Turing published “Computer Machinery and Intelligence,” the now-famous paper in which he proposed the imitation game that would come to be known as the Turing Test. See THE AGE OF INTELLIGENT MACHINES, supra note 57, at 198. In those early days of computing, the potential of AI seemed unlimited, particularly to researchers working in the field. See id. (“In the 1950s concrete progress began to be made. Initial progress came so rapidly that some of the early pioneers felt that mastering the functionality of the human brain might not be so difficult after all.”).
110 U.S. Patent No. 6,647,395 (filed Nov. 1, 2000).
111 See id. (“The displayed text may be in response to a user input or via an automatic composition process.”).
112 THE AGE OF INTELLIGENT MACHINES, supra note 57, at 374. The poets whose styles the Cybernetic Poet was initially coded to emulate were T.S. Eliot, Percy Bysshe Shelley, and William Carlos Williams. See id. at 378 n.1.

David Cope’s music generator, Experiments in Musical Intelligence (EMI), which Cope began coding in 1981, follows a similar model: “[EMI] composes by first analyzing the music in its database and then using the rules it discovers there to create new instances of music in that style.” David Cope, Facing the Music: Perspectives on Machine-Composed Music, 9 LEONARDO MUSIC JOURNAL 79, 79 (1999). The musicians whose styles EMI was coded to emulate included Bach, Mozart, Beethoven, and Chopin. Id.
style of the poet Kathleen Francis Wheeler: "Crazy moon child! Hide from your coffin/To spite your doom."114

To test the bona fides of his procedurally generated poems, Kurzweil designed and executed a domain-specific Turing Test,115 in which he had 16 people—a combination of children and adults—attempt to identify the origin of 28 different stanzas of poetry, among which were stanzas written by the Cybernetic Poet, stanzas written by Kurzweil himself, and stanzas written by the poets whose styles the program emulates.116 The 13 adult judges, who had varying degrees of computer and poetry experience and knowledge, were able to correctly identify the source of the poetry an average of 63 percent of the time—only slightly better than the level of chance.117 The three children judges were correct an average of 48 percent of the time—about the level of chance.118 If the computer output had been readily identifiable as such, the judges would have been able to do a better job of differentiating between the two sources than they actually did, leading Kurzweil to conclude that his program achieved "some level of success" at imitating human artistry.119 Some of the stanzas written by the computer were particularly successful at fooling the judges.120

Kurzweil's Cybernetic Poet is just one of several automatic literature-generating programs that appear in the AI literature.121 In Artificial Intelligence and Literary Creativity: Inside the Mind of BRUTUS, a Storytelling Machine, Selmer Bringsjord and David Ferrucci document their five-year project to code "by hook or by crook, a system that qualifies, in 'Turing Test' terms, as a genuinely creative agent"—a "silicon author able to generate stories that would be regarded as creative, even if these stories are well below what a muse-inspired member of Homo sapiens sapiens can muster."122 In designing BRUTUS, Bringsjord and Ferrucci sought to imbue the program with wide variability across the various dimensions over which a short story can vary: plot, character, setting, themes, writing style, and imagery. They began from the premise that sophisticated or "belletristic fiction,"123 exhibits a high degree of variability across these various dimensions, whereas formulaic fiction (e.g., genre fiction like romance and mystery novels) exhibits a low degree of variability. In order to ensure variability, they set out to produce a generator with architectural differentiation, so that "for each substantive aspect of the story that can vary, there [would be] a corresponding distinct component of the technical architecture that [could] be parameterized to achieve different results."124

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115 See supra note 108 and accompanying text.


117 Id.

118 Id.

119 Id.

120 Id.

121 In the popular media, the most well-known example is probably that of Scott French, a programmer who published a novel in 1993 written by his Macintosh IIcx, Hal, in the style of romance novelist Jacqueline Susann. See John Boudreau, A Romance Novel With Bytes: Author Teams Up With Computer to Write Book in Sassy Style of Jacqueline Susann, LA TIMES, Aug. 11, 1993, at 6. According to French, "[t]he most difficult thing was trying to analyze exactly what constitutes a writer's style." Id. To do so, he scanned portions of two of Susann's novels and analyzed several hundred plot and style elements across the two texts. "Once you're there," French said, "the writer's style emerges, part of her actual personality comes out, and the computer can be programmed to make a story." Id. Although French admitted to having had a hand in editing Hal's output, he claimed that "it did almost 100% of the plot, 100% of the theme and style." Id.

Another popular example is Racter, a program by William Chamberlain and Thomas Etter, which purportedly wrote a collection of poetry and prose called The Policeman's Beard is Half Constructed, which was published in 1984. See John Barry, Computer Writes, INFOWORLD, Oct. 29, 1984, at 10. According to Chamberlain, Racter was written in compiled BASIC on a Z80 Micro with 64 KB of RAM. Id. Little is really known, however, about Racter's underlying architecture or technical features. See, e.g., HOPFSTÄTTER, supra note 66, at 472-73 (lamenting that "the book itself tells precious little of Racter's mechanisms"). In addition, Chamberlain's disclaimer (similar to French's) that "the programmer is removed to a very great extent" from Racter's production makes it difficult to assess how autonomously the program actually operated. Id.

122 BRINGSJORD & FERRUCCI, supra note 1, at 6, xxiii.

123 Id. at xxiv.

124 Id.
Bringsjord and Ferrucci named their silicon author BRUTUS because the first theme with which they experimented was betrayal. The first setting they coded for BRUTUS was the university. By the end of their project, BRUTUS had produced, among other variants on the same theme, the following story:

Dave Striver loved the university—at least most of the time. Every now and then, without warning, a wave of... well, it was true: a wave of hatred rose up and flowed like molten blood through every cell in his body. This hatred would be directed at the ghostly gatekeepers. But most of the time Striver loved—the ivy-covered clock towers, the ancient and sturdy brick, and the sun-splashed verdant greens and eager youth who learned alongside him. He also loved the fact that the university is free of the stark unforgiving trials of the business world—only this isn’t a fact: academia his [sic] own tests, and some are as merciless as any in the marketplace. A prime example is the dissertation defense: to earn the PhD, to become a doctor, one must pass an oral examination on one’s dissertation.

Dave wanted desperately to be a doctor. He had been working toward this end through six years of graduate school. In the end, he needed the signatures of three people on the first page of his dissertation, the priceless inscriptions which, together, would certify that he had passed his defense. One of the signatures had to come from Professor Hart.

Well before the defense, Striver gave Hart a penultimate copy of his thesis. Hart read it and told Striver that it was absolutely first-rate, and that he would gladly sign it at the defense. They shook hands in Hart's book-lined office. Hart's eyes were bright and trustful, and his bearing paternal.

“See you at 3 p.m. on the tenth, then, Dave!” Hart said.

At the defense, Dave eloquently summarized Chapter 3 of his dissertation. His plan had been to do the same for Chapter 4, and then wrap things up, but now he wasn’t sure. The pallid faces before him seemed suddenly nauseating. What was he doing?

One of these pallid automata had an arm raised.

“What?” Striver snapped.

Striver watched ghosts look at each other. A pause.

Then Professor Tceer spoke: “I’m puzzled as to why you prefer not to use the well-known alpha-beta minimax algorithm for your search?”

Why had he thought so earnestly about inane questions like this in the past? Striver said nothing. His nausea grew. Contempt, fiery and uncontrollable, rose up.

“Dave?” Professor Hart prodded, softly.

God, they were pitiful. Pitiful, pallid, and puny.

“Dave, did you hear the question?”

Later, Striver sat alone in his appartment [sic]. What in God's name had he done?

Although Bringsjord and Ferrucci did not report having subjected BRUTUS' final output to a Turing-like Test, it seems more than plausible that BRUTUS would have passed with flying colors. The two concluded, nonetheless, that BRUTUS exhibited only “weak creativity,” a concept they define expressly in terms of Boden’s concept of P-creativity. Furthermore, when they describe BRUTUS as an author, they always put the term in scare quotes, because they believe, following Lovelace, that BRUTUS can’t originate anything: “He is capable of generating [stories] because two humans spent years figuring out how to formalize a generative capacity sufficient to produce . . . stories, and they then [were] able to implement part of this formalization so as to have a computer

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125 BRINGSJORD & FERRUCCI, supra note 1, at xix ("Put in terms of our terminology, we say that BRUTUS has weak, rather than strong, creativity."). Bringsjord and Ferrucci define “strong creativity” in terms of Boden’s concept of H-creativity. Id. Computers, they assert, have an easy time with P-creativity and a much harder time with H-creativity. Id.
produce such prose.” Bringsjord and Ferrucci were ultimately disappointed at the end of their project that BRUTUS, at least in its first incarnation, ended up producing only “decent short short stories” as opposed to “bellettristic fiction.” Doubtless, however, there are plenty of humans who could not have produced a story of betrayal as nuanced as BRUTUS’ story of Dave’s deflating dissertation defense.

III. ARTIFICIALLY INTELLIGENT AUTHORS: TECHNOLOGICAL PROGRESS OR OXYMORON?

¶41 Of course, BRUTUS did originate its stories in the copyright sense that the stories were not copied from any existing literary works. The same is true of the poems generated by the Cybernetic Poet, which actually incorporates a software module that prevents plagiarism by rejecting sequences of more than three consecutive words that appear in any of the original poems used by the program to generate analysis models for particular poet personalities. Moreover, to the extent that the “modicum of creativity” Feist requires is no more than Boden’s constrict of weak or P-creativity, then BRUTUS’ “decent short short stories,” while they may not be award winners, are arguably as creative as copyright law requires. The question that logically follows is whether the automated P-creativity of which story- and poem-generators like BRUTUS and the Cybernetic Poet are capable is sufficient to satisfy Feist, given the Court’s rejection in Feist of mechanical, routine production and the historical emphasis in copyright cases on intellectual labor as a criterion for authorship. Put another way, the question is whether computers can only ever be authors in the scare-quoted sense and not Authors in the constitutional sense.

¶42 Although the proposition that procedurally generated artworks are copyrightable has not been tested in the case law, cases involving claims of non-human authorship have arisen over the years in the curious context of automatic writing. Automatic writing, also called psychography, is a technique for channeling messages from the spirit world that is commonly associated with the Spiritist movement founded by Allan Kardec in nineteenth-century France. The person who actually produces psychographic writing claims to act only as an amanuensis for a disembodied spirit or consciousness. In disputes over ownership of the rights in psychographic works, the questions that arise are essentially the same as those that arise in cases involving works created by generative software programs: To what or whom do these works owe their origin? Does copyright subsist in them? If so, to whom does it belong? To the extent that more than one party played a role in bringing these works to the public, do the parties share authorship? If so, what if one of those parties is not a legal person?

¶43 Cummins v. Bond, an English case from 1927, involved a dispute over the copyright in a psychographic work called “The Chronicle of Cleophas,” which purportedly recounted the acts and teachings of the Apostles. The plaintiff in the case was a journalist by profession who acted in her spare time as a spiritualist medium at séances and as a practitioner of automatic writing. The work in question “was written at high speed under the alleged influence of an external psychic agent, and in archaistic language without stops, and not in the ordinary handwriting of the plaintiff.”

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126 Id. at 5.
127 Id. at 63.
129 Id. at 63. Remember that courts deciding copyright cases must studiously avoid making aesthetic judgments about the works before them. See Bleistein v. Donaldson Lithographing Co., 188 U.S. 239, 251 n.30 (1903).
130 See generally ALLAN KARDEC, EXPERIMENTAL SPIRITISM; BOOK ON MEDIUMS OR, GUIDE FOR MEDIUMS AND INVOCATORS (Emma A. Wood trans., 1874).
131 Id. at 190 (explaining that psychography is “the transmission of the thought of the spirit by means of writing by the hand of a medium,” whereas pneumatography is “writing produced directly by the spirit, without a medium”).
132 Cummins v. Bond, 1 Ch. 167 (1927).
133 Id. at 168.
134 Id. at 167. The spirit the plaintiff claimed to have channeled was that of the Abbey of Glastonbury. Id. at 172. "The
The defendant was an architect and automatic writing enthusiast to whom the plaintiff gave the manuscript to organize and edit, with the expectation that he would return it to her when he was finished. When the defendant refused to return the original copy of the work to the plaintiff (and published several excerpts from it), the plaintiff sued for an injunction, claiming copyright in the work. The defendant challenged the validity of the copyright, arguing that the work was “wholly communicated in substance and form by a psychic agent” and, therefore, “not an original literary work in which copyright could subsist.”

The court decided the case in favor of the plaintiff, on the basis that she actively cooperated in translating the spirit’s words into a comprehensible language. The court also found it significant that the entire manuscript was physically written by her alone, none of it having been dictated by the defendant or any other living person. While the court somewhat cheekily raised the possibility that the plaintiff and the spirit of Cleophas “ought to be regarded as joint authors and owners of the copyright,” the judge was ultimately unprepared to decide that “authorship and copyright rest with someone already domiciled on the other side of the inevitable river.” The matter had to be decided, the court concluded, as a purely terrestrial one, and rights to the work had to be vested in a terrestrial being.

In a more recent case, Penguin Books U.S.A., Inc. v. New Christian Church of Full Endeavor, Ltd., it was likewise decided that the rightful owner of the copyright in a psychographic work is the individual who acted as the spirit’s scrivener. The work at issue, a new age religious text called “A Course in Miracles,” was committed to paper by a Columbia University psychology professor named Helen Schucman after a “Voice” (later identified as that of Jesus) ordered her to take notes in a process of “rapid inner dictation.” After taking the divine dictation, Professor Schucman enlisted a colleague to help her organize and edit the manuscript, which the two revised in several drafts. Both professors maintained that their personal preferences and concerns played no role in their editing decisions, all of which were purportedly guided and confirmed by the Voice.

According to the professors’ version of the facts, the Voice gave legal advice in addition to spiritual guidance, instructing Professor Schucman to register the copyright in the Course, which was finding an audience much larger than she had anticipated. With respect to the registration, the Voice allegedly adamantly told Professor Schucman that “[her] name could not appear on the Course’s copyright page because Jesus had cautioned her against publicly associating her name with it, lest people confuse her role with his or the Holy Spirit’s.” According to one member of Schucman’s inner circle, Schucman and her colleagues inquired about registering the copyright to

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135 Id. at 168.
136 Id. at 170.
137 Id.
138 Id. at 173.
139 Id. at 173-75 (rejecting the defendant’s claim of joint authorship based on his presence at the séances where the writings took place, which allegedly enabled him to communicate telepathically to the plaintiff some of the historical references that found their way into the manuscript).
140 Id. at 173.
141 Id. at 175 (“I can only look upon the matter as a terrestrial one, of the earth earthy, and I propose to deal with it on that footing. In my opinion the plaintiff has made out her case, and the copyright rests with her.”).
143 Id. at *5-6.
144 Id. at *7-9.
145 Id. at *7-8.
146 Id. at *13.
147 Id. at *16. Professor Schucman herself had expressed the eminently reasonable concern that associating her name with the Course could damage her reputation as a serious academic. Id. at *11.
Jesus but were told that "a copyright could not be granted to a non-physical author." In a compromise, the copyright registration listed the work's author as "[Anonymous][Helen Schucman]."

As to the validity of the copyright, the court held that there were two separate bases for concluding that the Course was copyrightable. First, even though the work was allegedly dictated by a non-human, Schucman made editorial choices of her own that were sufficient both to satisfy Feist's low creativity standard and to make her the work's author. Alternatively, the court held, citing Cumnins, that "a's a matter of law, dictation from a non-human source should not be a bar to copyright," regardless of whether the person taking the dictation can be found to have exercised any independent editorial judgment in the process of recording the work. In the handful of cases involving psychographic works, courts have consistently recognized the existence of copyright, despite assertions by litigants that the works are of non-human, supernatural origin. In response to the argument that such works are not copyrightable because they lack the necessary element of creativity required by Feist, the Ninth Circuit pointed out in Urania Foundation v. Maaherra that "copyright laws . . . do not expressly require 'human' authorship." In Urania Foundation and the other automatic writing cases, despite the fact that human authorship is altogether disavowed by the parties claiming copyrights, courts have found a sufficient nexus to human creativity to sustain copyright.

With respect to the question of copyright in procedurally generated artworks, the automatic writing cases suggest that such works should be regarded as copyrightable, despite their non-human genesis, because they have a sufficient nexus to human creativity. Because copyright law does not expressly require human authorship, artificially intelligent computer programs that autonomously generate art need not be relegated for copyright purposes to scare-quoted authorship; their works can be regarded as proper "works of authorship" under § 102 of the Copyright Act by virtue of their nexus to human creativity.

149 Id. at *13-16.

150 Id. at *17. It's not clear why Professor Schucman didn't elect to have her name omitted entirely from the registration, which the Copyright Office required. See Help: Author, U.S. COPYRIGHT OFFICE (July 29, 2011), http://www.copyright.gov/eco/help-author.html (explaining that a registrant may (1) reveal the author's identity even though the work is anonymous, or (2) leave the author field blank, or (3) give "Anonymous" in the last name field). According to the facts in the opinion, the plaintiffs later denied that they had ever attempted to register the copyright in the name of Jesus. Penguin Books, 2006 U.S. Dist. at *16.


152 Id. (holding that "although in each instance the non-human author had the final say, the humans had at least some input into, and effect on, the form and content," which means that "the Course can be protected as a particular compilation of facts").

153 Id. at *36.

154 See Urania Found. v. Maaherra, 114 F.3d 955, 963-64 (9th Cir. 1997) (holding that "notwithstanding the Urania Book's claimed non-human origin, the Papers in the form in which they were originally organized and compiled by the members of the Contact Commission were at least partially the product of human creativity"); Garman v. Sterling Pubfg Co., 1992 U.S. Dist. LEXIS 21932, at *7 (N.D. Cal. Nov. 5, 1992) (finding "no legal relevance to the assertions by both parties that the information was provided by spiritual guides"); Urania Found. v. Burton, K 75-255 CA 4, 1980 WL 1176, at *1, *5 (W.D. Mich. Aug. 27, 1980) (stating that although "there has been some discussion as to whether Dr. Sadler's patient was the author of the book or was merely a conduit for some spiritual author. . . . The source of the patient's inspiration is irrelevant"); Oliver v. Saint Germain Found., 41 F. Supp. 296, 299 (S.D. Cal. 1941) (finding that there may be copyright in the style or arrangement of messages received from the spiritual world for recording and use by the living).

155 Urania Foundation, 114 F.3d at 958 (stating that "copyright laws . . . do not expressly require 'human' authorship," and holding that "a work is copyrightable if copyrightability is claimed by the first human beings who compiled, selected, coordinated, and arranged it"); but see Kelley v. Chicago Park Dist., 635 F.3d 290, 304 (7th Cir. 2011) (citing Fair Use on Copyright for the proposition that "authors of copyrightable works must be human; works owing their form to the forces of nature cannot be copyrighted").

156 Note that this interpretation of copyright law's creativity requirement excludes from copyright protection the crude paintings and drawings produced by animals like elephants and chimpanzees. The requirement of a nexus to human creativity is, in this sense, a useful limiting principle.
IV. PROTECTING WORKS OF ARTIFICIALLY INTELLIGENT AUTHORSHIP

A. If Copyright, Then Whose Copyright?

On the question of who should be held to own the copyright in procedurally generated works, the automatic writing case is somewhat less helpful. In those cases, courts have consistently taken the pragmatic approach of attributing authorship for copyright purposes to the person who held the pen and did the actual writing. With procedurally generated artwork, however, there is no one holding the proverbial pen. Whereas automatic writing proximately involves human endeavor (i.e., the output in question is human-generated), procedurally generated art does not (i.e., the output is machine-generated). The procedurally generated work's relationship to a human creative agent is more mediated, more attenuated. The author of a procedurally generated artwork is, for all intents and purposes, another copyrighted work—a literary work in the form of a computer program. Human creativity is necessary for the production of the work, but the human creative agent is not the author of the work in the traditional sense. Nor is generative software an author's tool in the traditional sense; unlike a pen or a paintbrush, or even a camera, generative software has a verbal or visual vocabulary of its own and the ability to compose a range of distinct works from that vocabulary by independently applying a system of rules.156

The law as it is currently configured cannot vest ownership of the copyright in a procedurally generated work in the work's author-in-fact, because the work's author-in-fact—a generative software program—has no legal personhood.157 Intuition and the principle of transitivity both suggest that the programmer of generative software is the logical owner of the copyright in the works generated by his or her software. He or she is, after all, the author of the author of the works. As Randall Davis wrote of Harold Cohen, the artist and programmer responsible for AARON,158 a sophisticated generative drawing program whose output has hung in museums around the world: "He writes programs that draw pictures."159 For Davis, "the ownership issues seem clear" when it comes to

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156 See, e.g., Roman Verostko, Epigenetic Art Revisited: Software as Genotype, in CODE: THE LANGUAGE OF OUR TIME 156, 159-60 (Gerfried Stocker & Christine Schöpfl eds., 2003) (describing the "form generating routines" employed by his program, Hodos, to produce individual colored drawings that are "one of a kind. . . [but] share strong familial features because they share the same algorithmic parents").


158 This fact led Ralph Clifford to argue in the late 1980s that works generated autonomously by computers should remain in the public domain unless (or until) AI evolves to the point at which computers can be endowed with a consciousness that allows them to respond to the incentives created by copyright law. See Ralph D. Clifford, Intellectual Property in the Era of the Creative Computer Programs: Will the True Creator Please Stand Up?, 71 TUL. L. REV. 1675, 1702-03 (1997). In a similar vein, Pamela Samuelson argued in 1986 that computers cannot, and should not, be classified as authors because they need no incentives to generate output. See Pamela Samuelson, Allocating Ownership Rights in Computer-Generated Works, 47 U. PIT. L. REV. 1185, 1199 (1986). "Only those stuck in the doctrinal mud," Samuelson wrote, "could even think that computers could be 'authors.'" Id. at 1200.

159 When considering the question of legal personhood for artificially intelligent entities, however, it is important to acknowledge the fact that being human has historically been neither sufficient nor necessary for obtaining legal personality. See SAMIR CHOPRA & LAURENCE F. WHITE, A LEGAL THEORY FOR AUTONOMOUS ARTIFICIAL AGENTS 157-58 (2011) (pointing out that slaves were not legal persons at all under antebellum U.S. law; that women and children had claims to legal personhood only indirectly through husbands and fathers; that admiralty law treats a ship as a legal person capable of being sued in its own right; and that business corporations, incorporated associations, and government agencies have been recognized as having legal personality).

158 One doesn't get very far into the literature in this field before encountering discussions of AARON and examples of its quite impressive work. See, e.g., BODEN, supra note 77, at 137-54 (discussing the accomplishments and limitations of the program as an autonomous creative agent), LEVY, supra note 57, at 181-86 (discussing AARON'S history and method of operation); PAMELA MCCORDUCK, AARON'S CODE: META-ART, ARTIFICIAL INTELLIGENCE, AND THE WORK OF HAROLD COHEN (1991).


software-authored works, because “human action [is] inevitably at the core of the creative process” that leads to the production of such works.\textsuperscript{160}

What may be clear intuitively or conceptually, however, is not necessarily clear doctrinally. From the point of view of the Copyright Act and the case law interpreting it, it is clear that the programmer of generative software owns the copyright in the software itself\textsuperscript{161} (e.g., that Harold Cohen owns the copyright in AARON or that Raymond Kurzweil owns the copyright—as well as a patent—in the Cybernetic Poet); it is less clear, however, that the programmer has any defined \textit{statutory} claim to copyright in the works produced autonomously by the software, which, after all, functions all by itself, making individual compositional choices entirely independently.\textsuperscript{162} One could simply cut out the middle-machine and argue that Raymond Kurzweil “really” wrote the poems composed by the Cybernetic Poet or that Harold Cohen “really” painted the pictures composed by AARON, but to do so would miss something very important about the nature of these works and the process by which they are produced. Such statements are simply not true, even if they get us around the problem that copyright law is not currently structured to accommodate the particular authorship matrix of people-who-write-programs-that-make-art.

B. A Bad Penny of a Question

As hard as it is to believe in retrospect, given what turned out to be the slow maturation of AI research, the Register of Copyrights identified the question of computer authorship as one of three “major problems” confronting the Copyright Office in 1965.\textsuperscript{163} According to the Register’s annual report that year, the “crucial question” to be answered with respect to works whose registrants present them as computer-authored is “whether the ‘work’ is basically one of human authorship, with the computer merely being an assisting instrument, or whether the traditional elements of authorship in the work . . . were actually conceived and executed not by man but by a machine.”\textsuperscript{164} The Register offered no answer to this question, however, and the absence of references to the issue in subsequent annual reports suggests that the urgency of finding an answer abated.

When Congress created the National Commission on New Technological Uses of Copyrighted Works (CONTU) in 1974, the looming problem of computer authorship was still no closer to being solved.\textsuperscript{165} Among the specific topics CONTU was asked to study was the creation of new works with computer assistance.\textsuperscript{166} With respect to the question of computer authorship, CONTU concluded in its Final Report that the development of an artificial intelligence capable of independently creating works was “too speculative to consider at this time.”\textsuperscript{167} The Final Report channeled Ada Lovelace’s critique of the Analytical Engine:

\begin{quote}
[The Commission believes that there is no reasonable basis for considering that a computer in any way contributes authorship to a work produced through its use. The computer, like a camera or a typewriter, is an inert instrument, capable of functioning only when activated either directly or indirectly by a human. When so activated it is capable of doing only what it
\end{quote}

\textsuperscript{160} Id. at 104.

\textsuperscript{161} See 17 U.S.C. § 201 (2011) (providing that copyright vests initially in the author of a work); Apple Computer, Inc. v. Franklin Computer Corp., 714 F.2d 1240, 1249 (3d Cir. 1983) (holding that “a computer program, whether in object code or source code, is a ‘literary work’ and is protected from unauthorized copying, whether from its object or source code version”).

\textsuperscript{162} For a detailed discussion of how AARON paints, see articles by Harold Cohen cited supra at note 158.

\textsuperscript{163} REGISTER OF COPYRIGHTS, supra note 4, at 4 (“The Copyright Office was confronted with three major problems during the fiscal year as a result of the constantly expanding development and use of computers: registration for computer programs, computer authorship, and automation in the Copyright Office.”).

\textsuperscript{164} Id. at 5.

\textsuperscript{165} CONTU was first proposed in legislation in 1967, but it was not actually established until 1974. See Nati. Comm. on New Technological Uses of Copyrighted Works, Final Report 4 (1978) (hereinafter “CONTU REPORT”), available at http://etc.fcf.edu/pdfs/ED160122.pdf.

\textsuperscript{166} See Pub. L. No. 93-573, 93d Cong. (1974) (mandating the creation of CONTU to study and make recommendations concerning, \textit{inter alia}, “the creation of new works by the application or intervention of . . . automatic systems”).

\textsuperscript{167} CONTU REPORT, supra note 165, at 44.
is directed to do in the way it is directed to perform.\footnote{168}{Id.}

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In its final recommendations to Congress, CONTU recommended that there be no change to the Copyright Act in consideration of new works produced through the application or intervention of automatic systems.\footnote{169}{Id. at 46. The report did recommend several amendments to the Copyright Act with respect to the protection of computer programs: (1) the repeal of existing Section 117; (2) the creation of a new Section 117 to limit exclusive rights in computer programs; and (3) the addition of a definition of “computer program” to Section 101. \textit{Id.} at 12.}

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The issue resurfaced in Congress in 1986—this time in a report issued by the Office of Technology Assessment (OTA) to evaluate the intellectual property implications of rapid advances in computer networking and interactive computing.\footnote{170}{See U.S. OFFICE OF TECH. ASSESSMENT, INTELLECTUAL PROPERTY RIGHTS IN AN AGE OF ELECTRONICS AND INFORMATION (1986) (hereinafter “OTA REPORT”).} Between the release of the CONTU report in 1976 and the OTA report in 1986, the PC revolution had begun,\footnote{171}{See generally THE AGE OF INTELLIGENT MACHINES, supra note 57, at 478-81 (setting forth a timeline of critical dates in the history of computing, including the introduction of the Apple II computer in 1977 and the IBM PC in 1981).} and new questions about property rights in computer-generated output were beginning to take shape.\footnote{172}{Se e., e.g., OTA Report at 59 (discussing the law’s “race with technology” in the copyright domain).} The OTA report was concerned, among other things, with questions of authorship and copyright ownership raised by new developments in interactive computing, including computer-mediated interactive storytelling, computer-aided design (CAD), interactive computer graphics and image-editing, and digital music sampling and editing.\footnote{173}{\textit{See id.} at 70.} With these technologies, the report’s authors asserted, figuring out where the programmer’s expression ends and the user’s expression begins is a difficult task—a situation that becomes all the more complicated when the program itself is coded to make expressive choices independently of programmer and user alike.\footnote{174}{\textit{See id.} at 72 (“It is misleading . . . to think of programs as inert tools of creation, in the sense that cameras, typewriters, or any other tools of creation are inert.”).}

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Significantly, the authors of the OTA report questioned CONTU’s conclusion that computers were simply “inert tools of creation” that could not possibly contribute authorship to any work produced through their use.\footnote{175}{\textit{Id.} at 69.} By 1986, computing had progressed beyond simple tasks like word processing, which the authors of the OTA report characterized as “transparent to the writer’s creativity.”\footnote{176}{\textit{See id.} at 73.} The authors of the OTA report recognized a critical difference between word processors and programs that autonomously produce summaries of articles or rearrange existing musical works into new compositions.\footnote{177}{\textit{See id.} at 72 (“CONTU’s comparison of a computer to other instruments of creation begs the question of whether interactive computing employs the computer as co-creator, rather than as an instrument of creation.”).} In such programs, the authors wrote, “creative activities... fuse with machine intelligence,” and there is a “blurring of the distinction between the copyrighted work and its product.”\footnote{178}{\textit{Id.} at 69.} What was clear to CONTU in 1976—that computer users should be regarded as the sole authors of works created using computers (and the sole owners of the copyrights in those works)—was much less clear to OTA only a decade later.

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Disagreeing with CONTU, the OTA authors suggested that interactive computer programs might legitimately be considered co-authors of the output they produce.\footnote{179}{\textit{Id.} at 72.} But co-authors with whom? The programmer? The user? Both? And what about authorship in works whose production is predominantly automated and non-interactive? Who is the author of those? Who owns the copyright in them? These were all wide open questions; however, on a list of priorities for policy intervention, the OTA ranked problems associated with computer authorship below other computer-related copyright problems (\textit{viz.}, enforcement, private use, functional works, and the international intellectual
property system). As is often the case with copyright and innovation, however, litigants force issues on which policymakers demur, leaving courts to decide whether and how to reconcile old law with new technology. In the early 1980s, disputes arose concerning copyrights in electronic video arcade games and their audiovisual displays. In these cases, which almost altogether eschew sustained legal analysis, a number of courts held that game displays are copyrightable by the owner of the copyright in the game program that generates the displays. Moreover, the courts said, it doesn’t matter whether the displays are generated autonomously by the machine during the game’s “attract” mode, or through the actions of a player during the game’s “play” mode. In either case, the display is copyrightable, and the copyright belongs solely to the owner of the copyright in the game code.

These decisions, especially insofar as they address displays produced when games are operating all by themselves in “attract” mode, offer some clue as to how courts might decide cases involving works generated autonomously by programs like BRUTUS or the Cybernetic Poet. In all likelihood, courts would rely on the video game cases to hold that ownership of the copyright in generative code translates directly into ownership of the copyright in the works produced by it.

C. Owning the Problem of Ownership: Authors-in-Fact vs. Authors-in-Law

Notwithstanding the decisions in the video game display cases, the Copyright Act in its current form actually contains no provision pursuant to which ownership of the copyright in a procedurally generated work vests in the programmer of the generative code that produced the work. Under section 201, copyright vests initially in the author or authors of the work. Although procedurally generated works have a sufficient nexus to human creativity to make them copyrightable under the reasoning articulated in the psychographic writing cases, the programmer of generative code is not the author-in-fact of the works generated by the code. Harold Cohen doesn’t “use” AARON to paint in the same way that he would “use” a paintbrush to paint; AARON paints. But AARON and his ilk cannot own copyrights, and therein lies a problem.

180 Id. at 13.
181 Id.
183 See, e.g., Stern, 669 F.2d at 856 (“The repetitive sequence of a substantial portion of the sights and sounds of the game qualifies for copyright protection as an audiovisual work.”); Atari, 672 F.2d at 617 (“The audio component and the concrete details of the visual presentation constitute . . . copyrightable expression . . . .”) Williams, 1981 U.S. Dist. LEXIS 17856, at *17 (“Plaintiff has created original works in the form of a computer program and audiovisual material . . . which are subject to protection under the copyright laws . . . .”).
184 See, e.g., Stern, 669 F.2d at 856 (“We agree with the District Court that the player’s participation does not withdraw the audiovisual work from copyright eligibility.”). The court articulated the distinction between the modes: “‘Attract mode’ refers to the audiovisual display seen and heard by a prospective customer contemplating playing the game; the video screen displays some of the essential visual and sound characteristics of the game. ‘Play mode’ refers to the audiovisual display seen and heard by a person playing the game.” Id. at 854 n.2.
185 In Williams, the defendant argued unsuccessfully that the player should be considered the co-author of the machine’s display when the game operates in “play” mode. See Williams Elec., Inc. v. Artic Int’l, Inc., 685 F.2d 870, 874 (3d Cir. 1982).
187 Further evidence of this can be found in the fact that procedurally generated works are not fixed by the programmer. See Conty. for Creative Non-Violence v. Reid, 490 U.S. 730, 737 (1989) (“As a general rule, the author is the party who actually creates the work, that is, the person who produces the idea into a tangible expression entitled to copyright protection.”). The Copyright Act provides that a work may be fixed by another “under the authority of the author,” but delegated fixation has been limited to “rote or mechanical transcription that does not require intellectual modification or highly technical enhancements.” Andrien v. S. Ocean Conty. Chamber of Commerce, 927 F.2d 132, 135 (3d Cir. 1991). In the case of procedurally generated art, the program’s output cannot be considered a mere transcription of the programmer’s code, so the programmer cannot properly be regarded as the person who fixed the work.
188 See Harold Cohen, Further Explosits, supra note 158 (“AARON exists; it generates objects that hold their own more than adequately, in human terms, in any gathering of similar, but human-produced, objects, and it does so with a stylistic consistency that reveals an identity as clearly as any human artist’s does. It does these things, moreover, without my own intervention.”).
One way to solve this problem of ownership would be to follow the video game display cases and imply an intuitively satisfying (but analytically loose) rule: people-who-write—programs—that-make-art are authors of the art their programs make. The solution is convenient, but it sidesteps complexities relating to authorship in the age of computing—complexities that policymakers should be prepared to confront as AI continues to evolve and its products become more widely commercialized. While it is tempting to collapse the distance between the coder and the output of generative code, doing so ignores both the machinic origin of procedurally generated works and their radically mediated relationship to human authorship and creativity. This is particularly true when the works in question can easily be mistaken for human output, and the temptation is therefore great to cut the corner and attribute them directly to a human agent.189

Instead, we should consider how copyright law’s current provisions might be modified to explicitly address ownership of rights in AI authored works. The derivative work doctrine and the work made for hire doctrine are good points of entry for considering how (and in whom) ownership of the copyright in such works should vest. For reasons I will explain fully below, neither doctrine in its current form provides a perfect fit. Of the two, however, the work made for hire doctrine can be more easily modified without undue collateral expansion of the scope of copyrightable subject matter. The work made for hire doctrine also avoids the predicament of vesting rights in a machine—a problem the derivative work doctrine cannot get around.

The statutory definition of “derivative work” is expansive, encompassing any work “based upon one or more preexisting works” and any form in which a preexisting work is “recast, transformed, or adapted.”190 If a procedurally generated work can be said to be based upon or adapted from the generative code that produced it, then the work would appear to be classifiable as a derivative work of the code. As courts have interpreted the term, however, a derivative work must contain material taken from the preexisting work.191 Procedurally generated works do not meet this criterion, because they do not actually incorporate any of the code that produces them.192 They are not copied from the underlying code, and they are not substantially similar to the underlying code.193 Given the state of the case law, the only way to bring procedurally generated works within the scope of the derivative work right would be to expand the definition of derivative work to encompass works that do not borrow from the original work. Yet such an expansion in the scope of the derivative work right would be both practically unworkable and normatively undesirable.194 It is already difficult to limit the statute’s broad definition of the derivative work right, particularly in the digital environment; removing the requirement of actual borrowing would unduly exacerbate existing boundary problems, making a wider range of conduct actionable as infringement and potentially inhibiting creativity.195

In addition, treating procedurally generated works as derivative works would not solve the ownership problem because such a classification would not automatically make the owner of the

189 Cf. Arthur R. Miller, Copyright Protection for Computer Programs, Databases, and Computer-Generated Works: Is Anything New? Since New York Times v. Sullivan, 106 Harv. L. Rev. 977, 1017 (1993) (“And it should require little, if any, adjustment in most copyright systems to attribute the authorship of such a work to some human . . . even if the machine is responsible for most or all of the effort involved in creating the work.”).


191 See, eg, Montgomery v. Noga, 168 F.3d 1282, 1292 (11th Cir. 1999) (stating that “[t]o constitute a violation of section 106(2), the infringing work must incorporate a portion of the copyrighted work in some form”); Alcatel USA, Inc. v. DGI Technologies, Inc., 166 F.3d 772, 787 n.55 (5th Cir. 1999) (“[T]o violate clause (2), the infringing work must incorporate a sufficient portion of the pre-existing work . . . .”); Lichfield v. Spielberg, 736 F.2d 1352, 1357 (9th Cir. 1984) (requiring an infringing work “to incorporate in some form a portion of the copyrighted work”).

192 See Samuelson, supra note 157, at 1215 (making the point that computer-generated works generally do not incorporate expression from the underlying program or from the database on which the program draws to generate material).

193 In order to infringe the derivative work right, the defendant’s work must be substantially similar to the preexisting work from which it was allegedly derived. See Vault Corp. v. Quaid Software, Ltd., 847 F.2d 255, 267 (5th Cir. 1988); Lichfield, 736 F.2d at 1357.

194 Cf. Samuelson, supra note 157, at 1220 (arguing that computer-generated works should not be treated as derivative works of the programs with which they are produced because such treatment would create a de facto exclusive use right in the program).

copyright in the generative code the owner of the copyright in the procedurally generated work derived from it. To the extent that a derivative work is non-infringing and contains new creative material, the copyright in the new material belongs to the author of that material and not to the author of the original work. Because a procedurally generated work does not actually incorporate any existing material from the generative code that produced it, the copyright in such a work would be wholly owned by the work’s author (i.e., the generative code). There would be, in other words, no preexisting material in the new work to sustain a copyright claim by the author of the original work, leaving a non-legal person as the only copyright claimant. This is, of course, an untenable result.

The work made for hire doctrine is a more fitting framework within which to situate the problem of AI authorship because it represents an existing mechanism for directly vesting ownership of a copyright in a legal person who is not the author-in-fact of the work in question. Under the work made for hire doctrine, "the employer or other person for whom the work was prepared is considered the author." While the video game display cases rely on sleight of hand (i.e., substituting the human author of the code for the machinic author of its output), the work made for hire doctrine acknowledges a disidentity between the author-in-fact (the employee or contractor) and the author-in-law (the employer or other person for whom the work was made). The doctrine is a legal fiction that effectuates a policy choice to bypass the author-in-fact to vest copyright elsewhere. With respect to works of AI authorship, treating the programmer like an employer—as the author-in-law of a work made by another—would avoid the problem of vesting rights in a machine and ascribing to a machine the ability to respond to copyright's incentives. It would also avoid the expedient logic that conflates the author’s author (i.e., the programmer) with the actual author (i.e., the generative program).

Some common law jurisdictions outside the United States have adopted a similar approach to protecting computer-authored works. For example, the law of the United Kingdom makes express provision for copyright in computer-generated works, which are defined as works "generated by a computer in circumstances such that there is no human author." New Zealand’s copyright law contains the same definition. The copyright in such works under both U.K. and New Zealand law vests in "the person by whom the arrangements necessary for the creation of the work are undertaken," who, like the employer under U.S. law, is "taken to be" the author for statutory purposes. In Ireland, there are analogous provisions: a computer-generated work is defined as a work "generated by computer in circumstances where the author of the work is not an individual."

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196 Although the right to prepare derivative works is an exclusive right of the copyright owner, 17 U.S.C. § 106(2) (2011), derivative works are independently copyrightable by their authors to the extent that they contain new material and do not infringe copyright in any of the preexisting material they incorporate, see 17 U.S.C. § 103 (2011) (providing that derivative works are copyrightable and that the copyright in a derivative work is independent of copyright protection in the preexisting material).
198 See id.
201 The statute does not say that the employer or other person for whom the work was made is the author, only that such a person "is considered the author for purposes of this title." Id.
203 Samir Chopra and Laurence F. White have offered a complete exposition of the virtues of selectively adapting agency theory to the actions of "autonomous artificial agents," albeit outside the context of copyright law. See CHOPRA & WHITE, supra note 157.
Tracking U.K. and New Zealand law verbatim, Irish law considers the author of such a work to be “the person by whom the arrangements necessary for the creation of the work are undertaken.”208 These provisions do not imply or assume a human author in the absence of one; rather, they expressly create a legal fiction of authorship by means of which copyright vests as a matter of law in a party who is not the author-in-fact. That party could be a natural person or a corporation, which can frankly be regarded as something of a machine in its own right.209

As the work made for hire provisions of the U.S. Copyright Act are currently drafted, however, they cannot be stretched to cover procedurally generated works. Such works do not fall under the definition of “work made for hire” in section 101(1), because the relationship between the programmer and the authoring code is not an employment relationship in the agency sense, which the Supreme Court has interpreted the provision to contemplate.210 Nor do they fall under the definition in section 101(2), because they are not among the nine categories of commissioned works specified there.211 The statutory definition could be amended, however, to incorporate the definition of computer-generated work from the U.K., New Zealand, and Ireland: “A work made for hire is . . . (3) a work generated by a computer in circumstances such that there is no human author of the work.” If section 101 were thus amended, section 201(b), without amendment, would vest ownership of such a work in the person for whom it was prepared.212 That person would generally be the programmer in the first instance, although one could imagine situations in which it could be either the user of the program or the programmer’s employer. The determination would be in the hands of the court based on the facts of the particular case. Treating AI-authored works as works made for hire would respect the complex relationship between the creativity of the coder and the creativity of the code.

CONCLUSION

For more than a quarter century, interest among copyright scholars in the question of AI authorship has waxed and waned as the popular conversation about AI has oscillated between exaggerated predictions for its future and premature pronouncements of its death. For policymakers, the issue has sat on the horizon, always within view but never actually pressing. Indeed, to the extent that the copyright system is now in a digitally induced crisis, the causes lie primarily outside the domain of cultural production, in the domains of reproduction and distribution. To recognize this fact, however, is not to say that we can or should ignore the challenge that AI authorship presents to copyright law’s underlying assumptions about creativity. On the contrary, the relatively slow development of AI offers a reprieve from the reactive model of policymaking that has driven copyrighted law in the digital age. The increasing sophistication of generative software and the reality that all creativity is algorithmic compel recognition that AI-authored works are less heterogeneous to both their human counterparts and existing copyright doctrine than appearances may at first suggest. AI authorship is readily assimilable to the current copyright framework through the work made for hire doctrine, which is a mechanism for vesting copyright directly in a legal person who is acknowledged not to be the author-in-fact of the work in question. Through this legal fiction, the

208 Id. Part II, Ch. 2, § 21.
209 See Nick Montfort, The Coding and Execution of the Author, in CYBERTEXT YEARBOOK 201, 205 (Markku Eskelinen & Raine Koskimaa eds., 2003) (“Machines are already parties in interest in lawsuits every day: such machines are called “corporations” . . . In fact [it] is difficult to imagine that modern copyright law could possibly exist for the benefit of human beings rather than for the enrichment of such machines.”).
211 See 17 U.S.C. § 101(2) (2011) (providing an exhaustive list of the categories of commissioned works that may be considered works made for hire: a contribution to a collective work, a part of a motion picture or other audiovisual work, a translation, a supplementary work, a compilation, an instructional text, a test, answer material for a test, or an atlas).
machinic creativity of generative code can be recognized for what it really is—something other than (but owing to) the human creativity of its coder.
COPYRIGHT LAWS AND ARTIFICIAL INTELLIGENCE

Edward Klaris and Alexia Bedat  November 16, 2017  Looking Ahead

Recently, a photographer whose camera was used by a monkey to take a selfie settled a two-year legal battle against an animal rights group about copyright over the image. The lower court had denied the monkey a copyright, but the parties decided to settle before facing the appeals court.

Whether monkeys can create copyrighted works is not exactly a pressing question for our time. But the important issues raised by this case and others about who owns creative work in an increasingly automated world are crucial to the future of copyright.

With the advent of AI software, computers—not monkeys—will potentially create millions of original works that may then be protected by copyright, under current law, for more than 100 years.

We have seen this hypothetical play out in Hollywood. In the 2013 movie Her, set in a not-too-distant-future, Samantha, an operating system (OS), can learn your desires and help you act on them. Samantha (voiced by Scarlett Johansson) selects and compiles the letters written by the main character Theodore (played by Joaquin Phoenix), and succeeds in having them published as a book. This is something Phoenix’s character had wanted to do but never tried to accomplish. The OS does it for him. Should the copyright for that book, which will be published under Theodore’s name, belong to human Theodore or OS Samantha or no one at all?

Such scenarios are no longer far-fetched. I am increasingly dealing with actual cases in which people can build strikingly accurate avatars of themselves—scanning their own faces, adjusting the physical dimensions, designing personality traits. Should they own the copyright to these resulting avatars or should the copyright belong to the platform-owning companies that enabled the avatars’ creation in the first place? Or should they be owned by no one at all because a piece of software created the avatars and there is not enough human intervention to satisfy a court?

The concept of encouraging the production of creative work by protecting it—incentivizing authors financially—is embedded in our Constitution. The Intellectual Property Clause expressly aims “to promote 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.”

In drafting the black-and-white clarity of this clause, our framers could hardly have anticipated the highly gray area of bots making copyrighted works. You don’t have to incentivize a bot; a machine simply does what it was programmed to do without any need for financial motivation. That is why, among other reasons, the court declined to award a copyright in a work created by a monkey. Monkeys are not financially incentivized to create works, and even if they were, the monopoly afforded to copyright holders was not intended for animals, who cannot spend the money, sue for infringement, or police a copyright.
In a world where bots may eventually dominate the creative space—manipulating, arranging, color-correcting, filming, and ordering literary, audio and visual content—courts may decide that works created without human input belong in the public domain with no protection. Or, they may grant copyright, protecting bots’ output for potentially more than 100 years under current copyright law. Which is better? What path best promotes our country’s fundamental interest in “the progress of science and useful arts?” And should copyright subsist for fewer years under certain circumstances?

The UK proactively attempted to address such questions as early as 1988, when its Copyright, Designs, and Patents Act recognized a “computer-generated” work as one without a “human author” and specifically granted such work copyright protection. And this past February, the European Parliament advocated granting autonomous robots the legal status of “electronic persons” for purposes of copyright protection.

On September 28, the Delegation of the European Union to Japan met in Tokyo to grapple with, among other issues, whether works generated by artificial intelligence are eligible for copyright protection under Japanese and European statutes.

In today’s world, what does it mean to have a hand in creating a work? According to a representative from the Copyright Office with whom I recently participated at a conference in New York, machine created works should not be granted registration by the Copyright Office. I disagree. The question is not whether they should be registered, but who should be registered as the author. I would argue that the authorship belongs to the person who created that work. If a software engineer programs a bot which can generate music, for example, the copyright belongs to the engineer who fabricated the software, not the bot itself. The monkey may have pushed the camera button, but the photographer owns the copyright. That’s got to be the rule even in a world where the bot may be operating more on its own and with increasing artificial intelligence. United States law needs to evolve to recognize that, although a person may rely even 100 percent on a machine to produce original work, the person in control of the bot is the author worthy of Constitutional protection.

Of course, there may well be cases that test this position going forward. But, in an increasingly mechanized world, we must hold fast to the original principles of promoting “the progress of science and useful arts” by protecting human creativity and innovation.
Interesting issues... and I love this topic! But I take one exception to an example you provided.

You say:
- If software AI generates music, then the copyright belongs to the engineer who programmed it.
- If a monkey operates a camera and generates a photo, the photographer owns the copyright.

But the photographer didn't create that camera, right? So these are different scenarios. Would not the camera manufacturer hold the copyright if these examples demonstrate the same logic?

The nature and agency of authorship/creation is a pickle. Today, rather than raw human creativity coursing directly from input to output through the fountain pen, pottery wheel, keyboard, whatever, we have whole layers of intermediaries. We have new collaborators, maybe they are machines, but certainly there will be other humans.

If the engineer programmed the algorithm/AI, but licensed a thousand copies of the code to a thousand end users who run containerized instances of it, the simplicity of a convenient rule about ownership begins to cloud. Those end users seed it with questions, train it, and feed it proprietary sources. Say one of those end users is a large law firm. Does the engineer still own the legal brief or opinion or risk assessment that the AI churns out? Does the law firm own the brief as its work product?

When a machine looks like it's doing most of the creative work, which human should own it as the default?
WHAT IF ARTIFICIAL INTELLIGENCE WROTE THIS?
ARTIFICIAL INTELLIGENCE AND COPYRIGHT LAW

Victor M. Palace† *

Abstract
The increasing sophistication and proliferation of artificial intelligence has given rise to a provoking question in copyright law: Who is the copyright owner of a work created by autonomous artificial intelligence? In other words, when a machine learns, thinks, and acts without human input, and it creates a work, what person should own the copyright, if any? This Note explains why this is a pressing question and why current laws and practices fail to address the issue. It then analyzes the arguments for and against the possible choices: the artificial intelligence, the user, the programmer, the company that owns the artificial intelligence, and entrance into the public domain. Finally, this Note arrives at the conclusion that the work’s immediate entrance into the public domain is the solution.

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† Editor’s Note: This Note won the Gertrude Brick Prize for the best Note in Spring 2018.
* J.D., University of Florida Levin College of Law 2019; B.S. Electrical and Computer
  Engineering, University of Colorado Boulder 2016. All my accomplishments are a result of
tremendous support from my friends and family, to whom I dedicate this Note. I am also grateful
to my Note advisor, Professor Hannibal Travis, for guiding me in writing this Note.
INTRODUCTION

It is the dawn of a new era: the era of artificial intelligence.\(^1\) For millions of years, the human brain has been the most complex and most powerful machine in the world. Analytical reasoning, imagination, and intuition have allowed humans to thrive and rise to the top. Indeed, society has long recognized the value of the human intellect by affording legal protection to intellectual creations. The Founding Fathers protected intellectual creations under the Patent and Copyright Clause of the United States Constitution, which seeks “[t]o promote 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.”\(^2\) As complex and powerful as the human brain is, however, current technology is sometimes able to match, if not surpass, its capabilities. This has led to a provocative question in copyright law: Who is the copyright owner of a work created by autonomous artificial intelligence?

To answer this, an example of “autonomous artificial intelligence” is helpful. Imagine artificial intelligence that does not require any human input to learn, think, or act. Like a baby, it starts out utterly naïve and incapable of doing anything of substance. It tries to perform a task and fails, but—much like a child—it learns. This repeats over and over. After some time, not only has the machine mastered the task, it has become one of the world’s best.

This is the story of AlphaGo Zero, the first artificial intelligence to learn \textit{tabula rasa}—meaning from a “clean slate,” without any human

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\(^1\) This Note uses “artificial intelligence” to refer to a computer algorithm capable of accomplishing tasks that generally require human intelligence, such as creating pictures, songs, and writings. \textit{See Artificial Intelligence}, OXFORD DICTIONARIES, https://en.oxforddictionaries.com/definition/us/artificial_intelligence (defining “artificial intelligence” as “[t]he theory and development of computer systems able to perform tasks that normally require human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages”).

\(^2\) U.S. CONST. art. I, § 8, cl. 8.
input. 3 AlphaGo Zero started out with no prior knowledge of the game Go except for its rules. 4 Nonetheless, after forty days of playing against itself, it outperformed the algorithm that defeated the world’s best human Go player. 5 This is the type of artificial intelligence on which this Note focuses. For purposes of this Note, “autonomous artificial intelligence” is artificial intelligence where the only human inputs are the initial algorithm and the “rules”; the machine performs the learning, thinking, and acting. Legal tension arises from the fact that it is not immediately clear who owns the copyright of a work created by such a machine.

To resolve this, Congress and the federal courts may choose to grant the copyright for such works to the artificial intelligence, the user, the programmer, or the artificial intelligence company. Or they may choose to grant no copyright at all; that is, they may choose to place such works into the public domain immediately upon creation, where everyone would be free to use them. This Note explains why this tension is a pressing issue, why current copyright law fails to address it, and why the last choice, immediate entrance into the public domain, is the solution.

Part I explains why Congress or the federal courts will soon have to make this choice. It provides a brief historical outline and current developments regarding computers to conclude that the sophistication of artificial intelligence will continue to increase. This Part also discusses the increasing popularity of artificial intelligence to highlight the urgency of the issue. It concludes that the continuing increase in sophistication and popularity of artificial intelligence will soon force Congress or the federal courts to act.

Part II explains why current copyright law fails to address the question. It discusses congressional silence, judicial reluctance, and the Copyright Office’s rules. This Part then explains why the only source of guidance, the Copyright Office’s rules, is based on law that is blind to the issue. It concludes that the Copyright Office’s rules are ambiguous and antiquated and thus fail to properly answer the question.

Part III explains the arguments for and against the possible choices: the artificial intelligence, the user, the programmer, the company that owns the artificial intelligence, and entrance into the public domain. It then compares the arguments to conclude that immediate entrance into the public domain is the answer.

4. Id.
5. Id.
I. CONGRESS OR THE FEDERAL COURTS WILL SOON BE REQUIRED TO SAY WHO OWNS THE COPYRIGHT FOR WORKS MADE BY AUTONOMOUS ARTIFICIAL INTELLIGENCE

This Part explains the urgency of the copyright ownership question for works created by autonomous artificial intelligence. To do this, it discusses two ever-increasing aspects of artificial intelligence: sophistication and popularity.

A. The Sophistication of Artificial Intelligence Will Continue to Increase

In 1965, the Register of Copyrights reported to Congress his concerns about computer-generated work.6 The report stated that the rise of computer technology brought with it a difficult copyright question: For a work that is partly generated by a computer, where is the line between human and computer authorship?7 Apparently perturbed by the question, Congress established the National Commission on New Technological Uses of Copyrighted Works (CONTU) to research, among other things, this issue.8 At the time, CONTU found the answer “obvious” because artificial intelligence had not yet come to be.9 It stated that a “computer, like a camera or a typewriter, is an inert instrument, capable of functioning only when activated either directly or indirectly by a human.”10 Thus, CONTU argued, the copyright always belonged to the user.11 However, the technological landscape has changed dramatically since then.

By the 1980s, computer-generated works had become popular.12 By the 1990s, computers were capable of originality. For example, Racter,13


7. See id.


10. Id. at 44.

11. Id. at 45.

12. See, e.g., Pamela Samuelson, Allocating Ownership Rights in Computer-Generated Works, 47 U. PIT. L. REV. 1185, 1196 (1986) (stating that in 1986 “there [was] no question but that many machine-generated works [were] already available, and that in the future they [were] expected to become ever more complex, sophisticated and valuable”).

a computer program designed to generate prose and poetry,^{14} wrote the book _The Policeman’s Beard is Half Constructed_.^{15} Similarly, Hal,^{16} a computer program designed to write like American author Jacqueline Susann,^{17} co-wrote the book _Just This Once_.^{18} Finally, Creativity Machine,^{19} itself a patented device,^{20} created an invention that was later patented.^{21} Nowadays, artificial intelligence is present in almost every aspect of daily life, including travel-booking,^{22} psychological therapy,^{23} and even legal work.^{24} Not surprisingly, “45% of 800 executives surveyed . . . said they expected an artificial intelligence machine will sit on a company’s board of directors by the year 2025.”^{25} Likewise, “[35%] of surveyed law firm leaders say they can envision first-year associates being replaced by artificial intelligence . . . and [47%] said they can envision paralegals being replaced.”^{26} And perhaps most interestingly, “[c]ombined results from surveys of artificial intelligence experts

estimate a 50% chance of human-level machine intelligence by 2040 and a 90% probability by 2075.\textsuperscript{27} Although current technology seems to be approaching the physical limit of computational power per unit area (a trend called “the end of Moore’s law”\textsuperscript{28}), experts nonetheless believe that computational power will continue to increase due to breakthroughs in other areas of computer engineering.\textsuperscript{30} Moreover, the advent of “quantum computing”\textsuperscript{31} is expected to revolutionize artificial intelligence—Microsoft, for example, has stated that its artificial intelligence would learn at least “30 times faster” as a result of quantum computing.\textsuperscript{32} In short, artificial intelligence will continue to become more and more sophisticated, increasingly blurring the line between human and computer authorship, until Congress or the federal courts are forced to act.

B. Works Created by Artificial Intelligence Are Everywhere

Due to the tremendous advances in artificial intelligence, works subject to copyright laws are now regularly created by autonomous algorithms. This is prominent in three areas: music,\textsuperscript{33} pictures,\textsuperscript{34} and


\textsuperscript{28} “Moore’s law” is named after Gordon E. Moore, who predicted that the number of transistors per chip (which is proportional to computational power) would double every two years. See Thomas L. Friedman, \textit{Moore’s Law Turns 50}, \textit{N.Y. Times} (May 13, 2015), https://www.nytimes.com/2015/05/13/opinion/thomas-friedman-moores-law-turns-50.html [https://perma.cc/2CEF-KHFN].


\textsuperscript{30} See id. at 44 (commenting that research will simply switch from miniaturization to new devices, integration techniques, and architectures).


\textsuperscript{33} Musical works have long received the protection of copyright laws. See, e.g., 17 U.S.C. § 106(4), (6) (2012) (granting copyright owners the exclusive right “to perform the copyrighted [musical] work publicly”).

\textsuperscript{34} As with musical works, pictorial works have long been protected by copyright laws. See, e.g., id. § 106(5) (granting copyright owners the exclusive right “to display the copyrighted [pictorial] work publicly”).
writings. The first category is music. Watson Beat, Jukedock, and WaveNet are examples of artificial intelligence systems capable of creating music without any human input. Watson Beat, for example, "composes music by 'listening' to at least 20 seconds of music, and then creates new tracks." The results are tracks that cost a fraction of what hiring a musician would, and the tracks can be used as background music for videos, games, and commercials. A famous example of Watson Beat's work is the song Not Easy, which was created by Grammy-nominated producer Alex da Kid in collaboration with Watson Beat. "Watson Beat...looked at composition of [over 26,000 Billboard Hot 100 songs] to find useful patterns between various keys, chord progressions and genres.

Then, Alex would issue commands to Watson Beat like, "[g]ive me something that sounds romantic," or, "give me something that sounds like something I want to dance to." Watson Beat would then produce an "original piece" that Alex would use as inspiration.

The next category is pictures. DeepDream is an example of artificial intelligence capable of creating original pictures without human

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35. As with musical and pictorial works, literary works have long received the protection of copyright laws. See, e.g., id. (granting copyright owners the exclusive right “to display the copyrighted [literary] work publicly”).
40. Shi, supra note 36.
41. See Marshall, supra note 39.
44. Id.
46. Id.
47. DEEP DREAM GENERATOR, https://deepdreamgenerator.com/ [https://perma.cc/4ZAZ-4TX7].
direction. \(^{48}\) In a nutshell, DeepDream analyzes a photograph, guesses what it is, and then enhances certain features based on the guess. \(^{49}\) The results are “haunting, hallucinogenic imagescapes” \(^{50}\) that resemble the original photographs but are nonetheless uniquely different. \(^{51}\) Moreover, DeepDream is able to create pictures seemingly out of nothing by interpreting images of random noise, zooming in, and interpreting and zooming in repeatedly. \(^{52}\) The results are dream-like pictures that are purely the product of DeepDream’s artificial intelligence. \(^{53}\)

The final category is writings. Automated Insights \(^{54}\) and Narrative Science \(^{55}\) are two companies that allow customers to create automated narratives, “many with no human intervention.” \(^{56}\) The following is an example of Narrative Science’s work, which describes the third quarter of the 2011 game between the Wisconsin Badgers and the University of Nevada, Las Vegas, (UNLV) Rebels:

Wisconsin appears to be in the driver’s seat en route to a win, as it leads 51-10 after the third quarter.

Wisconsin added to its lead when Russell Wilson found Jacob Pedersen for an eight-yard touchdown to make the score 44-3. The Badgers started the drive at UNLV’s 28-yard line thanks to a Jared Abbrederis punt return.

A one-yard touchdown run by Montee Ball capped off a two-play, 42-yard drive and extended Wisconsin’s lead to 51-3. The drive took 42 seconds. The key play on the drive was a 41-yard pass from Wilson to Bradie Ewing. A punt return gave the Badgers good starting field position at UNLV’s 42-yard line.

A 69-yard drive that ended when Caleb Herring found Phillip Payne from six yards out helped UNLV narrow the

\(^{48}\) See Alexander Mordvintsev et al., Inceptionism: Going Deeper into Neural Networks, GOOGLE RES. BLOG (June 17, 2015), https://research.googleblog.com/2015/06/inceptionism-going-deeper-into-neural.html [https://perma.cc/YQ5X-2NE9].


\(^{50}\) Id.

\(^{51}\) See Mordvintsev et al., supra note 48.

\(^{52}\) See id.

\(^{53}\) See id.

\(^{54}\) AUTOMATED INSIGHTS, https://automatedinsights.com/ [https://perma.cc/2AZX-C2BY].


deficit to 51-10. The Rebels threw just three passes on the drive.

UNLV will start the fourth quarter with the ball at the 41-yard line.\textsuperscript{57}

Such works have become very popular. The Associated Press, for example, uses Automated Insights to produce more than 3,000 financial reports per quarter, and Forbes uses Narrative Science for similar efforts.\textsuperscript{58}

In conclusion, due to the increasing popularity and sophistication of artificial intelligence, Congress or the federal courts will soon be required to declare the copyright owner of works created by autonomous artificial intelligence.

II. CURRENT COPYRIGHT LAWS FAIL TO ADDRESS THE QUESTION OF COPYRIGHT OWNERSHIP FOR WORKS MADE BY AUTONOMOUS ARTIFICIAL INTELLIGENCE

This Part explains why current copyright laws fail to adequately address the copyright ownership question. To do this, it analyzes three types of sources: Congress, the federal courts, and the Copyright Office.

A. Congress and the Federal Courts Have Yet to Address Autonomous Artificial Intelligence

Congress has remained silent on the issue of artificial intelligence, and there appears to be only one recent action on the topic. In May 2017, Congress recognized that “[a]rtificial intelligence is no longer science fiction” and established the Artificial Intelligence Caucus.\textsuperscript{59} The Caucus is designed “to inform policymakers of the technological, economic and social impacts of advances in AI and to ensure that rapid innovation in AI and related fields benefits Americans as fully as possible.”\textsuperscript{60} Without more, however, this action fails to provide guidance as to copyright ownership for works made by autonomous artificial intelligence.


\textsuperscript{58} Podolny, \textit{supra} note 56.


\textsuperscript{60} \textit{Id.}
Similarly, federal courts have yet to face a copyright case involving artificial intelligence. The only case that has addressed nonhuman authorship is *Naruto v. Slater.* There, a monkey named Naruto took pictures of itself using photographer David Slater’s camera, and Slater subsequently published the pictures in a book. The People for Ethical Treatment of Animals (PETA) sued Slater for copyright infringement, alleging that Slater’s display, advertisement, and sales of the book violated Naruto’s copyright. The court dismissed the case, holding that Naruto lacked standing because “[an animal] is not an ‘author’ within the meaning of the Copyright Act.” Therefore, *Naruto* stands for the proposition that works created by animals belong to the public domain.

Although this holding is a useful starting point, it fails to squarely address autonomous artificial intelligence. Importantly, works created by animals lack users, programmers, and companies that could be deemed the copyright owners. Indeed, it was the idea of granting standing to an animal that troubled the court in *Naruto.* Because works made by autonomous artificial intelligence have users, programmers, and companies—who could theoretically have standing—this judicial precedent fails to properly address the question of copyright ownership for such works.

In sum, Congress and the federal courts have yet to address the issue of copyright ownership for works made by autonomous artificial intelligence.

**B. The Copyright Office’s Human Authorship Requirement Fails to Properly Address Autonomous Artificial Intelligence**

In arriving at its holding, the court in *Naruto* deferred to the Copyright Office. It noted that “[w]hen interpreting the Copyright Act, the courts defer to the Copyright Office’s interpretations in the appropriate circumstances.” The court accepted the Office’s Human Authorship Requirement, discussed below, without discussion. Because Congress

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62. Id. at *1.
63. Id.
64. Id. at *4.
65. See id.
66. See id. at *3 (“[I]f Congress and the President intended to take the extraordinary step of authorizing animals as well as people and legal entities to sue, they could, and should, have said so plainly.” (quoting Cetacean Cnty. v. Bush, 386 F.3d 1169, 1179 (9th Cir. 2004))).
67. Id. at *4.
68. Id. (alteration omitted) (quoting Inhale, Inc. v. Starbuzz Tobacco, Inc., 755 F.3d 1038, 1041 (9th Cir. 2014)).
69. Id.
or a federal court could similarly rely on the Office’s requirement when addressing a work made by autonomous artificial intelligence, a thorough analysis of the Office’s requirement is due.

The Copyright Act states that a copyright shall be granted for an
“original work[] of authorship fixed in any tangible medium of
expression,” yet it does not define “authorship.” Nonetheless, the Office
has established the Human Authorship Requirement, which states that
“[t]o qualify as a work of ‘authorship’ a work must be created by a human
being.” That is, “the Office will refuse to register a claim if it determines
that a human being did not create the work.” The requirement’s
application is straightforward in the context provided by the Office. For
example, the Office states that it will refuse to grant a copyright for
“driftwood that has been shaped ... by the ocean” because no one
contributed to the creative process. However, in the context of
autonomous artificial intelligence, this requirement is ambiguous and
antiquated and thus fails to properly address the copyright ownership
question.

First, the Office’s application of the Human Authorship Requirement
is ambiguous with respect to autonomous artificial intelligence. The
Office states that it “will not register works produced by a
machine... that operates randomly or automatically without any
creative input or intervention from a human author.” While this rule
seems to encompass artificial intelligence, the examples provided by the
Office make this unclear. As to music, the Office states that it will not
register the result of “[t]ransposing a song from B major to C major”,
however, Watson Beat, Jukedeck, and WaveNet, do more than just
transpose songs as they are able to renovate styles and create new
tracks. As to pictures, the Office states that it will not register the result
of “a mechanical weaving process that randomly produces irregular

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810 (2012)).
71. 17 U.S.C. § 102(a) (emphasis added); see id. § 101.
72. U.S. COPYRIGHT OFFICE, COMPENDIUM OF U.S. COPYRIGHT OFFICE PRACTICES § 313.2
G6KE]. It should be noted, however, that the Compendium is not binding and does not have
the force and effect of law. It merely “provides instruction to agency staff regarding their statutory
duties and provides expert guidance.” Id. intro., at 1.
73. Id. § 306.
74. Id. § 313.2.
75. See id. § 306.
76. Id. § 313.2.
77. Id.
78. See Marshall, supra note 39.
shapes in the fabric without any discernible pattern”,
 however, DeepMind does more than just create irregular patterns as it is able to
create landscapes from random noise images. As to writings, the Office
fails to provide an example. Therefore, the application of the Human
Authorship Requirement to autonomous artificial intelligence is
ambiguous.

Second, the support behind the Human Authorship Requirement fails
to acknowledge autonomous artificial intelligence and is thus antiquated.
To support the requirement, the Office quotes language from two cases:
In re Trade-Mark Cases and Burrow-Giles Lithographic Co. v.
Sarony. The Office states:

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).

First, it must be noted that both cases are more than a century old,
meaning they predate the advent of computers by more than half a
century. Therefore, their technological contexts shed no light on
copyright ownership for works made by autonomous artificial
intelligence. Moreover, a close inspection reveals that the cases serve as
a poor foundation for the broad bar against nonhuman authorship.

The Office cites Trade-Mark Cases for the proposition that “copyright
law only protects ‘the fruits of intellectual labor’ that ‘are founded in
the creative powers of the mind.’” In Trade-Mark Cases, three trademark
infringers challenged the constitutionality of the federal trademark
statutes. The prosecution offered two sources of constitutional power:

79. See U.S. COPYRIGHT OFFICE, supra note 72.
80. See Mordvintsev et al., supra note 48.
81. See U.S. COPYRIGHT OFFICE, supra note 72.
82. 100 U.S. 82 (1879).
83. 111 U.S. 53 (1884); see U.S. COPYRIGHT OFFICE, supra note 72, § 306.
84. U.S. COPYRIGHT OFFICE, supra note 72, § 306.
85. The Electronic Numerical Integrator and Computer (ENIAC), first revealed in 1946, is
considered the first computer. See Frank da Cruz, Programming the ENIAC, COLUM. UNIV.
[https://perma.cc/F34E-GYNP].
86. See U.S. COPYRIGHT OFFICE, supra note 72, § 306 (quoting In re Trade-Mark Cases,
100 U.S. 82).
87. See In re Trade-Mark Cases, 100 U.S. at 91–92.
the Patent and Copyright Clause and the Commerce Clause. In relevant part, the Supreme Court held that trademarks were not “writings” under the Patent and Copyright Clause because

while the word [“]writings[”] may be liberally construed, as it has been, to include original designs for engravings, prints, [etc.], it is only such as are original, and are founded in the creative powers of the mind. The writings which are to be protected are the fruits of intellectual labor, embodied in the form of books, prints, engravings, and the like. The trademark may be, and generally is, the adoption of something already in existence as the distinctive symbol of the party using it.

Therefore, Trade-Mark Cases stands for the proposition that Congress cannot regulate trademarks under the “writings” language of the Patent and Copyright Clause. Because trademarks have little in common with works made by nonhumans, this case serves as a shaky foundation for the Office’s broad rule. Moreover, the Court in Trade-Mark Cases emphasized originality. This indicates that as long as the autonomous artificial intelligence’s work is original enough—“books, prints, engravings, and the like”—the Court would deem it “writings” under the Patent and Copyright Clause and thus copyrightable. Therefore, the Office’s ban against nonhuman works is antiquated in light of Trade-Mark Cases.

Next, the Office cites Burrow-Giles for the proposition that “copyright law is limited to ‘original intellectual conceptions of the author.’” In Burrow-Giles, photographer Sarony sued lithographic company Burrow-Giles, alleging copyright infringement of Sarony’s photograph of Oscar Wilde. Burrow-Giles retorted that because photographs merely reproduced people and objects, they were neither “writings” nor created by an “author” under the Patent and Copyright Clause. The Supreme Court held that they were:

88. See id. at 93–95.
89. Id. at 94 (emphasis added and omitted).
90. See id.
91. See Abbott, supra note 19, at 1100–01 (“[I]t seems unwise to put much emphasis on dicta from more than a century ago to resolve the question of whether nonhumans could be authors . . . .”).
92. In re Trade-Mark Cases, 100 U.S. at 94 (emphasizing the word “original”).
93. Id.
94. U.S. COPYRIGHT OFFICE, supra note 72, § 306 (quoting Burrow-Giles Lithographic Co. v. Sarony, 111 U.S. 53, 58 (1884)).
95. See Burrow-Giles Lithographic Co. v. Sarony, 111 U.S. 53, 54 (1884).
96. See id. at 56.
By ["writings"] in that clause is meant the literary productions of those authors, and congress very properly has declared these to include all forms of writing, printing, engravings, etchings, etc., by which the ideas in the mind of the author are given visible expression. The only reason why photographs were not included in the extended list in the act of 1802 is probably that they did not exist, as photography, as an art was then unknown, and the scientific principle on which it rests, and the chemicals and machinery by which it is operated, have all been discovered long since that statute was enacted.

... ...

We entertain no doubt that the constitution is broad enough to cover an act authorizing copyright of photographs, so far as they are representatives of original intellectual conceptions of the author.97

Therefore, Burrow-Giles stands for the proposition that the original aspects of a photograph are copyrightable.98 While the Copyright Office requires a human to make the original choices,99 the Court in Burrow-Giles never addressed that issue.100 Rather, the Court focused on originality,101 as in Trade-Mark Cases,102 which indicates that as long as the choices made by the autonomous artificial intelligence are original enough—"writing, printing, engravings, etchings, etc."103—the resulting photograph should be copyrightable.

Moreover, the Court in Burrow-Giles stated that the reason photographs had not been included in the then Copyright Act was because photographs had not existed,104 and unless they could be distinguished

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97. Id. at 58 (emphasis added).
98. See id.
99. See U.S. COPYRIGHT OFFICE, supra note 72, § 306 ("[T]he Office will refuse to register a claim if it determines that a human being did not create the work." (emphasis added)).
100. See Burrow-Giles, 111 U.S. at 54, 56, 58.
101. See id. at 60 (holding for plaintiff only after noting that "the photograph in question... is a 'useful, new, harmonious, characteristic, and graceful picture, and... plaintiff made the same... entirely from his own original mental conception, to which he gave visible form by posing the said Oscar Wilde in front of the camera, selecting and arranging the costume, draperies, and other various accessories in said photograph, arranging the subject so as to present graceful outlines, arranging and disposing the light and shade, suggesting and evoking the desired expression, and from such disposition, arrangement, or representation, made entirely by plaintiff, he produced the picture in suit." (third omission in original)).
102. See supra text accompanying note 92.
103. Burrow-Giles, 111 U.S. at 58.
104. See id. ("The only reason why photographs were not included in the extended list in the act of 1802 is probably that they did not exist, as photography, as an art, was then unknown, and
from what was then copyrightable (for example, maps, charts, and designs) they should be similarly copyrightable. In other words, the Court instructed for the word “writings” to be interpreted in light of current technologies and practices. Under a similar analysis, the word “authors” must include autonomous artificial intelligence. The reason autonomous artificial intelligence has not been included in the Copyright Act is because such technology has never existed, and unless works made by such machines can be distinguished from works created by what is now deemed an author (that is, humans) their works should be similarly copyrightable. Therefore, the Office’s broad ban against nonhuman authorship is antiquated in light of Burrow-Giles.

In sum, because the Copyright Office’s Human Authorship Requirement is ambiguous and antiquated with regards to works made by autonomous artificial intelligence, the requirement fails to properly address them.

III. POSSIBLE CHOICES: ARGUMENTS FOR AND AGAINST EACH APPROACH

Because there is no proper guidance from Congress, the federal courts, or the Copyright Office as to who would own the copyright of a work made by autonomous artificial intelligence, an analysis of all reasonable copyright allocations is required. This Part analyzes the arguments for and against each approach, and it separates them into three categories: (1) the artificial intelligence as copyright owner; (2) the user, programmer, or artificial intelligence company as copyright owner; and (3) immediate entrance into the public domain. It concludes that the best choice is immediate entrance into the public domain.

A. The Artificial Intelligence as Copyright Owner

The first approach is allocating copyright ownership to the artificial intelligence itself by defining the term “author” to include artificial intelligence. In effect, this argument seeks to amend § 101 of the Copyright Act to the following:

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the scientific principle on which it rests, and the chemicals and machinery by which it is operated, have all been discovered long since that statute was enacted.

105. See id. at 57 (“Unless, therefore, photographs can be distinguished in the classification on this point from the maps, charts, designs, engravings, etchings, cuts, and other prints, it is difficult to see why Congress cannot make them the subject of copyright as well as the others.”).

106. See id.

An "author" may be a natural person or a computer for purposes of this Act.

As previously mentioned, the Copyright Act grants a copyright for an "original work[] of authorship fixed in any tangible medium of expression," yet it defines neither "authorship" nor "author." The argument for this approach states that as long as the requirements of originality and fixation—"the two 'fundamental criteria of copyright protection'"—are met, the copyright should be granted to the creating entity.

As for originality, the law is settled that a minimal amount of originality will suffice regardless of the artistic merit. In *Alfred Bell & Co. v. Catalda Fine Arts*, the court noted that

nothing in the Constitution commands that copyrighted matter be strikingly unique or novel. All that is needed to satisfy both the Constitution and the statute is that the "author" contributed something more than a "merely trivial" variation, something recognizably "his own." Originality in this context "means little more than a prohibition of actual copying." No matter how poor artistically the "author's" addition, it is enough if it be his own.

...  

Even if [the author's] substantial departures from the paintings were inadvertent, the copyrights would be valid. A copyist's bad eyesight or defective musculature, or a shock caused by a clap of thunder, may yield sufficiently distinguishable variations. Having hit upon such a variation unintentionally, the "author" may adopt it as his and copyright it.

Therefore, a work is original unless it is an exact copy of something else. Because the artificial intelligence at issue do not merely copy

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109. Id. § 101.
110. See Samuelson, supra note 12, at 1197, 1199 (quoting H.R. REP NO. 1476, at 51 (1976)).
111. See Nimmer & Nimmer, supra note 14, § 2.01[B][1].
112. 191 F.2d 99 (2d Cir. 1951).
113. Id. at 102–05 (footnotes omitted) (first quoting Chamberlin v. Uris Sales Corp., 150 F.2d 512, 513 (2d Cir. 1945) and then quoting Hoague-Sprague Corp. v. Frank C. Meyer, Inc., 31 F.2d 583, 586 (E.D.N.Y. 1929)).
114. See id. at 103.
another's work, the resulting works are sure to meet the low standard of originality.

As for fixation, the Copyright Act states that the work must be "fixed in any tangible medium of expression, now known or later developed, from which [it] can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device." In _Midway Manufacturing Co. v. Dirkschaider_, a video-game manufacturer brought suit alleging copyright infringement. The defendant argued, among other things, that the copyrights on the videogames were invalid for lack of fixation. The court disagreed:

Under [the Copyright Act], it is clear that the plaintiff's audiovisual works are fixed in the printed circuit boards. The printed circuit boards are tangible objects from which the audiovisual works may be perceived for a period of time more than transitory. The fact that the audiovisual works cannot be viewed without a machine does not mean the works are not fixed.

Therefore, a work is fixed when it is on readable electronic hardware. Because works created by artificial intelligence can be stored in a computer's memory and computer memory can be read using a computer, such works are fixed. In sum, because the works created by artificial intelligence are able to meet the two statutory requirements of originality and fixation, the argument goes, they ought to be the owners of the resulting copyright.

The main arguments against this approach are standing and wasted incentive. First, as previously mentioned, only humans have standing under the Copyright Act. Granting standing to artificial intelligence

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115. _See supra_ notes 33–58 and accompanying text.
116. _See_ Samuelson, _supra_ note 12, at 1199.
119. _Id._ at 472.
120. _Id._ at 479.
121. _Id._ at 480.
122. _See id._
123. _See id._
124. _See_ Samuelson, _supra_ note 12, at 1199 ("Machines may be capable of exhibiting sufficient originality to qualify for copyright, and may be able to express that originality in a tangible form. What basis, then, would there be for denying a copyright to a computer?").
125. _See_ Hristov, _supra_ note 107, at 441.
126. _See_ Samuelson, _supra_ note 12, at 1199.
127. _See_ Naruto v. Slater, No. 15-CV-04324-WHO, 2016 WL 362231, at *4 (N.D. Cal. Jan. 28, 2016) ("The issue for me is whether Next Friends have demonstrated that the Copyright Act confers standing upon [an animal]. In light of the plain language of the Copyright Act, past judicial

would lead to many unsettling questions: Who enforces the right? What remedies should artificial intelligence be granted? What other rights should artificial intelligence receive?128 Although these questions may one day have to be answered, there is currently no pressing need because sentient artificial intelligence has yet to come.129 Second, the Patent and Copyright Clause makes clear that copyright law was established to incentivize people to create works by offering them exclusive rights,130 thereby “promot[ing] the Progress of Science and useful Arts.”131 Currently, computers need no incentive to create; they merely require electricity to create.132 Thus, the financial incentive that results from a copyright would be meaningless to a computer.133

In sum, while an autonomous artificial intelligence might be the statutory creator of its work under the Copyright Act, allocating the copyright to the artificial intelligence would result in overwhelming and unnecessary legal uncertainty, and it would be contrary to the goal of the Patent and Copyright Clause.

B. The User, Programmer, or Artificial Intelligence Company as Copyright Owner

The second approach is allocating copyright ownership to the user, programmer, or artificial intelligence company by expanding the “work for hire” doctrine. Under the Copyright Act, copyright ownership initially vests in the author.134 However, in the case of a “work made for hire,” ownership is transferred to the “employer.”135 Currently, a work is a “work made for hire” either when it is created by an employee or when, among other things, it is commissioned.136 This argument seeks to add a third condition that includes works created by artificial intelligence.137

Special copyright ownership provisions exist for “computer-generated” works in the United Kingdom,138 New Zealand,139 and

interpretations of the Act’s authorship requirement, and guidance from the Copyright Office, they have not.”), aff’d, 888 F.3d 418 (9th Cir. 2018).
128. See Hristov, supra note 107, at 441.
129. See Abbott, supra note 19, at 1114.
130. See Samuelson, supra note 12, at 1199.
132. See Samuelson, supra note 12, at 1199.
133. See Hristov, supra note 107, at 444.
135. Id. § 201(b).
136. Id. § 101.
Ireland. There, “computer-generated” works are defined as works generated by computer where there is no human author. Ownership for such works is allocated to “the person by whom the arrangements necessary for the creation of the work are undertaken.” Using this framework, this argument seeks to amend the definition of “work made for hire” to include the definition of “computer-generated.” More specifically, this argument seeks to amend § 101 of the Copyright Act to the following:

A “work made for hire” is—

(1) a work prepared by an employee within the scope of his or her employment; or

(2) a work specially ordered or commissioned for use as a contribution to a collective work, as a part of a motion picture or other audiovisual work, as a translation, as a supplementary work, as a compilation, as an instructional text, as a test, as answer material for a test, or as an atlas, if the parties expressly agree in a written instrument signed by them that the work shall be considered a work made for hire. . . . ; or

(3) a work generated by a computer in circumstances such that there is no human author of the work.

With this amendment, copyright ownership for works created by artificial intelligence would vest in the “employer.” Determining the “employer” in any given case—between the user, the programmer, and artificial intelligence company—would be a question of fact likely determined under agency law.

143. See Bridy, supra note 137, at 27.
144. See 17 U.S.C. § 101 (2012); Bridy, supra note 137, at 27.
146. See Cmt. for Creative Non-Violence v. Reid, 490 U.S. 730, 740–41 (1989) (holding that the term “employee” with respect to a “work made for hire” must be interpreted under agency law). However, some commentators argue that courts would need to move away from this approach with respect to artificial intelligence. See, e.g., Hristov, supra note 107, at 442 (“An amendment of the Copyright Act . . . must diverge from the current agency law approach used to categorize the relationship between an employee and employer . . . .”). Factors could include the amount of user interaction required, which entity provides the required computational power, and whether access to the artificial intelligence is free of charge. Cf. Samuelson, supra note 12, at
There are several advantages to this approach. First, this approach would reward users, programmers, and artificial intelligence companies for the fruits of their labor.147 Second, it would incentivize them to disclose any contribution by artificial intelligence in the creative process, where they may otherwise withhold this information due to fear of rejection during copyright registration.148 Finally, and perhaps most importantly, the artificial intelligence market would benefit from the incentives.149

However, there are issues with each of these benefits. First, this approach would over-reward users, programmers, and companies.150 The purpose of copyright law is to reward the “original intellectual conceptions of the author,”151 thereby “promot[ing] the Progress of Science and useful Arts.”152 For this reason, a programmer may rightfully obtain a copyright for the code behind artificial intelligence;153 on the other hand, a parent may not receive a copyright for the artistic works of his or her child.154 The contribution by the user, programmer, and company is akin to that of parents: They aid in the conception of the entity that creates the work, rather than creating the work themselves. Thus, they would be rewarded despite not contributing to the intellectual conception of the work, contrary to the purpose of copyright law. Moreover, they could “own everything the program was capable of generating” by merely allowing the computer to run indefinitely.155 Thus, they would be over-rewarded with an unlimited number of works

1202–04 (arguing that users should be granted the copyright because they cause the work to be generated, polish the raw output, and buy or license the program).
147. Cf. Samuelson, supra note 12, at 1205 (acknowledging that “[t]he computer, after all, simply follows the instructions of the programmer” and that “it is fair to reward the programmer for the value attributable to this fruit of his intellectual labor, even though it may be fruit he had not envisioned”).
148. See Hristov, supra note 107, at 450.
149. Cf. id. at 444–45 (arguing that programmers and companies should be granted copyright ownership because otherwise “society would likely see a significant decline in AI generated works and a decline in the overall development of the AI industry”); Samuelson, supra note 12, at 1227 (arguing that users should be granted copyright ownership because, much like traditional authors, they are in the best position to take the initial steps that will bring a work into the marketplace”).
150. Cf. Samuelson, supra note 12, at 1207–08 (arguing that granting the programmer copyright ownership would “over-reward[] the programmer”).
153. See Computer Assocs. Int’l, Inc. v. Altai, Inc., 982 F.2d 693, 702 (2d Cir. 1992) (“It is now well settled that the literal elements of computer programs, i.e., their source and object codes, are the subject of copyright protection.”).
154. Cf. Abbott, supra note 19, at 1094–95 (“No one would exist without their parents contributing to their conception . . . but that does not make parents inventors on their child’s patents.”).
155. Samuelson, supra note 12, at 1208.
produced at an unprecedented rate. Finally, they would be fully rewarded even if they were not granted a copyright: the user would be able to freely use or build upon the work created by the autonomous artificial intelligence; the programmer would enhance his or her reputation and professional desirability; and the artificial intelligence company would benefit from the sales, licensing, and advertisement revenues. Therefore, this approach would over-reward users, programmers, and companies.

Second, honesty in copyright registration should be required, rather than hoped for. A sensible approach would be to require proof of conception for owners and users of artificial intelligence. And if the applicant knowingly omitted proof of conception or the fact that he or she owns or uses artificial intelligence—which could be discovered, for example, during litigation—then the copyright should be invalidated. This framework would provide a strong incentive for honesty.

Finally, while this approach could increase the market for artificial intelligence, it could also lead to access inequality. Under this approach, the “employer” of the artificial intelligence becomes the copyright owner. Therefore, enticed with the highly lucrative opportunity of obtaining copyrights at an unprecedented rate, artificial intelligence companies may decide to hoard access to autonomous artificial intelligence, so as to always remain the “employers” and thus the copyright owners. This would mean that only a handful of software giants, in only a handful of countries, would have access to this technology. Commentators strongly warn about this type of access inequality, with one report from Stanford University stating that “AI could widen existing inequalities of opportunity if access to AI

156. See Abbott, supra note 19, at 1106 (arguing that programmers have noneconomic reasons to build creative computers, including “to enhance their reputations, satisfy scientific curiosity, or collaborate with peers”).

157. Cf. Samuelson, supra note 12, at 1207 (“By keeping the program to himself and copyrighting every piece of music . . . that the program generates, the programmer would be able to prevent others from obtaining interests in the program’s output. If he does this, of course, the programmer will not make any money directly from the program, although he may profit from selling the output that the program generates. Thus, the programmer has a choice, and should not complain about the consequences of his choice to market the program.”).

158. See supra note 145 and accompanying text.


technologies . . . is unfairly distributed across society” because “[t]hese technologies will improve the abilities and efficiency of people who have access to them.”161 Thus, because this approach could foster a grab-all environment, it could result in access inequality, which commentators point out as one of the greatest concerns regarding artificial intelligence.

In sum, this approach would over-reward users, programmers, and companies, and it could lead to unequal access to artificial intelligence.

C. Immediate Entrance Into the Public Domain

The final approach is the work’s immediate entrance into the public domain, whereby no copyright is granted, and everyone is free to use the artificial intelligence’s work. According to this argument, because no person generates the artificial intelligence’s work, no person should be awarded the copyright.162 In effect, this argument seeks to amend § 201(a) of the Copyright Act to the following:

(a) Initial Ownership.—

Copyright in a work protected under this title vests initially in the author or authors of the work. The authors of a joint work are coowners of copyright in the work. No copyright shall be granted for works generated by a computer in circumstances such that there is no human author of the work.163

With this amendment, no copyright would be granted for works created by artificial intelligence.164

The biggest argument against this approach is lost incentive for programmers and artificial intelligence companies.165 However, any loss


162. See Samuelson, supra note 12, at 1224 (“If there is no human author of the computer-generated work, the intellectual property system has assumed no one deserves to be rewarded for it.”).

163. See 17 U.S.C. § 201(a) (2012). This added language is borrowed from the definition of “computer-generated” in the United Kingdom, New Zealand, and Ireland. See supra notes 138–41 and accompanying text.

164. Cf. supra notes 144–45 and accompanying text (arguing that a work created by artificial intelligence is “a work generated by a computer in circumstances such that there is no human author of the work”).

165. See Samuelson, supra note 12, at 1225–26 (“[T]he legislature, the executive branch, and the courts seem to strongly favor maximizing intellectual property rewards, especially for high technology innovators . . . . For some, the very notion of output being in the public domain may seem to be an anathema, a temporary inefficient situation that will be much improved when
would likely be offset by other factors. First, as discussed earlier, the user, programmer, and companies would be fully rewarded despite a lack of copyright.\footnote{See supra notes 156–57 and accompanying text.} Moreover, as Judge Posner once stated, innovation in the software industry is “often incremental, quickly superseded, and less costly to develop, and innovators have a significant first-mover advantage.”\footnote{Ryan Abbott, 
{	extit{Hal the Inventor: Big Data and Its Use by Artificial Intelligence, in Big Data Is Not a Monolith}} 187, 195 (Cassidy R. Sugimoto et al. eds., 2016).} Therefore, the artificial intelligence industry is likely to continue flourishing regardless of copyrights—as it has until now—because of the incentives inherent to the artificial intelligence industry. Finally, and perhaps most importantly, there is a fierce international race as to which country will lead humanity into the age of artificial intelligence. Russian President Vladimir Putin, for example, has called artificial intelligence the “future . . . of all of mankind,” stating that “[w]hoever becomes the leader in this sphere will become the ruler of the world.”\footnote{Radina Gigova, 
{	extit{Who Vladimir Putin Thinks Will Rule the World,}} CNN (Sept. 2, 2017, 1:07 AM), http://www.cnn.com/2017/09/01/world/putin-artificial-intelligence-will-rule-world/index.html [https://perma.cc/TU65-HNY5].} This race means that artificial intelligence research is likely to continue, with or without copyrights, as a matter of national pride and policy. In sum, there is little reason to believe that immediate entrance into the public domain would lead to any significant loss in incentives for programmers and artificial intelligence companies.

However, an argument can be made that all possible incentives should be given to programmers and companies to develop artificial intelligence for producing the “best” creative works, much like incentives should be given for finding the best discoveries in the scientific fields. Nevertheless, this argument is unpersuasive. For a scientific endeavor, such as antibody sequencing for cancer therapy,\footnote{Cf. Abbott, supra note 19, at 1118 (explaining how artificial intelligence could sequence antibodies for therapeutic purposes).} it seems reasonable to maximize every possible incentive for programmers and companies to develop artificial intelligence for finding the best cancer therapy.\footnote{Such a cure is not difficult to envision, especially given the breakthroughs in cancer treatments due to recent technological advances. See, e.g., Antonio Regalado, 
{	extit{Biotech’s Coming Cancer Cure,}} MIT TECH. REV. (June 18, 2015), https://www.technologyreview.com/s/538441/biotechs-coming-cancer-cure/ [https://perma.cc/HG6K-HD3T] (discussing biotechnological “treatments [that] work by removing molecular brakes that normally keep the body’s T cells from seeing cancer as an enemy, and [which] have helped demonstrate that the immune system is capable of destroying cancer").}
possible painting. There is simply no objective, humanitarian goal. For creative works, "[q]uality does trump quantity in every way." Therefore, there is no need to give programmers and companies every possible incentive to develop artificial intelligence for creative works.

Finally, this approach provides a unique benefit: fostering cooperation between artificial intelligence and humans in the creative fields. Many fear that advances in artificial intelligence will lead to an increase in unemployment, and some scholars have pointed to advances in technology as the cause of the increasing unemployment documented since the dawn of the millennium. Much like automation during the Industrial Revolution displaced those who worked in agriculture, artificial intelligence is estimated to displace roughly half of all jobs in the United States in the near future. Indeed, some commentators call the rise of artificial intelligence the “4th Industrial Revolution” due to these predictions. World-renowned physicist Stephen Hawking went as far as stating that “[t]he development of full artificial intelligence could


172. See, e.g., Abbott, supra note 19, at 1117 (“With the expansion of computers into creative domains previously occupied only by people, machines threaten to displace human inventors.”).

173. See, e.g., David Rotman, How Technology Is Destroying Jobs, MIT TECH. REV. (June 12, 2013), https://www.technologyreview.com/s/515926/how-technology-is-destroying-jobs/ [https://perma.cc/MTU6-6PUY] (“In economics, productivity—the amount of economic value created for a given unit of input, such as an hour of labor—is a crucial indicator of growth and wealth creation. It is a measure of progress. . . . For years after World War II, the two lines closely tracked each other, with increases in jobs corresponding to increases in productivity. The pattern is clear: as businesses generated more value from their workers, the country as a whole became richer, which fueled more economic activity and created even more jobs. Then, beginning in 2000, the lines diverge; productivity continues to rise robustly, but employment suddenly wanes. By 2011, a significant gap appears between the two lines, showing economic growth with no parallel increase in job creation. Brynjolfsson and McAfee call it the ‘great decoupling.’ And Brynjolfsson says he is confident that technology is behind both the healthy growth in productivity and the weak growth in jobs.”).

174. See id. (“At least since the Industrial Revolution began in the 1700s, improvements in technology have changed the nature of work and destroyed some types of jobs in the process. In 1900, 41 percent of Americans worked in agriculture; by 2000, it was only 2 percent.”).

175. See Carl Benedikt Frey & Michael A. Osborne, The Future Of Employment: How Susceptible Are Jobs To Computerisation?, 114 TECH. FORECASTING & SOC. CHANGE 254, 265 (2017) (“According to our estimate, 47% of total US employment is in the high risk category, meaning that associated occupations are potentially automatable over some unspecified number of years, perhaps a decade or two.”).

spell the end of the human race,”¹⁷⁷ and Elon Musk, founder of Tesla Motors and SpaceX, has likewise compared artificial intelligence to “summoning [a] demon”¹⁷⁸—and they are not alone.¹⁷⁹ Regardless of labels, it is clear that artificial intelligence is likely to drastically change the employment landscape in the near future, and it is imperative to ensure that humans remain an integral part of fields that do not necessarily require complete automation—such as the creative fields.¹⁸⁰ Immediate entrance into the public domain would help ensure just this. More specifically, human contribution would be required to obtain copyrights from the artificial intelligence’s raw output.¹⁸¹

In sum, immediate entrance into the public domain is the best approach to resolving the question of copyright ownership of works created by autonomous artificial intelligence. The artificial intelligence industry will likely continue to thrive regardless of copyrights, and this approach would help ensure that humans remain an integral part of creative fields.

CONCLUSION

The increasing sophistication and proliferation of artificial intelligence has given rise to a pressing question: Who is the copyright owner of a work created by autonomous artificial intelligence? Thus far, Congress has remained silent on the issue, federal courts have yet to face the question, and the little guidance provided by the Copyright Office is ambiguous and antiquated. Out of the possible choices, immediate entrance into the public domain is the best option.

Allocation of copyright ownership to the artificial intelligence would lead to nonhuman standing, which would lead to unnecessary uncertainty in the legal system. This would also lead to lost incentives, which is contrary to the goals of the Patent and Copyright Clause of the Constitution. Likewise, allocation to the user, programmer, or artificial


¹⁸⁰. See supra notes 169–71 and accompanying text (arguing that there is no need to maximize every possible incentive for developing artificial intelligence for the creative fields).

¹⁸¹. See supra notes 162–64 and accompanying text (noting that, under this approach, a work created by artificial intelligence would enter the public domain only when there is a lack of human contribution).
intelligence company would lead to over-rewarding, and it could lead to unequal access to artificial intelligence. On the other hand, immediate entrance into the public domain would ensure that the users, programmers, and companies are adequately rewarded, and it would ensure that humans remain an integral part of the creative fields.
Artificial Intelligence and Authorship Rights

Written by Raquel Acosta - Edited by Adam Lewin
February 17, 2012

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I. Introduction

Artificial intelligence ("AI") is, simply put, "the science and engineering of making intelligent machines."[1] Quintessential examples of artificially intelligent machines include Hal from 2001 Space Odyssey or the robots from Isaac Asimov's I, Robot series of short stories. Many of the things we think of when we think of true artificial intelligence — such as understanding nuanced language, solving novel problems, or learning through experience — are just starting to be real phenomena.[2] While self-aware robots remain within the realm of fiction, developments in the field of artificial intelligence are advancing our understanding of what computers are and what they are capable of being.

Increasingly, sophisticated computer programs call into question some of the foundational assumptions within the intellectual property ("IP") regime by autonomically producing works which, if executed by a human author, would qualify for copyright protection.
Copyright is intended to “promote the progress of Science and the useful Arts”[3] and grants a limited monopoly to authors over the production and dissemination over their creative expression with the aim of incentivizing more creative work than it inhibits by locking down creative capital.[4] Machines have no intention of creating novel works, nor do they consider incentives as such. With our current technology, only humans can make genuinely creative choices. It remains an open question as to whom, if anyone, would get the rights if all the innovative or novel contributions were the work of a machine.[5] This Comment discusses innovations in AI technology that possess a high enough degree of autonomous computational creativity to require re-examination of copyright standards.

II. A Brief History of AI

There have been different philosophies on what true artificial intelligence would be, yet only recently has advanced AI technology begun to call legal assumptions regarding human authorship into question. Early research into AI encountered difficulties that arose partly due to the implicit notion that to be “artificially intelligent” a program must process information such that the result parallels how an intelligent person would respond in response to similar input. Due to this reliance on producing “human-like” results, many official AI projects developed to produce machines that could perform tasks requiring human-like creativity.[6] However, artificial intelligence researchers have different perspectives on what it means for a machine to be “creative.”[7] In many ways, computational creativity involves the ability for a machine to take in input and process it in a way that results in a novel combination of pre-existing ideas and information.

It is important to differentiate between strong AI — which requires innovative thinking and logical reasoning abilities — and weak AI, which merely creates a program tailored to the narrow function required.[8] These different traditions have different legal implications. Weak AI merely requires that a machine act human, so a programmer would have direct control over the heuristics governing the form of the machine’s output. While the
programmers or users of weak AI machines use the machine as a tool, strong AI aims to get a machine to think for itself. Randomness, autonomy, and machine learning are built into strong AI systems, so the human connection is much more attenuated. As such, only the underlying software, rather than the output, is the result of human ingenuity and would be protectable under traditional copyright law.[9]

a. The Turing Tradition and Weak AI

In 1950 Alan Turing — perhaps the most prominent figure in the history of AI — proposed what became known as the “Turing test” to evaluate a machine’s ability to appear human.[10] Participants would converse with the machine or a human in a text-only format. They would then indicate if they believed they were communicating with a human or with a machine. Turing theorized that an AI machine could be considered “intelligent” if it generated responses that were indistinguishable from a real human’s.[11] Turing’s functionalist approach triggered a series of “chatterbots,” or programs which were designed to interact with humans in a realistic way. Chatterbots track innovations in natural language processing (“NLP”), and while many of the earlier chatterbots were in the tradition of weak AI, recent examples often incorporate machine learning (“ML”) techniques.[12]

IBM’s Watson is, at present, the most highly evolved AI developed from the Turing tradition. Watson took advantage of cutting-edge NLP technology to win Jeopardy! against two reigning champions. [13] Watson utilized ML techniques but only innovated along constricted parameters to achieve a narrowly-defined goal.[14] Each question triggered a massive amount of parallel computing as Watson sorted through 500 gigabytes (or about a million books) of content per second. While this is an impressive technological feat, the nuances of human culture have as yet evaded quantification — when Watson was off in its answers, it tended to be drastically off. So for all Watson’s massive computational ability, it was still was in the tradition of weak AI and specifically tailored to perform the task at hand.

b. Machine Learning and Strong AI
A key development within AI programs is the incorporation of dynamic processes we associate with intelligent life. In a shift away from weak AI, which focused on producing human-like output, some projects have begun programming in elements inspired from biological functions. Particularly salient are algorithms inspired by genetics and network structures based on neurological connections. Evolutionary algorithms, of which genetic algorithms are a subset, generate solutions to optimization problems using strategies such as reproduction, mutation, and inheritance.[15]

Artificial neural networks were inspired by the inner workings of the brain and are often adaptive systems that change structure in response to information forms.[16] Neural networks are generally “trained” by being provided with paradigmatic examples from the domain of interest — such as art, science, or technology. The network can learn by increasing or decreasing the dominance of any given neural node depending on the desirability or correctness of its output, just as neurons within a human brain reinforce commonly used neurological pathways but prune undesirable connections.[17]

Using neural networks, Stephan Thaler built a “Creativity Machine” in 1994 that autonomously produced patentable inventions and composed music.[18] The Creativity Machine consisted of two interconnected neural networks. One network had bits of information it had learned during training randomly deleted to generate some internal static, or “noise.” The noise allowed it to generate novel output by filling in the missing information with patterns it extrapolated from training data. The other network was used to analyze the output and adjust the parameters of the first network to optimize performance. If the first network was too noisy, then it would generate output of dubious usefulness, yet if it was too constrained, it would not generate much at all.

Early generations of the Creativity Machine created novel chemical patents and poetry. More recently, creativity machines have been used by the US military to design new weapons. The latest versions have incorporated self-training artificial neural network objects that
essentially allow the machines to “dream” in a virtual reality and run simulations and exercise crucial skills that it can perfect in an ongoing bootstrapping cycle.[19] While early creativity machines involved a high degree of tailored training, more recent examples can learn and train themselves with little to no human input beyond the initial engineering. As such, there are instances when there are no creative human choices directly involved in the “creative” output of a fully autonomous machine, even if humans built the machine itself.

III. Origin of Creativity - User, Programmer, or Machine

The crucial question appears to be whether the “work” is basically one of human authorship, with the computer merely being an assisting instrument, or whether the traditional elements of authorship in the work (literary, artistic or musical expression or elements of selection, arrangement, etc.) were actually conceived and executed not by a man but by a machine.[20]

In works produced in a mechanical medium, “there is broad scope for copyright . . . because ‘a very modest expression of personality will constitute originality.’”[21] While some traditional AI frameworks, such as those following the Turing tradition, result in machines which are little more than tools or puppets, dynamic and self-regulating systems are arising which can operate without the need for human intervention.[22] To qualify for copyright protection, a work must possess a “modicum of creativity,”[23] and be an “original work of authorship”[24] Ideas are held to be beyond the scope of copyright,[25] as well as works which result from random or mechanical processes.[26]

In 1986, computers were officially determined by the Congressional Office of Technology Assessment (“OTA”) to be more than “inert tools of creation.”[27] Yet difficulties arise when attempting to determine the boundary line between mechanical or random processes and instances in which the slight intervention of a human agent results in the production of a copyrightable work. The OTA posited that the question is open as to whether computers are unlike other tools of creation in that they are possible of being co-creators.[28] Some degree of intentionality is necessary to trace a product to its human author and, when computational creativity is
involved, the structure of the underlying software programming determines how attenuated that chain of causality is.

Different techniques for generating a desired output have different copyright implications. A programmer who creates and trains a machine receives copyright protection in the underlying software, yet the extent to which a programmer must contribute to mechanically-produced output in order to claim copyright protection is unclear. For tools stemming from weak AI traditions, such as computer aided design, authorship is clear. Computer programmers design the software for a specific purpose and receive copyright protection in the program itself. If they made some sort of novel invention in the creation of the program, such as developing a predictive algorithm that allows a two dimensional image to be easily converted to a 3D image, they may apply for patent protection of that algorithm. The end user purchases the software to use as a tool, and receives copyright in the works created with it. Were this not so, Microsoft could claim copyright in works produced on Word, Adobe in Photoshop, etc. Projects stemming from strong AI types of endeavors are more ambiguous and the programmer is more likely to claim a proprietary interest. For example, AI machine RACTER allegedly wrote the book The Policeman's Beard is Half Constructed, yet with no intervening user, William Chamberlain — the researcher who programmed and trained RACTER — has claimed copyright in it.[29]

IV. Analysis

Advances in AI technologies are making machine authorship a reality, yet the legal standards that govern creative innovation do not take into account non-human innovation. Autonomous systems and learning neural networks do not resemble the self-aware robots that were predicted at the genesis of the AI movement. Research into AI has led to machine learning techniques and autonomous computing systems where human authorship becomes attenuated or nonexistent.[30] Thaler’s Creativity Machine, for example, is capable of independently learning fields and generating novel ideas. Yet copyright law excludes works that result from purely mechanized or random processes, so some of
the output of computer programs will necessarily straddle the boundary between what is copyrightable and what is not.[31]

Courts have developed legal tests for examining various aspects of a work to determine what is copyrightable. The end content must be disentangled from all these independently protectable components to see what creative content is left, and whether authorship rights are warranted. Even the most advanced AI program can be reduced its underlying software and hardware components, both of which have independent claim to IP protection. The 1992 Second Circuit case, Computer Associates International, Inc. v. Altai, Inc., is informative on this matter. [32] The Altai court addressed the issue of whether copyright law protects non-literal elements of software and used the Abstraction-Filtration-Comparison (“AFC”) test to determine whether infringement had occurred. The AFC test lays out the steps to follow when extricating copyrightable expression from uncopyrightable elements of the same work.[33] The abstraction step addresses the idea/expression dichotomy by abstracting the program into separate functional layers and excluding aspects of the programs which are uncopyrightable “ideas” rather than protected expression. The filtration step filters out: 1) elements dictated by efficiency, where, as there may only be a limited number of ways of expressing an idea, protection would be functionally equivalent to granting a monopoly over an idea[34]; 2) elements dictated by external factors, including elements necessary or standard to the expression[35]; and, 3) elements taken from the public domain. After all uncopyrightable elements have been removed, the comparison step compares the initial content to the defendant’s work to see what potentially infringing content is left.

It would be useful to have a modified Abstraction-Filtration-Comparison test to extract copyrightable content from uncopyrightable, purely-mechanized works. Expression remaining after the abstraction step would be filtered with special attention paid to elements which directly and necessarily result from the structure of the AI machine. For example, the work product of an autonomously functioning Creativity Machine which innovated using an open, Internet-based body of knowledge would be subject
to a higher degree of scrutiny than a closed system, such as RACTER, where there is a programmer-user who narrowly tailors the machine’s output. In the first case, the creative output is a product of the nature of machine, so copyrighting the content would be like claiming a proprietary interest in the information it gleaned from sifting through the Internet. One may claim that a creative choice was made by some human when the machine was initially pointed toward a certain subject area, but similarly data-miners make decisions when directing their web crawlers to gather a certain data set. Information, or data, is not copyrightable.[36] In a more constrained case, such as that of RACTER, the programmer-user utilizes the machine as a complex tool and makes many creative decisions during its training. Lastly, the modified AFC test would check any remaining content for evidence of direct human authorship. If the creative contribution from any human author was de minimis, the work would default into the public domain.[37]

Works owing their origins to the machine, where all originality results from the machine’s computational creativity, essentially have no human author. Granting copyright privileges where none are warranted creates unjustifiable barriers to access.[38] In cases where there is no identifiable user, the law must balance the incentives of the programmer or creator against the benefits that the public would derive from being able to freely use the end product. If allowing AI developers to claim copyrights in their machine’s output incentivizes more creative production, legislators should codify this copyright grant in the law. Conversely, if the protection of the machine or its code itself is incentive enough, then works produced by a creative machine ought to flow into the public domain and be fortified against proprietary claims.

[2] Practical applications of artificial intelligence techniques include data mining, automated bots, self-managing systems, as well as computer aided design (“CAD”) or video games.


[9] Id.


[12] For example, the chatterbot Jabberwacky, who has won multiple prizes over more than a decade, utilized ML techniques to fine-tune responses. icogno, http://www.jabberwacky.com (last visited Feb. 7, 2012).


[16] Simple neural networks consist of three layers — input, hidden, output — which consist of highly interconnected nodes. Somewhat problematically, the nodes are vertically interconnected but not laterally so input would come in, be processed by the “input neurons” which would filter the information through one or more “hidden unit” neurons, bounce back against the “output neurons” which would process everything and broadcast it back. More complicated neural networks attempt to allow for more human-like
functions through being able to extrapolate part to whole and consider input over time. Id. at 25–26.

[17] Neural networks are used in many types of data processing and classification. For example, geneticists train neural networks to predict which genetic sequences are likely to code for proteins, and some spam filters utilize neural networks to maximize accuracy and efficiency. See Sean R. Eddy, What is a hidden Markov Model?, 22 Nature Biotechnology 1315, 1315–16 (2004).


[26] Compendium II of Copyright Office Practices §503.03(a), “Works produced by mechanical processes or random selection without any contribution by a human author are not registrable. . . . Similarly, a work owing its form to the forces of nature and lacking human authorship is not registrable; thus, for example, a piece of driftwood even if polished and mounted is not registrable.”


[28] Id.


[33] The test was refined from a Second Circuit decision written by Learned Hand, “Upon any work . . . a great number of patterns of increasing generality will fit equally well, as more and more of the incident is left out. . . . [B]ut there is a point in this series of abstractions where they are no longer protected, since otherwise the author could prevent the use of his “ideas,” to which, apart from their expression, his property is never extended.” Nichols v. Universal Pictures Corp., 45 F.2d 119, 121 (2d Cir. 1930).

[34] This is due to the merger doctrine which originates in the idea/expression dichotomy established in Baker v. Selden, 101 U.S. 99 (1879); see also CDN Inc. v. Kapes, 197 F.3d 1256, 1261–62 (9th Cir. 1999).

[35] The scenes a faire doctrine excludes which for computers may consist of such things as standard programming techniques. See Softel, Inc. v. Dragon Medical and Scientific Communications, Inc., 118 F.3d 955 (2d Cir. 1997).


[37] Feist, 499 U.S. at 363–64.


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GENERATING REMBRANDT: ARTIFICIAL INTELLIGENCE, COPYRIGHT, AND ACCOUNTABILITY IN THE 3A ERA—THE HUMAN-LIKE AUTHORS ARE ALREADY HERE—A NEW MODEL

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2017 VISIONARY ARTICLE IN INTELLECTUAL PROPERTY LAW

2017 Mich. St. L. Rev. 659

ABSTRACT

Artificial intelligence (AI) systems are creative, unpredictable, independent, autonomous, rational, evolving, capable of data collection, communicative, efficient, accurate, and have free choice among alternatives. Similar to humans, AI systems can autonomously create and generate creative works. The use of AI systems in the production of works, either for personal or

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manufacturing purposes, has become common in the 3A era of automated, autonomous, and advanced technology. Despite this progress, there is a deep and common concern in modern society that AI technology will become uncontrollable. There is therefore a call for social and legal tools for controlling AI systems' functions and outcomes.

This Article addresses the questions of the copyrightability of artworks generated by AI systems: ownership and accountability. The Article debates who should enjoy the benefits of copyright protection and who should be responsible for the infringement of rights and damages caused by AI systems that independently produce creative works. Subsequently, this Article presents the AI Multi-Player paradigm, arguing against the imposition of these rights and responsibilities on the AI systems themselves or on the different stakeholders, mainly the programmers who develop such systems.

Most importantly, this Article proposes the adoption of a new model of accountability for works generated by AI systems: the AI Work Made for Hire (WMFH) model, which views the AI system as a creative employee or independent contractor of the user. Under this proposed model, ownership, control, and responsibility would be imposed on the humans or legal entities that use AI systems and enjoy its benefits. This model accurately reflects the human-like features of AI systems; it is justified by the theories behind copyright protection; and it serves as a practical solution to assuage the fears behind AI systems. In addition, this model unveils the powers behind the operation of AI systems; hence, it efficiently imposes accountability on clearly identifiable persons or legal entities. Since AI systems are copyrightable algorithms, this Article reflects on the accountability for AI systems in other legal regimes, such as tort or criminal law and in various industries using these systems.

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INTRODUCTION

The artist appraises the work, silently judging each stroke of
dark ink on the canvas. Determining that the composition is not
shaded quite right, the artist decides to switch to an even blacker hue.
Retrieving the brush from the palette, the artist begins to work again, methodically filling the canvas with terse, precise brushstrokes. This is a familiar scene, one that has been playing out in artists’ workshops from the medieval classic painters to modern creative artists. This artist, however, is different. It is a robot. Named e-David by its creators at the University of Konstanz in Germany, this robotic artist uses a complex visual optimization algorithm to create paintings. E-David represents merely one step in the ongoing development of the complex, advanced, automated, autonomous, unpredictable, and evolving artificial intelligence (AI) systems that already create original intellectual property works.

These AI systems are quite different from simple laser printers, which can only reproduce or copy existing works, in a predictable, structural method. E-David, on the other hand, unlike the traditional systems, can produce new drawings in a non-anticipated and creative way. E-David does not copy other works, but instead autonomously takes pictures with its camera and draws original paintings from these photographs. Some of these artworks might be entitled to


2. Falconer, supra note 1 (describing the artworks of e-David as composed of sketches from existing pictures as well as new ones taken with a camera). Relying on existing works might be considered an infringement of the copyright of the original works either directly or as creating derivative works. However, more sophisticated AI systems can create new artworks without copying or infringing copyrights of others. These systems are the focus of this Article. See, e.g., Harold Cohen, Driving the Creative Machine, ORCAS CTR., CROSSROADS LECTURE SERIES, 1, 3, 5, 7 (Sept. 2010), www.aaronshome.com/aaron/aaron/publications/orcastalk2s.pdf [https://perma.cc/5ATB-ALJP] (describing the AARON machine, which is another machine that creates abstract artworks); see also Harold Cohen, Fingerprinting for the 21st Century, AARONS HOME (Feb. 8, 2016), aaronshome.com/aaron/aaron/publications/8Feb2016Fingerprinting-for-the-21st-Century-with-Figures.pdf [https://perma.cc/A2J4-PVSK] (explaining the techniques and the process of developing the system).

3. See Falconer, supra note 1.
copyright protection had humans created them. By using different techniques and an optimization system, e-David makes autonomous and unpredictable decisions about the image it is creating, the shapes and colors, the best way to combine light and shadow, and more.⁴ Even though e-David functions through software created by its programmers, a camera embedded in its complex system allows it to independently take new pictures and generate new creative input as “its own.”

In this Article, I argue that under the “3A era” of automated, autonomous, and advanced technology, sophisticated AI systems and robots turn into talented authors. Indeed, these AI systems already function in the 3A era, generate products and services, make decisions, act, and independently create artworks.

In 2016, nearly 400 years after the death of Rembrandt Harmenszoon van Rijn, the famous Dutch painter, a new Rembrandt, or rather The Next Rembrandt, was unveiled to the world.⁵ The goal of the project was to digitize the painting method of Rembrandt, the human painter.⁶ Once the program “learned” the style of the painter, it would create a new, creative, independent, and original work of art of the genuine Rembrandt.⁷ To ensure its success, the project brought together experts from a variety of fields—engineering, history, art—

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⁴ Id. (describing how the software chooses what paint color and brush strokes are needed and how it can make up for inaccuracies in brush strokes and unpredictable paint mixing that occurs on the canvas).

⁵ Steve Schlackman, The Next Rembrandt: Who Holds the Copyright in Computer Generated Art, ART L.J. (Apr. 22, 2016), http://artlawjournal.com/the-next-rembrandt-who-holds-the-copyright-in-computer-generated-art [https://perma.cc/2C2R-EB5N] (discussing how the first “goal of the project was to discover if an algorithm could . . . produce a physical work of art that would mimic the look of a genuine Rembrandt painting”).

⁶ Id.

⁷ Id.; see also The Next Rembrandt, YOUTUBE (Apr. 5, 2016), https://www.youtube.com/watch?v=IuygOYZ1Ngo&t=3s [https://perma.cc/L4PR-NZNC].

To accomplish this lofty task, the team began with an in-depth study of the proportions and features of the faces in Rembrandt’s works. To master his style, the project team “designed a software system that could understand Rembrandt based on his use of geometry, composition, and painting materials. A facial recognition algorithm identified and classified the most typical geometric patterns used by Rembrandt to paint human features. It then used the learned principles to replicate the style and generate new facial features for our painting.”

Schlackman, supra note 5.
and transferred their knowledge into software capable of creating entirely new works of art.\textsuperscript{8}

Once a work such as the new Rembrandt painting is created by an AI system, however, policy makers must re-consider the relevancy of the current laws. Can our legal system cope with questions of ownership and responsibility in the 3A era that have never been seen before?\textsuperscript{9} This discussion has deep roots in the copyright regime because AI systems are, ultimately, software algorithms that are regulated under the existing copyright law regime.\textsuperscript{10} I argue that one of the main challenges in the near future, the accountability of AI systems, may be solved through the use of copyright lens.\textsuperscript{11}

AI systems and machine learning have already become part of our everyday life. One can already identify AI systems in unexpected regimes, such as: AI doctors,\textsuperscript{12} AI therapists,\textsuperscript{13} independent driverless

\begin{itemize}
\item[8.] See The Next Rembrandt, supra note 7.
\item[9.] Hanoch Dagan, Property: Values and Institutions 3-35 (2011) (describing how the ownership of property rights means not only excluding others but also having accountability toward others regarding the right over the property and the use of the property); see also Hanoch Dagan, Reconstructing American Legal Realism & Rethinking Private Law Theory 104-28, 161-92 (2013) (disagreeing with the prevailing approach of private law in general and interprets the private law as reflecting horizontal relationships among citizens); Hanoch Dagan, The Challenges of Private Law: A Research Agenda for an Autonomy-Based Private Law, in Private Law in the 21st Century 67-87 (Kit Barker, Karen Fairweather & Ross Grantham eds., 2017) (advocating for private law as necessary to govern interpersonal relationships).
\item[11.] See, e.g., Rebecca Croootof, War Torts: Accountability for Autonomous Weapons, 164 U. Pa. L. Rev. 1347, 1366, 1375-86 (2016) (arguing that because autonomous weapons can independently and unpredictably select and engage targets—causing mass killings and damage—and because there is no individual to blame for reckless behavior, a new legal regime of tort laws should arise in the absence of other existing international tools); see also Gabriel Hallevy, When Robots Kill: Artificial Intelligence Under Criminal Law 1-4 (2013) (discussing the accountability of robots for criminal offenses).
\item[12.] Jolene Creighton, AI Saves Woman’s Life by Identifying Her Disease When Other Methods (Human) Failed, Futurism (Aug. 5, 2016), http://futurism.com/ai-saves-womans-life-by-identifying-her-disease-when-other-methods-humans-failed [https://perma.cc/85WR-9JTD] (“If you needed proof that the age of artificial intelligence is officially upon us, well, look no farther. Reports assert [] that IBM’s artificial intelligence (AI) system, Watson, just saved the life of a Japanese woman by correctly identifying her disease. This is notable because, for
cars,\textsuperscript{14} AI lawyers,\textsuperscript{15} automated Alternative Dispute Resolution,\textsuperscript{16} and automated contracts.\textsuperscript{17} AI systems have also significantly influenced many other fields, such as investments,\textsuperscript{18} automated weapons,\textsuperscript{19} some time, her illness went undetected using conventional methods, and doctors were stumped.”).\textsuperscript{13}


14. See David Szundy, University of Oxford Develops Low-Cost Self Driving Car System, NEW ATLAS (Feb. 18, 2013), http://newatlas.com/oxford-robot-car/26282 [https://perma.cc/BU7S-6RGY]; see also Alexandru Budesteau, Using Artificial Intelligence to Create a Low Cost Self-driving Car, BUDISTEAU, http://budesteau.net/Download/ISEF%2020%20Autonomous%20car%20Doc%20particle.pdf [https://perma.cc/Y46J-KSSA] (last visited Jan. 15, 2018) (discussing how a car that should be able to drive automatically and autonomously in an urban area is achievable). In 2004 road traffic caused 2.5 million deaths worldwide and 50 million injuries—87% of crashes were due solely to driver factors. \textit{Id.} Most of the project’s components of self-driving cars have been done; the system is able to recognize the traffic signs and register them in a common database using Google maps, GPS, and more. \textit{Id.}


17. Lauren Henry Scholz, Algorithmic Contracts, 20 STAN. TECH L. REV. 128, 133 (2017) (arguing that “[t]he existence of algorithms that must be understood as servants rather than mere tools justifies the creation and analysis of a distinct category called ‘algorithmic contracts,’” and that “[m]achine learning enables sophisticated algorithms to be more similar in function to a human employee with a task to achieve than a tool”).


espionage,\textsuperscript{20} and even social policymaking.\textsuperscript{21} It is hard to imagine an area of study that has not been influenced by AI systems.

The AI industry has rapidly and consistently become an inevitable part of our present, and it is expected to further develop as the industry is estimated to grow to $70 billion by 2020.\textsuperscript{22} Although these systems are set to add substantial value to our world and bring about positive change, there are several drawbacks to these advanced

filled with AI and robots [and] it'll be a world where whoever builds the best artificial intelligent will emerge the victor"); Caitlin Brock, \textit{Where We're Going, We Don't Need Drivers: The Legal Issues and Liability Implications of Automated Vehicle Technology}, 83 UMKC L. REV. 769, 770-73, 787-88 (2015) (arguing that the future of no driver reality is coming and the time to prepare is now); Ray Kurzweil, \textit{The Virtual Thomas Edison}, TIME (Dec. 4, 2000), http://content.time.com/time/magazine/article/0,9171,90538-2,00.html [https://perma.cc/NK3R-29E8] (discussing issues raised by automated machines and the future of robots).


This paper reports a study of the uses and impacts of automated systems for policy analysis in 42 municipal governments. Automated analyses are commonly used in municipal governments . . . and are used to support policy suggestions which are often implemented. Automated systems in these settings serve in both educational and political roles.

See id. But see Jack M. Balkin, \textit{The Three Laws of Robotics in the Age of Big Data}, 78 OHIO ST. L.J. (forthcoming 2017) (manuscript at 18-27) (arguing that a characteristic feature of the Algorithmic Society is that new technologies permit both public and private organizations to govern large populations. Behind robots, artificial intelligence agents, and algorithms are governments and businesses organized and staffed by human beings that exercise power over other human beings mediated through new technologies; therefore it is important to keep three rules: good faith; private owners' fiduciary to the public; and transparency).

22. \textit{See Tech CEOs Declare This the Era of Artificial Intelligence}, FORTUNE (June 3, 2016), http://fortune.com/2016/06/03/tech-ceos-artificial-intelligence [https://perma.cc/K5KK-69C4] (discussing how “[t]ech companies are diving into AI analytics research, an industry that will grow to $70 billion by 2020 from just $8.2 billion in 2013” and that “[a]rtificial intelligence and machine learning will create computers so sophisticated and godlike that humans will need to implant ‘neural laces’ in their brains to keep up”).
systems. Some of these drawbacks include, among other hazards, damage, suffering, and, most significantly, the loss of control. The main legal challenge remains: Who owns the products generated by AI systems and who is responsible for the possibly negative outcomes stemming from them?

Although diverse solutions have been proposed for dealing with the important issue of accountability for the works generated by autonomous AI systems, no one has yet seriously considered the solutions hidden within the paradigms embedded in the law of copyright. This Article proposes a new solution for dealing with the primary struggle regarding accountability of AI systems based on the copyright regime. The Article will address the fundamental intersection of AI systems and intellectual property laws. The Article proposes a solution taken from the copyright domain, one that might further influence the discussion of accountability for other products, such as autonomous cars and weapons, the drug industry, communication, and more. This relationship and the proposed solution (the new Model) have not been extensively discussed in the current literature. In an attempt to fill this gap in the literature, this Article will focus solely on the copyright regime.

Are creative systems such as e-David and The Next Rembrandt a unique phenomenon within the copyright arena? Not at all. Interestingly, the AI industry has not skipped the creative and innovative production of intellectual property and especially copyrightable works. Paintings generated by AI systems are displayed in exhibitions worldwide. A scene in *Ex-Machina*, an independent thriller illustrating the power of AI, raises important questions of copyright law. In the movie, Ava, a humanoid robot, gives Caleb a drawing she has created for him as a gift to gain his love and his trust. Ava’s creative work was not a reproduction; it was an original piece of art that meets all the criteria for copyright protection, with the exception that it was created by an AI system.

23. See for example the exhibition of Trevor Paglen, A Study of Invisible Images (Sept. 8–Oct. 21, 2017 at Metro Picture, Gallery, NYC, USA), http://www.metropictures.com/exhibitions/trevor-paglen4/ [https://perma.cc/3NCW-B96F] (showing the spectacular exhibition of paintings made by one AI system—the Generator/the painter—with the sophisticated feedback of another AI system—the Discriminator/the trainer—after exchanging millions of examples between these two AI systems. This technique named Generative Adversarial Networks (GANs) uses AI algorithms by implementing two neural networks used in unsupervised machine learning contesting each other).


25. *Id.*
However, copyright works created by AI systems are no longer just
the stuff of science fiction movies. Automated machines, or AI-like
systems, are already producing original works in almost every
copyrightable medium, such as music, poetry, literature, news, and
many others. Indeed, today it is almost impossible to imagine
any kind of art developed without using at least some digital means.
Eventually, automated systems will replace both creators and
producers of numerous types of works, products, and services.

Following these latest developments, the legal challenge in the
3A era is to decide who owns the copyright once an automated,
autonomous, and advanced machine, or any form of AI system,
generates original and creative works independently of the humans
who created the AI system itself. Subsequently, it is unclear who is
entitled to the licensing rights to the product, who is entitled to the

26. Brad Merrill, It’s Happening: Robots May Be the Creative Artists of the
Future, MAKE USE OF (Dec. 17, 2014), http://www.makeuseof.com/tag/happening-
robots-may-be-the-creative-artists-future/ [https://perma.cc/8AY7-NPDA].

27. William T. Ralston, Copyright in Computer-Composed Music: HAL
whether machine-generated expression is a proper subject for copyright has been,
and probably will continue to be, a subject of continued debate.”).

28. Samuel Gibbs, Google AI Project Writes Poetry Which Could Make
Vogon Proud, THE GUARDIAN (May 17, 2016, 7:01 AM),
https://www.theguardian.com/technology/2016/may/17/googles-ai-write-poetry-
stark-dramatic-vogons [https://perma.cc/9938-ZASR] (discussing how Google,
Stanford University, and others are working on an artificial intelligent program
that will write poems after exposing the program to novels).

29. Alison Flood, Computer Programmed to Write Its Own Fables, THE
06/computer-programmed-to-write-fables-moral-storytelling-system [https://
perma.cc/6FAC-RL9A] (discussing how a computer can write new and creative
stories).

30. For more examples, see Lin Weeks, Media Law and Copyright
Implications of Automated Journalism, 4 N.Y.U. J. INT’L PROP. & ENT. L. 67, 87
(2014) (bringing examples of news created by machines and leave the questions
regarding copyright issues open); Steve Lohr, In Case You Wondered, a Real
Human Wrote This Column, N.Y. TIMES (Sept. 10, 2011), http://www.nytimes.com/
2011/09/11/business/computer-generated-articles-are-gaining-traction.html
[https://perma.cc/SSWH-M4RC].

31. Peter Kugel, Artificial Intelligence and Visual Art, 14 LEONARDO 137,

32. See Shlomit Yanisky-Ravid & Luis Antonio Velez-Hernandez,
Copyrightability of Artworks Produced by Creative Robots, Driven by Artificial
Intelligence Systems and the Originality Requirement: The Formality-Objective
Model, 19 MNN. J.L. SCI. & TECH. 1, 7-8 (arguing that robots that create unique
artworks challenge the concept of originality within copyright law and
recommending the adoption of a more formal and objective approach).
royalties, and who bears responsibility for copyright infringement and protecting rights from infringements by others (humans or otherwise).  

Another challenge entails figuring out who is entitled to the moral right, if anyone should be at all. Should this one role-player take it all or are many different stakeholders targeted?

Take, for example, The Next Rembrandt project. Approximately 350 paintings were analyzed and over 150 gigabytes of digitally rendered graphics were collected to provide the proper instruction set to produce the textures and layers necessary for The Next Rembrandt to have the painterly presence of an original work by the old master. Given the hard work involved, the number of people required, and the large monetary investment, one must wonder who bears the responsibility and accountability for these new works generated by the AI system? Assuming the owner of the works (which differs from the owner of the AI system) is the most efficient entity to impose accountability on, who should be considered the owner? And which legal rights could he or she assert?

This development re-imagines the whole concept of art and artists, and as such, it has resulted in the need to re-create the legal regime that governs art, especially artworks produced by AI systems. Intellectual property in general, and more specifically copyright laws, have become one of the most interesting, challenging, and contrasting fields demonstrating the unique features

33. See id. at 6.
36. Schlackman, supra note 5. See Amanda Levendowski, How Copyright Law Creates Biased Artificial Intelligence 3 (Mar. 16, 2017) (unpublished manuscript) (on file with author) (arguing AI is biased because AI needs vast amounts of good data, which is protected by copyright laws that only wealthy entities can afford).
37. See sources cited supra note 9.
39. For more examples, see Yanisky-Ravid & Velez-Hernandez, supra note 32, at 13-14.
of advanced technology systems. AI systems can be characterized as creative, unpredictable, independent and autonomous, rational, evolving, capable of data collection and communication, efficient and accurate, and capable of exercising free choice among alternatives.\textsuperscript{40} AI systems are also confronting the traditional concept of looking for the human author behind the creation because the AI systems themselves may "replace" humans.\textsuperscript{41}

Traditionally, intellectual property laws, and in particular copyright laws, have been based on human creators, who creatively, originally, and independently create works.\textsuperscript{42} But with the advent of AI systems, there is now the possibility that no human is behind the creative process. Instead, AI systems, as automated, autonomous, and advanced machines, create and produce works independently, unexpectedly, and creatively, with self-determination and an independent choice of what to create and how to create it. Even the wrong outcome, such as infringements of the rights of others or counterfeits, may be achieved independently, with no human to blame.\textsuperscript{43} This raises the pressing issue of whether the human or the AI system should be entitled to ownership rights. This tension between art, creation, and AI systems is no longer a future concern or the topic of a science fiction movie, which is why it merits discussion.

This Article argues that the traditional laws of copyright are inadequate to cope with the new technology involved in creating artworks. I further argue that products and services independently generated by machines challenge the justifications under IP and copyright laws, which rely on humans to create the works. Copyright laws are simply ill-equipped to accommodate this tech revolution and are therefore unlikely to survive in their current form. In order to address the change in the way art is being created, we must either rethink these laws, give them new meaning, or be ready to replace them.

This Article proposes a few alternative scenarios of the new 3A era in which AI systems are capable of generating independent works. After discussing the drawbacks of these scenarios, I propose adopting a new model based on a broader version of the Work Made

\textsuperscript{40} Id. at 7 (describing the features of AI systems).
\textsuperscript{41} Id. at 7-8.
\textsuperscript{42} CRAIG JOYCE ET AL., COPYRIGHT LAW 3 (10th ed. 2016).
\textsuperscript{43} See Crootof, supra note 11, at 1349, 1376-81 (stating the same argument in regards to autonomous weapons).
for Hire (WMFH) doctrine. I propose that AI systems should be seen as the creative employee or self-contractor creators working for or with the user—the firm, human, or other legal entity operating the AI system. On the one hand, this proposal reflects and maintains the human features of the AI system, such as independence, creativity, and intelligence. On the other hand, this proposal ensures that the employer or the user maintain the appropriate rights and duties, which include accountability for the outcomes of the AI system. This may be the best solution to the current problem of a lack of accountability for independent AI systems. Seeing the AI system through the copyright lens will provide new opportunities for imposing ownership and accountability on the known legal entities. Implementing a modified WMFH model may structure a feasible solution in the near future and impose responsibilities on the users who have affinities to the AI systems.

Part I of this Article will provide background on AI systems by discussing the different types of systems and their development over recent years. This Part will describe the features that make AI systems intelligent and creative and thus substitutes for human authors. Part II will address the question of who owns, and who takes the responsibility for, works created by AI systems. This Part presents two options. The first option is to see one of the humans or entities involved in the development of an AI system as the one who bears ownership and accountability for the outcomes of that system. The second option is to see the AI systems themselves as the digital, creative, and autonomous authors and hence the owners and the responsible entities for the works they produce. Part III will consider the various theoretical justifications for intellectual property protection. It will examine whether or not these theories lend any support or justification for these options or, alternatively, for a new option. Part IV will discuss the proposed model of AI systems, the WMFH model, and its implications for AI systems. Part V will discuss how U.S. copyright law is unprepared for the recent developments and challenges of AI systems, focusing primarily on the human authorship principle and extending copyright protection to works generated by automated creative AI systems. After determining that existing law is somewhat irrelevant and outdated, I propose that the AI WMFH model can cure not only the inapplicability of current copyright law to new and advanced AI systems, but can also cure the desire to control these systems as well.

44. See infra Part III.
as to impose accountability on a legal known entity, such as the user of AI systems. By implementing the proposed model—one that sees AI systems as independent contractors or employees of the users and amending the law to accommodate the AI WMFH model—we can control the users of these systems, thus preventing situations in which the public loses control over the unknown outcomes of the AI systems.

I. WHAT ARE ARTIFICIAL INTELLIGENCE SYSTEMS? HISTORICAL AND TECHNICAL PERSPECTIVES

Before discussing the accountability of AI systems from a copyright perspective, one must address more basic questions: How does an AI system work? What does it mean that the system can autonomously create works? I argue that in order to address questions of accountability for AI systems, one must understand what lies beneath the mysterious concept of AI systems. This Part will clarify how automated AI systems function by focusing on one type of AI system that I have named the "pattern recognition" or "similarities identifier" AI system. This understanding is a fundamental step before further discussion takes place concerning the accountability of AI systems from a copyright perspective.

A. The Different Kinds of AI Systems: The Old vs. The New and Advanced

AI algorithms vary significantly.45 A diverse array of AI algorithms has been developed to cover a wide variety of data and problems.46 This diversity of learning architectures and algorithms

45. M.I. Jordan & T.M. Mitchell, Machine Learning: Trends, Perspectives, and Prospects, 349 Sci. Mag. 255, 255 (2015) (representing candidate programs, such as decision trees, mathematical functions, and general programming languages, and searching through these programs, such as optimization algorithms with well-understood convergence guarantees and evolutionary search methods that evaluate successive generations of randomly mutated programs).

46. See generally Trevor Hastie, Robert Tibshirani & Jerome Friedman, The Elements of Statistical Learning: Data Mining, Inference, and Prediction (2d ed. 2009). See generally Kevin P. Murphy, Machine Learning: A Probabilistic Perspective (2012) (offering “a comprehensive and self-contained introduction to the field of machine learning, based on a unified, probabilistic approach” and stressing a principled, model-based approach often using language of graphical models to specify models in a concise and intuitive
reflects the diverse needs of applications capturing different kinds of mathematical structures and offering different levels of amenability to post-hoc visualization and explanation. It provides varying trade-offs between computational complexity, the amount of data, and performance.⁴⁷

Defining AI systems is not an easy task. There are as many definitions as there are types of AI systems.⁴⁸ John McCarthy, who coined the term “Artificial Intelligence,” did not provide an independent definition, while scholars Stuart Russell and Peter Norvig suggested almost ten different definitions.⁴⁹ Definitions generally vary according to the targeted subject, emphasizing different aspects of AI systems.⁵⁰ Based on its features, AI can be defined as a system capable of performing tasks that would normally require human intelligence, such as recognition, decision-making, creation, learning, evolving, and communicating.⁵¹ AI can also be


⁴⁷. Jordan & Mitchell, supra note 45, at 257 (arguing that large-scale deep learning systems have had a major effect in recent years in computer vision and speech recognition).

⁴⁸. Matthew U. Scherer, Regulating Artificial Intelligent Systems: Risks, Challenges, Competencies, and Strategies, 29 HARV. J.L. & TECH. 353, 360 (2016) (describing how, unfortunately, there does not yet appear to be any widely accepted definition of AI even among experts, whose definitions vary widely and focus on myriad of ways AI systems are interconnected with human function—the ability to learn, or consciousness and self-awareness—which are difficult to define).

⁴⁹. Stuart J. Russell & Peter Norvig, Artificial Intelligence: A Modern Approach 2-14, 1034 (3d ed. 2010) (describing definitions include thinking and acting humanly, as well as thinking and acting rationally; the definition is based on human features); see also Yanisky-Ravid & Liu, supra note 38, at 10-11 (listing different definitions of AI systems); What Is Artificial Intelligence?, John McCarthy’s HOME PAGE (Nov. 12, 2007), http://www-formal.stanford.edu/jmc/whatisai/node1.html [https://perma.cc/4MFJ3-KJAH].

⁵⁰. Russell & Norvig, supra note 49, at 5-12 (discussing different approaches to AI, such as philosophy, psychology, cognitive math).

⁵¹. Id. at 14; see also Marcus Hutter, Universal Artificial Intelligence: Sequential Decisions Based on Algorithmic Probability 125-26, 231 (W. Brauer, G. Rozenberg & A. Salomaa eds., 2005) (arguing that AI system is a form of intelligence, as a result of features like creativity, problem solving, pattern recognition, classification, learning, induction, deduction, building analogies, optimization, surviving in an environment, language processing, and knowledge). Artificial Intelligence, Oxford Dictionary, https://en.oxforddictionaries.com/definition/artificial_intelligence (last visited Jan. 15, 2018) ("The theory and development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages.").
described as an instrument that can make existing solutions more efficient by using all data that is reachable by the AI system. Various contexts, such as medical treatments or chess strategies, also lead to different definitions of AI systems.\(^52\)

Until recently, the “artificial intelligence” field was dominated by quasi-AI systems called “expert systems,” which mainly used a rules-based decision-making process.\(^53\) Put more simply, these systems were not fully autonomous and, therefore, not truly “intelligent.” They lacked the ability to learn and produce unpredictable results because they mostly acted in ways predetermined by their human-created programming.\(^54\) These systems could not evolve through learning. Consequently, they could not be truly creative because they could only “know” information that a human had placed in their “knowledge base.”\(^55\) Policy makers, nevertheless, still see these systems as the model of advanced technology. In many machines that create artworks, even though the software has some discretion in how to create the final composition, the scope of that discretion is limited to the operation of programming created by the human inventors.\(^56\) The significance of

\(^{52}\) See Yanisky-Ravid & Liu, supra note 38, at 9 (describing why AI systems are intelligent).


\(^{54}\) Arthur R. Miller, Copyright Protection for Computer Programs, Databases, and Computer-Generated Works: Is Anything New Since CONTU?, 106 HARV. L. REV. 977, 1038-39 (1993) (addressing the claim that it will eventually be impossible to assimilate computer-generated works into the copyright system because they may have no obvious human author, and concluding not only that the case law contains no persuasive objection to extending copyright protection to these works, but also that such an extension would fulfill the constitutional imperative of promoting progress in these areas).

\(^{55}\) Id. (concluding that, despite arguments that incorporating new technologies into the current copyright system will lead to overprotection, the current regime is flexible enough to address concerns).

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this from the copyright perspective is that human input is still necessary, not only for a work to be produced, but for it to have any sort of creative content. An expert system has become a tool for human creativity. 57

Even though this type of quasi-AI system still exists, it does not represent the new standard of today, which is the focus of this study. AI technology has advanced rapidly. After working for decades on creating a new type of AI system, computer researchers have recently succeeded in creating a system that can ultimately have serious ramifications for copyright law. 58 The current AI systems, functioning intelligently and using learning components autonomously, complicate the discussion. These systems are called “neural networks” because they mimic the function of human brains by absorbing and distributing their information processing capacity to groups of receptors that function like neurons; they find and create connections and similarities within the data they process. 59 Any one of these units, called “perceptrons,” can “know” whether and how much to react given a particular input; taken together, the system of these responses governs the action of the whole machine. 60 The difference between a neural network and an expert system is that the former model allows the system to “learn” through trial and error. 61 Given a goal, the system can try random outputs until it successfully performs the desired action and then repeat that response the next time it gets the same or a similar input. 62 Consequently, a neural network could, like a human, “learn” how to paint, write, or compose and generate a work whose creative content is not the result of any human intervention. At first glance, the human inventor or programmer of such a machine seems to have no more claim to a copyright in such a work than an artist’s mother has to her child’s work, or than a camera manufacturer has to the photos taken by photographers, or than a piano manufacturer has to the melody being created by the musicians while using the instrument. After all,

57. Miller, supra note 54, at 980. “A congressional committee has held ‘oversight’ hearings on the subject but has taken no action.” Id. at 980 n.7 (citing Computers and Intellectual Property: Hearings Before the Subcomm. on Courts, Intellectual Prop., and the Admin. of Justice of the House Comm. on the Judiciary, 101st Cong., 1st & 2d Sess. 1 (1989 & 1990)).
59. Id. (discussing how the developments of neural networks, which allows a system to “learn” information while training, has recently rapidly expanded).
60. Id. at 511.
61. Id.
62. Id. at 509.
neither the inventor and programmer nor the mother nor the manufacturer contributed anything to the creative process except the artist him-, her-, or itself.

Following Scherer’s evasive definition of an intelligent system—“machines that are capable of performing tasks that, if performed by a human, would be said to require intelligence”63—one may still ask, what makes the system so intelligent? In other words, how does the system really work?

B. How Do Artificial Intelligence Systems Actually Work?

The process of recognition involves the classification or identification of objects, persons, events, or situations. Research about the human brain promoted the development of one group of algorithms, AI (sometimes named by its learning capability—Machine Learning (ML)), capable of identifying objects or automatically classifying them in a similar way to what we believe and know about human perception and pattern recognition.64 One way the AI system functions, among many others, is by following the process of human perception in a few stages.65 First, the algorithm is presented with multiple examples and their correct classification (pictures of dogs, faces, signals from the body, or any other data that can be subject to patterns of similarities). Second, the algorithm breaks the data down into “tiny” electronic signals, undetectable by humans, and tries to identify hidden insights, similarities, patterns, and connections—without being explicitly programmed on where to look (“training”).66 Thus, the patterns and

63. Scherer, supra note 48, at 362-64 (arguing for a reform in tort law regulation to cover AI systems liability).
64. See Mauricio Orozco-Alzate & Germán Castellanos-Domínguez, Nearest Feature Rules and Dissimilarity Representations for Face Recognition Problems, in FACE RECOGNITION 337, 337-56 (Kresimir Delac & Mislav Grbic eds., 2007); see also Mauricio Orozco-Alzate & César Germán Castellanos-Domínguez, Comparison of the Nearest Feature Classifiers for Face Recognition, 17 MACHINE VISION & APPLICATIONS 279, 279 (2006) [hereinafter Orozco-Alzate & Castellanos-Domínguez, Comparison of the Nearest Feature Classifiers].
65. See generally Orozco-Alzate & Castellanos-Domínguez, Comparison of the Nearest Feature Classifiers, supra note 64.
similarities that the algorithm finds (or creates) may not be clear or completely understood by the programmers, trainers, or those who actively functionalize the system. In fact, “[m]any developers of AI systems now recognize that, for many applications, it can be far easier to train a system by showing it examples of desired input-output behavior than to program it manually by anticipating the desired response for all possible inputs.” Astonishingly, the trainer can be human or another AI system. Third, performance improves with experience and evolves with new data to which the system is exposed. In other words, the system is constantly evolving as a result of new data it has either autonomously found or been inputted with by data providers. For example, if we would like the AI system to create music, we would expose it to many songs or rhythms from different clusters of music, and the AI system would find interconnections unfamiliar even to the programmer. The AI system would keep evolving when exposed to new music in the future and would eventually be able to create new original music independently and without copying other works. A similar process would take place for writing new stories, painting, creating dances, programing design, programming software, detecting signals in roads, producing new drugs, and even designing AI systems.


68. See supra note 23 and accompanying text.


70. William Hochberg, When Robots Write Songs, THE ATLANTIC (Aug. 7, 2014), https://www.theatlantic.com/entertainment/archive/2014/08/computers-thats-compose/374916 [https://perma.cc/SMQ6-LCDY]. EMI is a software program that, although not intelligent, has produced aesthetically convincing new music. Intelligence seeks survival by the exercise of power over a surrounding environment. In composition, intelligence equals decision making. Every composition results from the selection of a finite set of constraints to operate on selected materials; even the most intuitive decision remains itself a decision, and consequently, a product of constraints. See Patricio da Silva, David Cope and Experiments in Musical Intelligence, SPECTRUM PRESS 1-36 (2003), http://eclass.uoa.gr/modules/document/file.php/MUSIC124/%CE%94%CE%B9%C0%B1%CE%BB%CE%AD%CE%BE%CE%B5%CE%B9%CF%82/da-silva-david-cope-and-emi.pdf [https://perma.cc/Q8KG-FQR8].

71. See also Rana el Kaliouby, This App Knows How You Feel – From the Look on Your Face, TED (2015), https://www.ted.com/talks/rana_el_kaliouby_this_
We have already been caught unprepared by the latest developments. Traditional intellectual property laws have become irrelevant for new AI systems. Other fields, such as tort and criminal law, may also be unable to solve the emerging issues. Furthermore, the developments are proceeding rapidly. We have to cope not just with existing automated AI systems that create independent, creative, and original artworks, but we also have to be ready for the next generation of AI that will be capable of unsupervised learning, a paradigm in machine-learning research that uses random methods in unexpected and dangerous ways.72

C. What Makes Artificial Intelligence Systems Creative?

Over the past two decades, AI has grown from a laboratory curiosity to a practical technology. It has emerged as an important tool in developing practical software for computer vision; speech recognition; natural language processing; and creating artworks, inventions, and other applications.73 To understand the challenges posed by AI-created artworks, it is important to understand how automated AI systems produce new and creative works, which would have been copyrightable had humans created them.74

I identify ten features of AI systems’ algorithms that are important to the discussion of accountability of AI systems based on the copyright discourse.75 AI systems can be embedded with all or some of these features, all of which are interrelated and partially overlapping. By using these ten features, AI systems are designed to independently create works of useful art.76

72. Hastie, Tibshirani & Friedman, supra note 46, at 18-22 (stressing a principled model-based approach, often using the language of graphical models to specify models in a concise and intuitive way).
73. Yanisky-Ravid & Liu, supra note 38, at 2.
74. Id.
75. See Hallevy, supra note 11, at 175 (discussing five different attributes that one would expect an intelligent entity to have—communication, internal knowledge, external knowledge, goal-driven behavior, creativity); see also Yanisky-Ravid & Velez-Hernandez, supra note 32, at 2 (proposing the adoption of the objective approach to copyright, which enables copyrightability of works produced by creative robots).
Generating Rembrandt

(1) Creativity. AI systems are capable of more than just copying other works from accessible sources. They operate as creative devices capable of creating entirely new and original works. 77 This feature is crucial in the intellectual property realm and in particular when discussing copyrightable artworks.

(2) Autonomous and independent. 78 A device is independent or autonomous if it can accomplish a high-level task on its own, without external intervention. 79 Such systems may work independently, with minimum human intervention. 80 In this way, the AI systems are able to replace authors and other creators, to autonomously produce new artworks. 81

(3) Unpredictable and new results. AI systems are based on algorithms capable of incorporating random input, resulting in unpredictable routes to the optimal solution, and hence creating unpredictable works (from the software programmers’ point of view). 82 An AI system can draw a new painting, which, unlike copying an existing work, is new and unpredictable. After being exposed to colors, shapes, and techniques that are in the public

referred to as “soft” AI systems, where the AI uses computational intelligence to analyze relevant data and attempt to solve a specific problem.

77. See Hutter, supra note 51, at 2 (mentioning creativity as one of the main features of AI); see also Scherer, supra note 48, at 364-65 (describing how AI systems detected breast cancer prognosis by checking cells of supportive tissues through a chess player creative move); Hallevy, supra note 11, at 176 (arguing that an AI system must be creative by finding alternative ways to solve problems).

78. Croofo, supra note 19, at 1854-63 (describing the difficulty of deciding on a definition for autonomous weapons and suggesting a definition based on the AI (weapon) system being able (1) to come to conclusions (2) derived from gathered information and (3) is capable of independently selecting actions (selecting and engaging targets)).


81. See generally Yanisky-Ravid & Velez-Hernandez, supra note 32.

domain, the system can “break” the data into digital components, recompose them, and create new and unexpected artworks.\(^3\)

(4) Capable of data collection and communication with outside data. A significant feature of an AI system is that it can actively “search” for outside data. For example, e-David might autonomously take pictures of the outside world and draw them into new, original, and creative works. Communication is thus a necessary feature of an AI system.\(^4\)

(5) Learning capability. Based on the data it has gathered, an AI system can continue to process data by receiving feedback and improving the results.\(^5\)

(6) Evolving. As a result of the new input and the AI system’s capacity for continuous processing, the system might constantly find new patterns and similarities and hence change the outcomes. In this sense, the system is constantly evolving. This feature is at the core of AI and data science.\(^6\)

(7) Rational-intelligent system. An intelligent system is one with a rational mechanism capable of perceiving data and deciding which activities or omissions would maximize its probabilities of success in achieving a certain goal.\(^7\)

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\(^3\) See Lawrence Hunter, *Molecular Biology for Computer Scientists*, in *ARTIFICIAL INTELLIGENCE AND MOLECULAR BIOLOGY* 1, 12-15 (Lawrence Hunter ed., 1993) (describing how similarities enable the composition of cells by its parts as membranes, proteins and other parts by AI systems).

\(^4\) See generally id.; see also Deussen et al., *supra* note 1, at 1 (discussing how, as part of the Rembrandt project, the robot had a camera that kept on photographing); Matthew Field, *Facebook Shuts Down a Robots After They Invented Their Own Language*, THE TELEGRAPH (Aug. 1, 2017, 10:21 AM), http://www.telegraph.co.uk/technology/2017/08/01/facebook-shuts-robots-invent-language/ [https://perma.cc/8FRE-67VZ] (the chatbots were meant to learn how to negotiate by mimicking human trading and bartering; however, when the social network paired two of the programs, nicknamed Alice and Bob, to trade against each other, they started to develop their own bizarre form of communication that the researchers could not understand).

\(^5\) *RUSSELL & NORVIG*, *supra* note 49, at 928-69 (explaining the process of perception of AI systems, in which the systems are being connected to the raw world, including image formation, color, edge detection, texture, segmentation of images, objects recognition, reconstructing the 3D world, and motions).


\(^7\) *RUSSELL & NORVIG*, *supra* note 49, at 3-4, 27, 34-56, 973-85 (describing AI systems as being capable of taking “rational” actions based on environmental input); see also HUTTER, *supra* note 51, at 2, 125-26, 231 (discussing how AI systems can solve problems by using features such as learning, induction,
(8) Efficiency. AI systems are capable of accurately, efficiently, and rapidly processing vast volumes of data—well beyond the ability of the human brain.88

(9) “Free choice.” AI systems are able to choose between alternatives in order to arrive at the best outcome.89 E-David, for example, chooses between lights, colors, and shapes while drawing.90

(10) Goal oriented. AI systems function according to goals such as creating, drawing, writing stories or news, or composing melodies or poems.91

AI systems that create artworks incorporate, to a certain level, all of these ten features. Once we understand these features, and that the AI systems create outcomes independently and autonomously, we realize that the rights available under copyright laws cannot be afforded only to human authors, and thus, the traditional copyright laws may be inapplicable.92 As technology advances, AI systems have become increasingly capable of mimicking part of the functions that we once considered intrinsic to the human mind’s creativity. AI
deduction, building analogies and optimization, as well as using knowledge); DAVID L. POOLE & ALAN K. MACKWORTH, ARTIFICIAL INTELLIGENCE: FOUNDATION OF COMPUTATIONAL AGENTS 71, 283-334, 597-611 (2010) (describing AI systems as agents of cognitive skills such as: problem solving, searching for data, learning and evolving, rational planning, and more).

88. GEORGE F. LUGER, ARTIFICIAL INTELLIGENCE: STRUCTURES AND STRATEGIES FOR COMPLEX PROBLEM SOLVING 26 (6th ed. 2016) (arguing that AI can refer to all programming techniques trying to solve problems more efficiently than algorithmic solutions and can operate close to the intelligence of human behavior); Woodrow Hartzog et al., Inefficienctly Automated Law Enforcement, 2015 MICH. ST. L. REV. 1763, 1765-67, 1793-95 (arguing that automated machines are more efficient than human but this is a risky factor and that law enforcement of automated machine should preserve inefficiency for ethical reasons).

89. Scherer, supra note 48, at 361-62 (arguing that even when AI systems act rationally, they can still pose public risk—killing efficiently, for example).

90. See supra note 1 and accompanying text.

91. See supra note 66.

92. RUSSELL & NORVIG, supra note 49, at 4-7. The discourse about AI systems includes controversial arguments about the philosophy regarding AI systems. For example, can machines perceive and understand (i.e., can they pass the Chinese test)? Are human intelligence and machine intelligence the same (i.e., can they pass the Turing test)? What is intelligence? What does it mean that a machine think or act rationally; can a machine be self-aware? Can a machine be original or creative? Id. However, one must also be aware of the “Eliza Effect.” See ROBERT TRAPPL, PAOLO PETTA & SABINE PAYR, EMOTIONS IN HUMAN ARTIFACTS 353 (Robert Trapp, Paolo Petta & Sabine Payr eds., 2002) (describing the “Eliza Effect” as the tendency for people to treat machines or programs that are responsive as having more intelligence than they really do, as having human traits, and finding analogies between human behaviors and computer behaviors).
systems will be able to improve specific human skills, not only in terms of accuracy or capacity to process vast amounts of data, but also in terms of creativity, autonomy, novelty, and other features necessary for establishing copyrightable works. Moreover, autonomous AI systems will be able to develop new artworks without significant guidance or instructions from humans.  

Generally, the human or entity behind the process is at the forefront of legal discussions. This Article calls for a different solution, one from an alternate point of view—the intellectual property and copyright laws at stake in this area. The inquiry begins with considering whether AI systems may own the products they produce. While this Article agrees that understanding the human-like features of AI may lead to the conclusion that an artwork being generated by an AI system might belong to the AI system, unlike other scholars, this Article argues that the traditional copyright laws may be irrelevant and inapplicable to these situations and that either modifications or other legal tools should replace them. The next Part will begin by addressing the discourse of ownership and accountability for AI systems producing original works.

II. ACCOUNTABILITY FOR AUTONOMOUS AI SYSTEMS—THE COPYRIGHT PERSPECTIVE

AI systems are commonly used to generate works for personal or industrial goals. Who should benefit from the works being produced by the AI systems? Who should bear responsibility when something goes wrong? In other words, who is entitled to the rights? Who should be accountable when AI systems infringe on third parties' rights or counterfeit existing works? Should it be the programmers, the trainers, the users, or, perhaps, the AI systems themselves?

93. See Ryan Abbott, I Think, Therefore I Invent: Creative Computers and the Future of Patent Law, 57 B.C. L. REV. 1079, 1080 (2016) (stating that AI systems and computers are already generating patentable inventions and arguing that AI should receive patent rights in its inventions); see also Lohr, supra note 76 (discussing how AI systems will be able to able to operate without significant guidance or instruction and to develop new products and processes).

94. See Abbott, supra note 93, at 1080-81 (stating that AI systems own the IP rights).
A. Accountability Matters

Advanced technologies, such as AI systems, are forcing us as a society to face new ethical and legal challenges and to rethink basic concepts such as ownership and accountability. Scholars have not yet deeply discussed the notion of copyright accountability for infringements involving AI systems, even though AI systems are themselves copyrightable.

According to scholars such as Hanoch Dagan, Michael Heller, and others, ownership of property rights (applicable also to intellectual property rights) is not merely a question of benefits arising from the right to exclude others from enjoying, using, or licensing the objects. It is also a question of accountability for using it with consideration for other humans’ and entities’ rights. Moreover, ownership may also entail rights of others to enjoy the property. This is also true when discussing AI systems. Adopting this accountability for property rights approach of Dagan and Heller into the discussion on intellectual property rights, in regard to works generated by AI systems, allows us to bind together the benefits and accountabilities of ownership.

The main risk we face today and in the near future is that of losing control over the operation of AI systems. Moreover, we risk losing control not only of one AI system, but also two or more AI systems acting in concert “behind our backs.” Therefore, I have decided to focus on accountability for works generated by AI systems as AI systems threaten all social and legal regimes.


96. See Schlackman, supra note 5.


99. ARIEL EZRACHI & MAURICE E. STUCKE, VIRTUAL COMPETITION: THE PROMISE AND PERILS OF THE ALGORITHM-DRIVEN ECONOMY 56-82, 85-144, 147-202 (2016) (describing how consumers reap many benefits from online shopping and how the sophisticated algorithms behind online retail are changing the nature of market competition, including in negative ways. The authors describe one danger as
Professor Jack Balkin describes several problems of AI systems. The first problem entails the distribution of rights and responsibilities among human beings when non-human agents create benefits, like artistic works, or cause harms, like physical injuries. The difficulty arises from the fact that the behavior of robotic and AI systems is “emergent,” meaning their actions may be unpredictable or unconstrained by human expectations. Robotics and AI thus feature emergent behaviors that escape human planning and expectations. Balkin further cautions that we should not consider all features of a technology to be essential without first considering how the technology is used in society. It would thus be unhelpful to codify certain features as “essential” because they may in reality be transient features arising from current uses and social trends.

B. AI Systems as Independent Legal Entities: The Personhood and Consciousness Approach vs. The Firm Approach

Many scholars have recently adopted the idea that autonomy, creativity, and spontaneous evolution of AI systems leads to the recognition of AI systems (and robot embedded systems) as independent legal entities entitled to legal and commercial rights and duties. In other words, scholars argue that the AI system is an

being computers colluding with one another. They describe a second danger as behavioral discrimination based on companies tracking and profiling consumers to get them to buy goods at the highest price they are willing to pay. The authors posit a third danger as the “frenemy” relationship between super-platforms and independent app developers. They caution that data-driven monopolies dictate the flow of personal data and determine who gets to exploit potential buyers; Crootof, supra note 19, at 1842-43 (describing the threat of tort war over autonomous weapons).

101. See id. at 46, 48-49.
102. See id. at 45-46.
103. Id. at 46 (arguing that robotics and AI raise the “substitution effect,” meaning people will substitute robots and AI agents for living things but only in certain ways and only for certain purposes. Balkin argues this substitution is likely to be incomplete, contextual, unstable, and often opportunistic).
104. See id. at 45.
105. Id. (contending that innovation in technology is not just about tools and techniques, but also economic, social and legal relations, which in turn affects how technologies may change).
106. Samir Chopra & Laurence F. White, A Legal Theory for Autonomous Artificial Agents 1-3 (2011) (arguing for the legal personhood of an artificial agent that will soon be independent, and discussing the artificial agent as
autonomous legal entity that may, and should, be responsible for the outcome of its own actions or omissions. This conclusion may be based on two alternative premises. First, the defining features of AI systems—intelligence, rationality, independence, and the like—are similar to those of humans; therefore, they should be treated as independent entities with legal rights and duties. Alternatively, AI systems are analogous to firms, which are separate, non-human legal entities capable of possessing legal rights, benefits, and responsibilities.

1. The Personhood and Consciousness Approach to AI Systems

Can robots be human persons and hence entitled to legal rights (and duties)? Can Ava, one of the robots in the movie Ex Machina, be considered the owner of the copyright in her painting and have the duty to avoid infringing other humans’ or robots’ rights? Or can only humans be persons?

“Artificial intelligence already exhibits many human characteristics. Given our history of denying rights to certain humans, we should recognize that robots are [like] people and have human rights.” This statement by Harvard Law Professor Glenn

capable of having “knowledge” and decision-making ability); Abbott, supra note 93, at 1080 (arguing that artificial intelligence systems should be considered inventors for the purposes of patent law). See also John Frank Weaver, Robots Are People Too: How Siri, Google Car, and Artificial Intelligence Will Force Us to Change Our Laws 1, 3-4 (2014) (arguing that robots are independent entities).


108. Ex Machina, supra note 24.

109. Glenn Cohen, Should We Grant AI Moral and Legal Personhood?, ARTIFICIAL BRAIN (Sept. 24, 2016), http://artificialbrain.xyz/should-we-grant-ai-moral-and-legal-personhood [https://perma.cc/ELL3-CQRK]; see also Big Think, A.I. Ethics: Should We Grant Them Moral and Legal Personhood?, YOUTUBE (Sept. 23, 2016), https://www.youtube.com/watch?v=gycbO5AkF2M [https://perma.cc/6QAR-2W4N] (discussing the distinction between people and human beings, and suggesting granting more rights to AI systems so that we do not err and find ourselves on the wrong side of history even though, at the heart of the matter, the idea scares a lot of people).
Cohen reflects not only his claim that AI already does much of what human beings can do, but also the reality that the digital software of AI systems, which mimics human intelligence, is already far superior to our own. Ongoing developments in natural language and emotion detection suggest that AI will continue its encroachment on the domain of human abilities.

The personhood approach to AI systems sees the systems as capable of experiencing consciousness. The goal of the artificial consciousness approach is to explore the cognitive abilities in robots. Igor Aleksander suggested more than a dozen principles for artificial consciousness, including conscious and unconscious states, learning, memorizing, prediction, self-awareness, representation of meaning, language, will, instinct, and emotion. The aim of artificial consciousness is to define whether and how these and other aspects of consciousness can be synthesized in an engineered artifact such as a digital computer.

By virtue of modeling itself, AI systems have sensations and are able to make decisions freely. This can be regarded as having consciousness. The ability to produce consciousness—the ability to experience things, which is found in humans as well as in AI systems—means the ability to recognize, allocate, organize, and recall cognitive sources. Consciousness occurs when we have a symbol for things. We do not know what taste or smell means for any individual human, but we can recognize it by connecting it to an existing symbol. This may also be true for AI systems. This approach of computationalism sees the human brain, essentially, as a

12. See generally Igor Aleksander, Machine Consciousness, in BLACKWELL COMPANION TO CONSCIOUSNESS (Max Velmans & Susan Schneider eds., 2007).
13. Drew McDermott, Artificial Intelligence and Consciousness, in THE CAMBRIDGE HANDBOOK OF CONSCIOUSNESS 117, 140-150 (Philip David Zelazo, Morris Moscovitch & Evan Thompson eds., 2007) (claiming that tests such as the Turing test and the Chinese box test are not necessarily relevant to the computational theory of consciousness. In Turing’s test a person tries to distinguish a computer from a person by carrying on typed conversations with the computer. If the person who judges the system thinks the computer is human about 50% of the time, then the computer passes the test and is considered less distinguishable from a human. The Chinese Box test concerns situations where a machine uses inputs to create reasonable and logical outcomes, but does not “understand” how or why those outcomes are the correct responses).
14. Id. at 118.
computer.115 Once we establish the concept of an impersonal level of meaning in brains and computers, we can introduce the idea of a self-model, a device that a robot or a person could use to answer questions about how it interacts with the world.116 This idea was introduced by Minsky almost forty years ago, and has since been explored by others.117 Other scholars claim that “consciousness is a property of complex systems that have a particular ‘cause-effect’ repertoire.”118 They interact with the world in ways similar to the way the brain does. “If you were to build a computer that has the same circuitry as the brain, this computer would also have consciousness associated with it. . . . However, the same is not true for digital simulations.”119

This approach sees the AI system as a person and thus as capable of bearing rights and duties. An alternative approach imposes rights and duties on AI systems from a different angle—that of the firm approach.

2. The Corporate Approach

The corporation as a legal entity can serve as a legal basis for imposing rights and duties on AI systems. Corporations are legal entities subject to a legal regime, including corporate, labor, and even criminal law.120 Therefore, the question relating to AI entities has become: Does the growing intelligence of AI entities subject them, as any other legal entity, to legal social control?121

115. Id.
116. See generally id. at 117-150.
117. See MARVIN L. MINSKY, SEMANTIC INFORMATION PROCESSING 1 (Marvin Minsky ed., 1968) (discussing multiple experiments that explored intelligent machines nearly four decades ago); Aaron Sloman & Ron Chrisley, Virtual Machines and Consciousness, 10 J. CONSCIOUSNESS STUD. 1, 18 (2003).
119. Id.
121. See generally Bruce G. Buchanan & Thomas E. Headrick, Some Speculation About Artificial Intelligence and Legal Reasoning, 23 STAN. L. REV. 40 (1970); E. Donald Elliott, Holmes and Evolution: Legal Process as Artificial
There are several consequences to this approach. In Europe, for example, there is a strong movement arguing that robots should pay taxes. Scholars have also proposed that AI systems should be held liable for any criminal offenses committed by the systems.

If assessed through the lens of copyright laws, this approach would result in AI systems’ ownership of the intellectual property products and processes they generate. Under this view, the AI system is the protagonist: when it acts autonomously, it is the true creator or producer of the products. In this case, the owner might be the AI system itself. Section 201(a) of the Copyright Act states that “[c]opyright in a work protected under this title vests initially in the author[.]” The U.S. Supreme Court has explained that, as a general rule, “the author is the party who actually creates the work.” Scholars have also endorsed this position, arguing that the AI system

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122. Michaela Georgina Lexer & Luisa Scarcella, The Effects of Artificial Intelligence on Labor Markets — A Critical Analysis of Solution Models from a Tax Law and Social Security Law Perspective (working manuscript) (on file with the authors) (arguing that robots should pay taxes and describing the European practical approach supporting this idea); see also Chris Weller, Bill Gates Says Robots That Take Your Job Should Pay Taxes, BUS. INSIDER (Feb. 17, 2017, 9:57 AM), http://www.businessinsider.com/bill-gates-robots-pay-taxes-2017-2 [https://perma.cc/3DJ-PKKN] (describing an interview with Bill Gates where he argued that robot tax could finance jobs taking care of elderly people or working with kids in schools, for which needs are unmet and to which humans are particularly well suited).

123. See generally HALLEVY, supra note 11 (developing a general and legally sophisticated theory of the criminal liability for AI and robotics).


125. See 17 U.S.C § 201(a) (2012) (ownership of copyright).

should be accountable for the outcome of its own actions or omissions.¹²⁷

Ownership, however, might be a result of a commercial contract and not of copyright laws.¹²⁸ This view of AI systems ultimately considers the AI system to be the owner of its works. Scholars, however, have criticized this view on the grounds that it is an untenable proposition.¹²⁹ Moreover, the length of protection is designed after the life of the creator.¹³⁰ Moral rights, including the entitlement of the author to credit as well as the author’s control over changes and modifications to the work, remain unresolved when AI systems generate works.

C. Behind Every Robot There Is a Person: Looking for the Human(s) Behind the Machine

Arthur R. Miller said, “[B]ehind every robot there is a good person.”¹³¹ This phrase, which represents the traditional approach to AI in the U.S. and Europe, supports the default view of programmers as the creators entitled to ownership of the works created by the AI systems they have programmed.¹³² Under this view, ownership and

¹²⁷. Abbott, supra note 93, at 1080 (arguing that computers are already generating patentable subject matters qualifying as inventors and overtaking human inventors as primary source of new discoveries and inventions and therefore, AI should receive patent rights in their inventions).
¹²⁸. Id. at 1115-17.
¹²⁹. See Annemarie Bridy, Coding Creativity: Copyright and the Artificially Intelligent Author, 5 STAN. TECH. L. REV. 1, 26 (2012); Pamela Samuelson, Allocating Ownership Rights in Computer-Generated Works, 47 U. PITT. L. REV. 1185, 1226-28 (1985) (arguing that rights should accru to the user of the program as the best practical solution); Robert Yu, The Machine Author: What Level of Copyright Is Appropriate for Fully Independent Computer-Generated Works?, 165 U. PA. L. REV. 1245, 1263-65 (the author suggests the contribution—rights paradox: from a social policy standpoint, entitling the rights to independent computer-generated works is wrong). But see Fischer, supra note 124 (arguing that the future of copyright may someday be in the hands of non-humans).
¹³¹. Miller, supra note 54, at 1045.
accountability for works generated by AI systems are given to the creators of the AI systems. According to this view, the ownership of works generated by AI systems and, hence, the accountability for these works “belong” to the humans (and the entities working on their behalf) involved in the process of developing the AI systems. The human behind the program—usually the programmer—has become an important figure in other fields of law that involve harm and damages resulting from AI systems, such as criminal law or tort law.

This traditional approach is reflected in various European Union laws. For example, the British Copyright, Designs, and Patents Act of 1988 takes the approach that copyright protection is proper for persons responsible for a computer’s creation. The Act states: “In this Part ‘author’, in relation to a work, means the person who creates it.” Even the broader approach regarding computers generating artworks is looking for the person behind the creation process. Article 9(3) of the Act says: “(3) In the case of a literary, dramatic, musical or artistic work which is computer-generated, the author shall be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken.”

The U.S. also holds this attitude, as reflected by the National Commission on New Technological Uses of Copyrighted Works (CONTU), which was created to advise Congress on whether then-emerging technologies necessitated a change in copyright laws. CONTU concluded that computers were, at least at that time, merely tools for facilitating human creativity. According to this approach,
Entities, such as employers and firms, are thus entitled to copyright ownership as the transferees of those programmers.\textsuperscript{141}

This Article criticizes this traditional approach and calls on policymakers to revisit copyright laws in light of already-existing advanced technology and the latest developments in AI systems.\textsuperscript{142} I argue that, inevitably, current copyright law will not be able to cope with AI systems’ productivity and creativity.\textsuperscript{143} One reason is that too many stakeholders are involved in the process of creating the AI system itself, with no one acting as the main contributor.\textsuperscript{144} This point of view holds the contributors involved in the process as owners of the AI system, and thus the ones responsible for works generated by the AI system.\textsuperscript{145}

1. Who Could the Owner Be?

The candidates for ownership of, and subsequent accountability for, AI works vary from one case to another.\textsuperscript{146} However, entitlement to these rights depends on each candidate’s direct or indirect contributions to the AI system.\textsuperscript{147} I claim that due to the multi-player model, most of the time, the candidates who are involved in the development and manufacture of the AI system do not meet the threshold of authorship.\textsuperscript{148} The programming and algorithms used by robots and AI systems may be the work of many hands and may employ generative technologies that allow innovation at multiple

\begin{thebibliography}{99}
\bibitem{140} Id. at 44-45.
\bibitem{141} Copyright Ownership: Who Owns What?, supra note 10.
\bibitem{142} See Fischer, supra note 124 (noting that non-human systems will created copyrightable works).
\bibitem{143} See id.
\bibitem{144} See Yanisky-Ravid & Liu, supra note 38, at 20 (suggesting that multiple stakeholders in inventions created by AI systems disrupts the traditional patent process because there is no single inventor).
\bibitem{145} See id. (discussing inventions being produced by AI systems).
\bibitem{146} See id. (discussing ownership in the context of responsibility for infringement).
\bibitem{147} See id. In the case of The Next Rembrandt, one entity included all the players.
\bibitem{148} See id. (describing the multi-player model in regard to AI systems generating inventions).
\end{thebibliography}
layers. These features of robotics and AI enhance unpredictability and complicate causal responsibility for what robots and AI systems do. In addition to the AI system software programmers, there are (too) many players and stakeholders that contribute to the process of creating, designing, developing and producing the AI systems themselves, but not the product autonomously produced by the AI systems. Among others are the data suppliers, trainers, feedback suppliers, holders of the AI system, system operators, employers or investors, the public, and the government. The large number of players significantly weakens each player’s individual contribution and thus the bond between the software programmers and the products produced by the AI systems. There are many options for who should own the works created by AI systems and, indeed, one role may overlap with another. The following discussion will focus on some of these players.

First, there are the programmers of the AI system. Second, there are the trainers or the data providers, who may be among the most important figures shaping the final functions of the AI systems. Third, there are the feedback providers, or individuals whose task is to provide the AI system with a signal that allows it to distinguish right from wrong and sometimes to select the best result from many random, meaningless results. Fourth, there is the AI system’s owner, whether that system is hardware or software. The owner might be the corporation, as the owner of the hardware (robot) or the software, or it might be the buyer of the AI systems (or robots). Fifth, there is the operator of the AI system, or the person who activates the system and enables its creation (although, it should be noted, some advanced AI systems can operate by themselves without a human operator). If one applies a practical approach, the operator could also be the manufacturer. Sixth, there is the buyer of the

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149. See Balkin, supra note 100, at 53 (noting that AI has innovation at multiple layers).
150. See id. (discussing causal responsibility of AI based on multiple hands working on programming and algorithms).
151. See Abbott, supra note 93, at 1082 (arguing “a computer’s owner should be the default assignee of any invention, both because this is most consistent with the rules governing ownership of property, and because it would most incentivize innovation”); Weeks, supra note 30, at 93.
152. See Samuelson, supra note 129, at 1205 (discussing the role of the programmer and the programmer’s claims to ownership).
product.\textsuperscript{154} Seventh, the government or governmental entities could be entitled to ownership of products as a default or as a representative of the public. Eighth, the public could also be one of the candidates for ownership in cases of public domain policy.\textsuperscript{155} Furthermore, different paradigms of ownership can exist regarding the suggested owners of works created by AI systems. In regard to these options, ownership could be sole ownership by one player or co-ownership by multiple stakeholders.

I argue that none of the players are entitled to ownership of the works generated by AI systems nor are they accountable for these works. Because of the features of AI systems—creative, autonomous, unpredictable, and evolving—none of the players can directly claim ownership and accountability of the works generated by AI systems. Furthermore, there are too many players involved in the process, and none of the players are the main contributor to the creation of the work. For example, although data and feedback providers are crucial to the process, they cannot be considered as owners because they are not authors. Thus, only one figure—the programmer—remains as a candidate for ownership and accountability.\textsuperscript{156}

2. Distinguishing Between the Rights over Artificial Intelligence Software; the Rights of Works Produced by Automated AI Systems; and the Rights of Programmers

For traditional artworks, the creators (or, in some cases, their employers or main contractors) are entitled to copyright over the artworks they produce, subject to several conditions.\textsuperscript{157} As discussed above, developing the next generation of creative AI systems involves many participants, including software programmers and the

\textsuperscript{154} See Samuelson, \textit{supra} note 129, at 1207-08.


\textsuperscript{156} See Samuelson, \textit{supra} note 129, at 1205 (discussing the role of the programmer and the programmer’s claims to ownership).

\textsuperscript{157} See \textit{Copyright Ownership: Who Owns What?}, \textit{supra} note 10.
companies for which they are working or those who commissioned the algorithm that generated the work, trainers that provide the data, and many other contributors.\textsuperscript{158} The work itself, however, might be created digitally by an AI system embedded in a computer. I argue that the programmers of the software may be entitled to the copyright of the program, but may not necessarily have the rights for future products created by the AI system. I support this claim both conceptually and legally.

Conceptually, I argue that AI systems reflect a discipline focused on three inter-related components that are similar to the “human” traits of intelligence. First, unlike traditional software, the similarities and interconnections that the AI systems identify or find, process, remember, use, and implement may, in many cases, be unknown to the programmer. Second, in contrast to fixed and framed software, the AI system evolves and develops as a result of new input and new results. Third, the AI system’s works are significantly unpredictable because the system constantly and automatically evolves through its experiences.\textsuperscript{159} In short, because of their intelligence components, AI systems are not only more accurate, of higher quality, and faster at processing details, but are also capable of creating unpredictable, original, and creative artworks and other products—all of which are unknown to their programmers. Therefore, these works created by AI systems could have been copyrightable under U.S. copyright laws.\textsuperscript{160}

Legally, the rights of an AI software program and the rights of artworks can be distinguished from one another. Software is usually protected not only by copyright laws, but also by the Constitution of the United States,\textsuperscript{161} which grants exclusive rights to “Authors and Inventors” in their respective “Writings and Discoveries.”\textsuperscript{162} However, the discourse about software ownership is distinct from the question of ownership of products (and services) produced by AI systems. One question that remains is whether the works produced by AI systems should or could be entitled to copyright protection. Can AI-generated works be regarded as proper “works of authorship” pursuant to § 102 of the Copyright Act by virtue of AI’s

\textsuperscript{158} See supra Part I (listing the AI participants).

\textsuperscript{159} See, e.g., Bridy, supra note 129, at 20 (explaining requirements for copyrighting); see also supra note 66.

\textsuperscript{160} See, e.g., Bridy, supra note 129, at 20 (explaining requirements for copyrighting).

\textsuperscript{161} See U.S. CONST. art. I, § 8, cl. 8.

\textsuperscript{162} See id.
sufficient nexus to human creativity?\textsuperscript{163} Should this protection (if it does exist) also be applied to inventions produced by AI systems?\textsuperscript{164} On the one hand, I do not challenge the programmers’ entitlement to copyright ownership in the software they develop, but on the other hand, I argue that the entitlement to the software does not automatically result in ownership over the products created by AI systems.\textsuperscript{165} I further conclude that the software programmers are not the owners of the works produced by AI systems, just as the owner of a brush or a camera does not hold the rights over the painting or the photo produced by those objects.

The distinction between programming the AI software itself and authoring the works the automated AI machine creates can be better understood by thinking about a piano and the author of the melodies created by using the piano. Imagine a melody that is created by Z playing a piano that was programed and designed by A, manufactured by B, and owned by C. Is the piano (or the ownership of the piano) as the musical instrument, serving as the platform for the creation, relevant to the question of ownership of the melody?\textsuperscript{166} I argue that neither the person who produced (or invented) the piano nor the factory that produced it are the owners of the melody created by a third entity (whether a human or an AI system).

Another relevant example would be the well-known selfie taken by a monkey with someone else’s camera.\textsuperscript{167} In this example, a monkey on the Indonesian island of Sulawesi took a photograph using a camera owned by David Slater, a nature photographer.\textsuperscript{168} But


\textsuperscript{164} See § 107 (under Copyright’s “fair use” doctrine, others can reproduce the copyrighted inventions for “criticism, comment, news reporting, teaching . . . scholarship, or research”); Thomas Caswell & Kimberly Van Amburg, Copyright Protection on the Internet, in E-COPYRIGHT LAW HANDBOOK 7-1, 7-8 (Laura Lee Stapleton ed., 2003) (arguing that all who independently create inventions might be entitled to patent rights in order to protect it); Donald S. Chisum, The Patentability of Algorithms, 47 U. PITT. L. REV. 959, 1015-16 (1986).

\textsuperscript{165} See RICHARD STIM, GETTING PERMISSION 194 (6th ed. 2016); see also Copyright Ownership: Who Owns What?, supra note 10.

\textsuperscript{166} But see Pamela Samuelson, Benson Revisited: The Case Against Patent Protection for Algorithms and Other Computer Program-Related Inventions, 39 EMORY L.J. 1025, 1148 (1990) (arguing that the role of the software programmer is crucial).

\textsuperscript{167} Camila Domonoske, Monkey Can’t Own Copyright to His Selfie, Federal Judge Says, NPR (Jan. 7, 2016), http://www.npr.org/sections/thetwo-way/2016/01/07/462245189/federal-judge-says-monkey-cant-own-copyright-to-his-selfie [https://perma.cc/5N7J-YKZ5].

\textsuperscript{168} See id.
Slater didn’t trip the shutter—the monkey did. The People for the Ethical Treatment of Animals (PETA) filed a lawsuit on behalf of the monkey, arguing that Naruto, the monkey, owns the copyright, which PETA offered to administer on the monkey’s behalf. Since the dispute began, “[t]he U.S. Copyright Office . . . has specifically listed a photograph taken by a monkey as an example of an item that cannot be copyrighted. Slater, meanwhile, has a British copyright for the photo, which he argues should be honored worldwide.” He has asked the U.S. court to dismiss PETA’s claim. “Imagining a monkey as the copyright ‘author’ in Title 17 of the United States Code is a farcical journey Dr. Seuss might have written,” according to Slater’s lawyer.

I argue that the producer or the seller of the instrument that served as the platform for producing new works (i.e., the camera, piano, or paintbrush)—like the software programmers or the companies in charge of producing the platform—are unsuitable candidates for being the creators or stakeholders of the works generated by the platform. The owner of the work is the entity that generated the work. I argue that the rights to the AI systems’ algorithms, which can be owned by the human creator, are distinct from the rights to the artworks the systems produce.

The code itself will have copyright protection. One could make the claim that the output generated from the computer program is a derivative work product of the underlying copyrighted program, which may also provide copyright protection to whomever holds a copyright in the algorithm. Thus, the holder of the copyright for the algorithm would hold the copyright for the output too. However, in 1973, the Supreme Court interpreted the authorship requirement of the Copyright Act to include “any physical rendering of the fruits of

169. See id.
170. See id.
171. See id.
172. Id. (describing how, according to Slater’s lawyer, “[t]he only pertinent fact in this case is that Plaintiff is a monkey suing for copyright infringement”).
173. Id.
creative intellectual or aesthetic labor." The Court concluded that, in most cases, a computer requires a significant amount of input from a human user in order to generate artistic output.

I argue that when the computer produces most of the output independently and creatively, it is less likely that the output might be considered to be the original source of the work and not as derivative work. I do not oppose the programmer’s entitlement to ownership of the AI system itself. However, I do contest the human behind the machine’s point of view and the idea that this entitlement automatically results in the programmer owning the products and processes created by the AI system. I claim that my conclusion influences other cases beyond the intellectual property arena. This brings me to another scenario targeting the AI system itself as being responsible for its own works.

3. Other Possible Accountable Entities

In other legal regimes, scholars have suggested strict liability as a solution for addressing the damages caused by AI systems, without blaming either the AI system or its programmers. Strict liability is often employed when it would be too complicated to prove guilt, negligence, or a causal link between the defendant’s failure to exercise due care and the damages that occurred. I argue that, due to the autonomous, creative, and unpredictable nature of AI systems, using the traditional strict liability rule on individuals would be unjust and inefficient.

Another option is to target the government or governmental body as being accountable. In some fields, such as international

177. See id.
178. See infra Section II.C (discussing the human behind the machine point of view and why this Article is critical of it).
179. See infra Subsection II.C.3 (discussing accountability implications of the idea that an AI creator does not necessarily own the AI’s output).
180. See Vladeck, supra note 134, at 146.
181. See, e.g., id. ("My proposal is to construct a system of strict liability, completely uncoupled from notions of fault for this select group of cases. A strict liability regime cannot be based here on the argument that the vehicles are ‘ultrahazardous’ or ‘unreasonably risky’ for the simple reason that diver-less vehicles are likely to be far less hazardous or risky than the products they replace."). See also Croofof, supra note 11, at 1394-95 (arguing that autonomous weapons are designed to kill and their independent actions break the chain of causality, thereby making the strict liability rule applicable).
182. See Scherer, supra note 48, at 394.
law and autonomous weapons, the state is in the best position, at a practical level, to ensure compliance with the law (e.g., that autonomous weapons systems are designed and employed in compliance with international law). States also have deep enough pockets to pay damages to the victims, in addition to being involved in developing, purchasing and using AI systems. According to the proposed model, states as employers or users would bear responsibility for AI systems not because they are states per se, but rather for the reasons mentioned above, due to their status as users. I argue that, at the national level, unlike the international level, responsibility could be forced. There may also be third party accountability. In these solutions, accountability is not necessarily connected to ownership because the works generated by AI systems can be public domain, and copyrights laws may thus not be applicable at all.

I think that, under the copyright regime, these solutions do not efficiently serve the goal of imposing accountability on the player who should—along with enjoying the benefits of using AI systems—also take responsibility for such systems. I have discussed two alternative points of view. First, the AI systems themselves could be the owners and the ones responsible for their works. Second, the humans behind the machine (i.e., those involved in the process of developing the AI systems) could be the owners and the ones responsible for works generated by AI systems. Since neither of these perspectives seems applicable and justified to the questions of ownership and accountability, I now turn to addressing these issues under a theoretical justification framework.

183. See Crootof, supra note 11, at 1390.
184. See, e.g., Scherer, supra note 48, at 357, 394 (“This article will advance the discussion regarding the feasibility and pitfalls of government regulation of AI by examining these issues and explaining why there are, nevertheless, some potential paths to effective AI regulation.”). See also Crootof, supra note 11, at 1389-93 (arguing that states are reluctant to take responsibility regarding autonomous weapons).
185. See Crootof, supra note 11, at 1390.
186. See, e.g., Vladeck, supra note 134, at 148.
187. Yanisky-Ravid & Liu, supra note 38, at 18-21 (suggesting that inventions produced by AI systems will not be protected by the patent law).
188. See supra Part II.
189. See supra Section II.B.
190. See supra Section II.C.
III. THEORETICAL JUSTIFICATIONS

Many intuitively feel that AI systems, sophisticated robots, and machines should not be able to have rights and duties; nor should they hold copyrights. This intuition has its roots in strong theoretical and legal arguments.\textsuperscript{191} The following discussion will explain the difficulties of seeing AI systems as totally independent from human control. The discourse concerning the justifications for intellectual property focuses on three main substantive theories: law and economics, which examines intellectual property rules according to their cumulative efficiency and ability to promote total welfare; personality theory, which focuses on the personality of the creators; and Lockean labor theory, which justifies the property interest as the fruits of the creator’s labor.\textsuperscript{192} Today, U.S. intellectual property law is based primarily on the law and economics utilitarianism approach\textsuperscript{193} and, in part, John Locke’s theory of labor.\textsuperscript{194} By contrast, the civil law approach to copyright protection justifies property rights by the importance of the creators’ personality in the works (personality approach), as well as by the ownership of the fruits stemming from the person’s body and soul (Locke’s approach or labor approach).\textsuperscript{195}


\textsuperscript{192} See id. at 4-9 (describing the three major approaches to theoretical justifications to intellectual property laws and arguing that distributive justice theory, although discussed by some scholars, is wrongfully considered to be neither a substantial nor a major justification of intellectual property; it is rather seen as an exception or postscript to the mainstream theoretical justifications). See also William Fisher, Theories of Intellectual Property, in NEW ESSAYS IN THE LEGAL AND POLITICAL THEORY OF PROPERTY 168, 169-75 (Stephen R. Munzer ed., 2001) (describing various theories underlying intellectual property); Justin Hughes, The Philosophy of Intellectual Property, 77 GEO. L.J. 287, 288-89 (1988) (discussing the different justifications to intellectual property laws).

\textsuperscript{193} DONALD S. CHISUM ET AL., PRINCIPLES OF PATENT LAW 50 (3d ed. 2004) (“[T]he predominant justification for American intellectual property law has been ... utilitarianism.”).

\textsuperscript{194} Peter M. Kohlhepp, When the Invention Is an Inventor: Revitalizing Patentable Subject Matter to Exclude Unpredictable Processes, 93 MINN. L. REV. 779, 781-82 (2008).

\textsuperscript{195} See Jeannie C. Fromer, Expressive Incentives in Intellectual Property, 98 VA. L. REV. 1745, 1746 (2012) (discussing the personality and labor approach to intellectual property); Yanisky-Ravid, supra note 34, at 118.
A. Law & Economics

The U.S. system of copyright laws was established to protect original authors and creators by giving them exclusive rights and control over the works they generate. 196 The U.S. Constitution grants Congress the power “To promote 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.” 197 The main justification for establishing a copyright regime—giving stakeholders property rights, which are broader than the rights established by the contract regime—is based on the theory of law and economics. In short, providing stakeholders property rights promotes the creation of useful art. 198 This, in turn, motivates the creators (or their transferees) to create, expose, develop, and distribute their works, enriching the total welfare of the public. 199 The Copyright Clause, by securing exclusive rights to authors and inventors, aims to “promote the . . . science and the useful Arts.” 200

This Section will focus on copyright law’s purpose of promoting the creation of artistic works by establishing an incentive structure through which authors are given exclusive control over the copyright works. 201 Often, however, as a result of a special contract or relationship with the author or creator, other entities are entitled to the copyrights as direct transferees of the actual human creator. 202

Unlike humans, AI systems do not need incentives to create artworks. 203 It’s true that programmers need to be incentivized to

197.  Id.
198.  Id.
199.  Richard A. Posner, Intellectual Property: The Law and Economics Approach, 19 J. ECON. PERSP. 57, 60 (2005) (explaining how the society made an agreement with the authors to grant them exclusive rights for limited duration and then the rights become public domain).
202.  SHLOMIT YANISKY-RAVID, INTELLECTUAL PROPERTY IN THE WORKPLACE: THEORETICAL AND COMPARATIVE PERSPECTIVES (2013) (explaining the incentives to create as being part of the law and economics justification as well as other justifications for intellectual property); Pamela Samuelson, Mapping the Digital Public Domain: Threats and Opportunities, 66 L. & CONTEMP. PROBS. 147, 156 (2003).
203.  See supra note 32 and accompanying text.
create and develop advanced, automated AI systems, but programmers, or the entities for which they are working, do hold copyrights over the software.\textsuperscript{204} Once we understand the nature of incentives, we understand that they are nevertheless needed to (1) promote the development of AI systems' programming and (2) encourage entities to control the functions of AI systems and to take responsibility for their outcomes. In these cases, ownership might be the most efficient tool for gaining this incentive.\textsuperscript{205}

However, we do not need to incentivize robots or AI systems to function. Incentivizing AI systems to generate works they are already internally programmed to create is pointless. My argument is rooted in understanding that automated AI systems not only evolve independently after the program has been completed, but also evolve in ways that are unpredictable, even to the human programmers who created them. This conclusion is further drawn from the fact that the connection and similarities that AI systems draw are neither made nor known to the programmers.\textsuperscript{206} We can compare this system to human perception via the human brain. The programmers implemented or created the neurons and synapses, but not the electronic messages that will be created in the future and their products.\textsuperscript{207} The programmers thus create the systems, but cannot predict the works themselves.\textsuperscript{208} Consequently, the creativity of an AI system is not a result of the creativity of the programmers; at the very least, the causal relationship is not close enough to justify ownership (as a tool to incentivize a specific function) in the new works generated by AI machines.\textsuperscript{209} The human programmer is only ancillary to the creation of the artworks.

\textsuperscript{204} See Yanisky-Ravid & Liu, supra note 38, at 15.
\textsuperscript{205} Garrett Hardin, The Tragedy of the Commons, SCIENCE, 1243, 1243-48 (1968) (arguing that ownership is efficient to retain property).
\textsuperscript{206} See Yanisky-Ravid & Liu, supra note 38, at 2.
\textsuperscript{207} Julien Vitay, Helge Ú. Dinkelbach & Fred H. Hamker, ANNArchy: A Code Generation Approach to Neural Simulations on Parallel Hardware, FRONTIERS NEUROINFORMATICS, July 31, 2015, at 1 (discussing a notable exception, the Brian simulator, “which allows the user to completely define the neuron and synapse models using a simple mathematical description of the corresponding equations [and] uses a code generation approach to transform these descriptions into executable code, [which in turn] allow[s] the user to implement any kind of neuron or synapse model”).
\textsuperscript{209} See Yanisky-Ravid & Liu, supra note 38, at 18-19.
In addition, and as mentioned above, programmers are already incentivized to make creative AI systems because they receive copyright protection for the program itself.\textsuperscript{210} Furthermore, because copyright protection does not exist in a vacuum, it must be balanced against competing rights. It is important that the legal regime incentivizes the right people and entities, and ultimately promotes behavior that will increase total welfare.\textsuperscript{211} The legal regime has succeeded if programmers who create AI systems are incentivized to do so either through intellectual property protection or patent protection for the machine, copyright protection for its computer code, or both. But if we understand that these legal tools incentivize the AI system or the programmers to create works of authorship, when they are not in fact doing so, the system is failing because it is inefficient. It should be obvious that machines need no incentive to work. In other words, assuming that machines capable of creating unique art already exist, in all likelihood there would be no need to incentivize the creation of these works. Providing AI systems with wires, electronic devices, Internet connection, and materials should be enough.

If, as the law and economics approach contends, copyright is meant to be an incentive structure, and machines do not need to be incentivized to create, then copyrighting the machines’ works provides no benefit but does hamper the public’s ability to enjoy the work.\textsuperscript{212} Thus, giving AI systems rights to the works they create would seemingly operate to take them out of the sphere of copyright altogether.\textsuperscript{213} Indeed, the public’s or the end-users’ interest in appreciating and enjoying works of art should be balanced against the private interest in maintaining exclusive, monopolistic control.\textsuperscript{214} Since human creators need to be incentivized to create, copyright used to be the optimal state of affairs for both parties because, without it, much fewer works of art would be created for the public.

\textsuperscript{210} See id. at 15.


\textsuperscript{212} See Yanisky-Ravid & Velez-Hernandez, supra note 32, at 7; see also Yanisky-Ravid & Liu, supra note 38, at 29-30 (arguing that patent laws are not applicable in the 3A era of AI).

\textsuperscript{213} See Yanisky-Ravid & Liu, supra note 38, at 8.

to enjoy.\textsuperscript{215} But in the non-hypothetical future in which machines can create pleasing works of art without limits, I argue that the existing balance would be thrown off. In the case of AI systems, I argue, there wouldn’t be any risk of a lack of artistic creation even if copyright law did not exist to protect such creations.\textsuperscript{216} Such a reality could, furthermore, pose an existential threat to the entire copyright regime.\textsuperscript{217}

Assuming that many people consume works of authorship for their artistic merit, I argue it is likely that machine-produced works could not serve as a perfect replacement for human-authored works. Instead, the market for human-authored works of art would coexist with a market for works "authored" by machines.\textsuperscript{218} Since human artists would still need to be compensated, copyright law would persist, at least until machines capable of imparting deeper meaning to their work were created (if such a thing is indeed possible).\textsuperscript{219} In addition to being more likely in the near future, this model is perhaps more palatable to policymakers and the general public.

Thus, denying copyright protection for works of authorship created by machines is unlikely to greatly change the existing system. However, as the world becomes more electronically based and cyber-focused (a trend we can already observe), it won’t take long until machines, using AI systems, can copy any artistic work precisely (including the signature).\textsuperscript{220} This will ultimately destroy the


\textsuperscript{216} See Moral Rights, ARTS L. CTR. AUSTL., http://www.artslaw.com.au/info-sheets/info-sheet/moral-rights [https://perma.cc/8YNQ-67PA] (last visited Jan. 15, 2018). Moral rights protect the personal relationship between a creator and his or her work even if the creator no longer owns the work or the copyright in the work. Moral rights concern the creator’s right to be properly attributed or credited and the protection of his or her work from derogatory treatment. See id.

\textsuperscript{217} See Yanisky-Ravid & Velez-Hernandez, supra note 32, at 19. See generally Tang, supra note 34 (explaining how the involvement of digital tools in creation leads to seeing moral right as trademark).

\textsuperscript{218} See Samuelson, supra note 129; see also Samuelson, supra note 166, at 1148 (arguing that the role of the software programmer is crucial).


incentive to produce these works of art, which, in turn, will eventually destroy the copyright regime.221

One possibility is that the AI systems might require electronic licenses, drawn up by electronic agreements,222 to use their products, as well as electronic contracts creating electronic sanctions for breaching the license (e.g., electronically terminating the infringing works).223 However, these methods would not need copyright laws, as the theoretical rights and their enforcement would no longer use the traditional court system.224 Although AI systems might be able to detect infringements easier and in more efficient ways, implementing copyright laws for the purpose of excluding other entities is not the right solution. Doing so would most likely lead to the loss of control and lack of accountability and responsibility that humans have over property and intellectual property rights.225

The thought of machines taking over and nullifying copyright law is not just far-fetched; it would also require a tremendous, uncomfortable shift in the legal landscape. After confronting the challenges posed by advanced technology and AI systems that autonomously generate works, it would be a stretch—even in the existing case of a sophisticated neural network AI capable of learning and creating independently—to imagine an AI system that could understand and use the copyright regime as its incentive. Furthermore, it seems non-feasible that AI systems will be capable in the near future of suing in court for ownership rights.226 I contend that, while preparing and formulating future laws, although theoretically and digitally feasible, it is not likely that AI systems will acquire ownership and sell or give licenses to use their products in the near future. I further claim that even when AI systems will be qualified to possess their own rights and duties, a more theoretically

221. See id. at 927.
222. See Scholz, supra note 17, at 102.
223. See id. at 110.
224. See id. at 120-21.
225. Yanisky-Ravid & Kwan, supra note 220, at 924 (discussing the threat and hazards of 3D printings).
226. The decision earlier this month in the case of Halo v. Pulse will give owners of U.S. patents a greater likelihood of being awarded enhanced damages. See Frederic Henschel & Kevin M. Littman, U.S. Supreme Court Strengthens Patents (for a Change), SCIENCE BUS. (June 23, 2016), http://sciencebusiness.net/news/79833/us-supreme-court-strengthens-patents-(for-a-change) [https://perma.cc/UUX3-3WUP] (arguing this will raise the value of patents and increase the incentive to sue for infringement).
justified solution will be to legally impose these rights and duties on other parties as the users.

Instead, I would like to suggest an alternative model that, on the one hand, acknowledges and reflects the perception of the 3A era of automated, autonomous, and advanced AI systems, and, on the other hand, imposes control and accountability on traditional legal entities. This model would consider AI systems as employees (or contractors) that work for the humans or firms that legally operate them. This model is similar to the notion of an “employed creator” under the WMFH doctrine—i.e., an employee who creates new works in the scope of their employment.

The owner of a copyright has the exclusive right and may authorize others to reproduce the work, prepare derivative works based on the work, distribute copies of the work, or show the work publicly. Having those rights also means that the copyright holder has the right to stop others from infringing on those rights. The problem for a non-human, such as an AI system, is that it is unable to enforce those rights. Although it is theoretically feasible, a computer cannot sue another computer in court over the unauthorized copying of its work. Furthermore, a computer is incapable of transferring those rights to others who might be able to sue on its behalf. Even from a public policy perspective, the main purpose of granting copyright protection is to stimulate artistic creation by ensuring that nobody can steal the fruits of an artist’s labor, making it less risky to create original works of authorship. Since computers cannot be “encouraged” to create new works, the usual public policy justifications underlying copyright law are inapplicable.

Some would argue that the WMFH model isn’t any different from a film director and a cameraman taking particular shots. The cameraman is a creative person, but the director will hold the right to the shot. AI systems act similarly to the creative cameraman. In fact, in Goldstein v. California, the Supreme Court interpreted the authorship requirement to include “any physical rendering of the fruits of creative intellectual or aesthetic labor.”227 The Court reasoned that, in most cases, in order for a computer to generate any kind of artistic work, it would require significant input from an author or user.228 Another way to think about it is this: when an artist uses Adobe Illustrator to create a unique graphic design, nobody can deny that the designs were the product of the designer’s creative

228. See id.
mind. However, creating a song by pressing a button on a random number music generator isn’t going to receive copyright protection on the resulting musical composition. But if the user provides some input that affects the song being generated, such as choosing the instruments, deciding on the key or tempo, or choosing a musical style for the composition, then the final musical composition may be the result of creative input and therefore copyrightable.

The law and economics theory, discussed above, is the dominant justification for copyright protection in Anglo-American law. However, in continental Europe, where copyright protection originated with an eye towards protecting great, independent artists, a different approach prevails, as addressed in the next Section.

B. Personality and Labor Theoretical Justifications

In civil law jurisdictions, the dominant justifications for copyright are the personality and labor Lockean theories. The personality theory posits that copyright protection is a right that accrues to the author in possession, reflection, and development of his personality on the assets. It recognizes and appreciates the author’s accomplishments and the element of his or her personality and individuality that the work contains, rather than simply an incentive to create more. A related justification is the labor theory, which stipulates that copyright protection exists due to the hard work and dedication that authors contribute to their works. Just as AI does not need to be incentivized, AI systems do not have any need for recognition of the works reflecting their personality. Nevertheless, I argue that copyright protection could still accrue to the creators of such machines.

Developing AI systems capable of creating works of authorship is a great accomplishment. Therefore, it may make sense to grant

229. See Posner, supra note 199.
231. See Hughes, supra note 230, at 83.
232. See Margaret Jane Radin, Property and Personhood, 34 Stan. L. Rev. 957, 986 (1982) (arguing that the more personal one’s property is, the more nonfungible and nontransferable it becomes); see also Yanisky-Ravid, supra note 191, at 9.
233. Yanisky-Ravid, supra note 191, at 4-5.
234. See supra Part III.
programmers the copyrights of works created by AI systems to recognize the magnitude of that accomplishment. Still, and even more strongly than the analysis of the incentive structure endemic to the law and economic theory, we have no other option than to recognize that when a creator is a machine, robot, or AI system, the personality theory and the labor theory are irrelevant. We therefore cannot justify the existence of copyright laws when they are applied to this new reality. Just as we do not need to incentivize programmers to create works of authorship in which they do not have any creative input, we do not need to recognize a programmer for an artistic accomplishment that is not his or her own. Therefore, there is little support for granting copyright protection to human programmers for the works of their AI systems under this theory either. However, when addressing the Work Made for Hire doctrine, we can rely partially on the labor approach to the investment of the firm in the works produced by the AI systems. 235

IV. THE MODEL OF AI—WORK MADE FOR HIRE (WMFH)

One major motivation for the proposed model is to unveil the clandestine interests behind the phenomenon of AI systems. Following Professor Jack Balkin, who has explored the “laws of robotics” and the legal and policy principles that should govern how human beings use robots, algorithms, and AI systems, 236 I claim that we should view AI systems as working for the users, and hence the users should bear accountability for the systems’ production, in addition to the benefits thereof. Balkin argues that there exists a false belief of a little person inside each robot or program who has either good or bad intentions. 237 According to Balkin, the substitution effect refers to the multiple effects on social power and social relations that arise from the fact that robots, AI systems, and algorithms act as substitutes for human beings and operate as


236. See Balkin, supra note 21, at 14.

237. See id. at 13-14.
special-purpose people. For Balkin, the most important issues in the laws of robotics require an understanding of how human beings exercise power over other human beings mediated through new technologies. The “three laws of robotics” should therefore be laws directed at human beings and human organizations, not at the robots or AI systems. According to Professor Balkin, those basic laws that regulate and control robots and AI systems include the following: (1) operators of robots, algorithms, and AI systems are information fiduciaries who have special duties of good faith and fair dealing toward their end-users, clients, and customers; (2) privately owned businesses who are not information fiduciaries nevertheless have duties toward the general public. I further argue that identifying the many players behind AI systems is the key factor for imposing accountability for the works generated by AI systems. Following Balkin’s argument, I propose a new model that might delegitimize the use of new technologies as a means for both public and private organizations to govern large populations. In order to unveil these hidden powers, I propose a model that sees AI systems as independent workers or employees of the users.

A. Rethinking the WMFH Legal Doctrine in the Case of AI Systems

The WMFH doctrine gives employers, or the individual commissioning the work, the copyright in works of authorship created by the employees or subcontractors. The WMFH rule is thus an exception to the general principle of copyright ownership. Usually, the copyright becomes the property of the author once the creation meets the demands of the law. However, if a work is made

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238. See id. at 14.

239. See id. at 16.

240. See id. at 19-23 (arguing that those who use robots, algorithms, and AI systems have a public duty to avoid creating nuisances. Thus, for example, businesses may not leverage asymmetries of information, monitoring capacity, and computational power to externalize the costs of their activities onto the general public).


242. § 102 ("Subject Matter of Copyright (a) Copyright protection subsists, in accordance with this title, in original works of authorship fixed in any tangible medium of expression, now known or later developed, from which they can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device. Works of authorship include the following categories: (1)
for hire, the employer or the one who commissioned the work would be considered the author, even if an employee or subcontractor actually created the work. The employer could be a firm, an organization, or an individual.243

Section 101 of the Copyright Act defines a “work made for hire” in two parts:

(1) a work prepared by an employee within the scope of his or her employment; or

(2) a work specially ordered or commissioned for use as a contribution to a collective work, as a part of a motion picture or other audiovisual work, as a translation, as a supplementary work, as a compilation, as an instructional text, as a test, as answer material for a test, or as an atlas, if the parties expressly agree in a written instrument signed by them that the work shall be considered a work made for hire.244

This section should be read together with Section 201 of the same Act:

(a) Initial Ownership.

Copyright in a work protected under this title vests initially in the author or authors of the work. The authors of a joint work are coowners of copyright in the work.

(b) Works Made for Hire.

In the case of a work made for hire, 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.245

The Supreme Court’s decision in Community for Creative Non-Violence v. Reed addressed the “work made for hire” definition.246

literary works; (2) musical works, including any accompanying words; (3) dramatic works, including any accompanying music; (4) pantomimes and choreographic works; (5) pictorial, graphic, and sculptural works; (6) motion pictures and other audiovisual works; (7) sound recordings; and (8) architectural works. (b) In no case does copyright protection for an original work of authorship extend to any idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied in such work.”).

243. See Works Made for Hire, supra note 241, at 2 (“If a work is made for hire, the employer or other person for whom the work was prepared is the initial owner of the copyright unless both parties involved have signed a written agreement to the contrary.”).
244. § 101.
245. § 201.
246. Cmty. for Creative Non-Violence, 490 U.S. at 737.
“The Court held that one must first ascertain whether a work was prepared by an employee or an independent contractor.”247 “If an employee created the work . . . the work will generally be considered a work made for hire.”248 In this context, however, the term employee differs from its common understanding.249 “For copyright purposes, ‘employee’ means an employee under the general common law of agency.”250 “An independent contractor,” on the other hand, “is someone who is not an employee under the general common law of agency.”251 “If an independent contractor created the work, and the work was specially ordered or commissioned,” the second part of the WMFH definition applies.252 “A work created by an independent contractor can be a work made for hire only if (a) it falls within one of the nine categories of works listed . . . above, and (b) there is a written agreement between the parties specifying that the work is a work made for hire.”253

To help determine who is an employee, the Court identified factors that establish an “employer–employee” relationship, as defined by agency law.254 The factors fall into three broad categories:

(1) control by the employer over the work (i.e., the employer determines how the work is done, has the work done at the employer’s location, and provides the . . . means to create the work); (2) control by the employer over the employee (i.e., the employer controls the employee’s [time] in creating the work, has the right to have the employee perform other assignments . . . or has the right to hire the employee’s assistants); and (3) status and conduct of the employer (i.e., the employer is in business to produce such works [or] provides the employee with benefits).255

“These factors are not exhaustive[,] [and] [t]he Court left unclear which of these factors must be present in order to establish the employment relationship under the work-for-hire definition.”256

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247. See id. at 731; Works Made for Hire, supra note 241, at 2.
248. See Cmty. for Creative Non-Violence, 490 U.S. at 732; see also Works Made for Hire, supra note 241, at 2.
249. See Works Made for Hire, supra note 241, at 2.
250. See id.
251. See id.
252. See id.
253. See id.
254. See id.
Examples of works made in an [employer–employee] relationship include: [a] software program created by a staff programmer within the scope of his or her duties at a software firm[,] [a] newspaper article written by a staff journalist for publication in the newspaper that employs the journalist . . . ; [a] musical arrangement written for a music company by a salaried arranger on the company's staff[,] [and] [a] sound recording created by the salaried staff engineers of a record company.257

Why it is important to identify WMFH? There are important consequences that stem from the WMFH doctrine, including that the term and duration of copyright protection differ, there are no moral rights, and the termination provisions of the law do not apply.258

B. WMFH and Works Generated by AI Systems

This doctrine is an important and major exception to the general rule that copyright protection properly rests with the one or the many who actually created the work.259 It is therefore important for cases of AI systems generating works.260 The Copyright Act named the employer and main contractor as the authors of the work even though they have not actually created the work.261 The policy rationale for this doctrine is to incentivize the employer or primary contractor at whose instance, direction, use, commercial purposes or risk the work is prepared, as well as to give them control over the commercial force regarding the work.262 The idea and the outcome is that the employer or primary contractor, rather than the creator (who is an employee or sub-contractor), has the responsibility for and the accountability over the actions of the creator in regards to, inter alia,

257. See Works Made for Hire, supra note 241, at 2.

258. §§ 101, 106A, 302(a), 302(c), 304(a), 203(a). For example, WMFH copyright protection of a work made for hire is ninety-five years from the date of publication or 120 years from the date of creation, whichever expires first, whereas a work not made for hire is ordinarily protected by copyright for the life of the author plus seventy years. See id. § 302.

259. See § 201(a).


261. See § 201(b).

infringements of the law and harm caused by the work. This rule may be altered or changed by a contract among the relevant parties.

I claim that this doctrine seems to fit well conceptually with the problem of works created by AI systems. Although the AI system itself would be the proximate creator of the work, others, such as the user of the AI system at whose instance the work is ultimately created, will be entitled to ownership as well as accountability in regard to the works. But in the case of AI systems, who is the employer or main contractor? The answer may be complicated and may vary according to different circumstances. In many cases, it will be the user that operates and provides directions to the machine in the form of instructing it what to paint, write about, etc. The answer may also be the user that takes the financial risk of buying or hiring the machine and supplying it with energy and materials in the hope of producing a marketable final product. From a policy and practical standpoint, it makes sense to incentivize people or firms as well as other entities to use creative AI systems to create works of authorship because doing so will most efficiently promote the proliferation of the devices and the works they produce.

The justification for giving the entitlement of ownership to economic entities is rooted in the incentive theory as well. This legally sanctioned monopoly allows the users to use, sell, or distribute the works more efficiently, as well as to be accountable for avoiding infringements and counterfeits. The latter is perhaps a better argument for giving copyright protection in the works of advanced, autonomous AI systems to their users. To avoid AI systems getting out of control, we have to legally nominate the most efficient entity to control them. The incentive for imposing property accountability on the users as employers or main contractors and seeing AI systems as employees or subcontractors is not just intuitive, it is also justified by theoretical and practical reasoning. The user can also be the owner of the AI system when the owner is the more efficient entity for controlling these works.

264. See Yanisky-Ravid, supra note 235, at 3.
This model also solves the inherent problem of multiple players being involved in the development of AI systems. The tragedy of multiple stakeholders is that they can block the development and commercial use of the AI system.\footnote{267} Moreover, the model would encourage further investment in the AI industry and likely promote science and technology, thus promoting the goals of the Constitution and promoting total welfare. With respect to AI systems, the innovation provided by this model does not just grant rights and benefits, such as ownership of the products, it also imposes responsibility and thus assists in solving the problem of the lack of accountability for the outcomes of AI systems. This mechanism might also contribute to the responsibility and accountability for the use of AI systems in other regimes, such as criminal law and tort law. One could argue that these fields are based on a different justification and, therefore, are not influenced by the copyright regime. However, I claim that, because AI systems are copyrightable based on their software, it may be justified and useful to implement this model within the intellectual property realm as it intersects with other legal fields, such as tort and criminal law, that address the same challenges, including lack of accountability for damages generated by autonomous car accidents caused by AI systems.

Under this model, we see the AI systems as creative employees or subcontractors (just like humans) working for these entities. The model works for both firms and humans: The autonomous AI system, just like WMFH-employed creators, is the creative author of a work. When an AI system acts autonomously, it can be compared to an independent contractor and thus be shielded under WMFH doctrine.

C. The Legal Implications of the AI WMFH Model

Who owns the copyright in regard to the works generated by an AI system? Who is responsible for any damage the works may cause? Who would be the most efficient player in distributing and selling the works? Take, for example, The Next Rembrandt project. Unlike a traditional computer program, The Next Rembrandt project had teams of people working for several years to bring it to the public. What happens to those individuals? Do all of the people involved with the project have copyright ownership of its artworks?

Are they all, or perhaps only some of them, entitled to joint copyright ownership? Trying to determine the scope of ownership amongst the team members would be extremely difficult. In fact, this multi-stakeholders challenge was one of the practical and theoretical issues that led to the original WMFH doctrine.

On some level, the AI WMFH doctrine can solve this problem. It holds that the person or entity that orders or initiates the work is entitled to the copyright, instead of the authors themselves. Based on this theory, before the AI system was generated, the employer or the main contractor may be entitled to all of the rights. However, does this mean that the employer or the main contractor, under certain circumstances, is also entitled to the right over the paintings generated by the AI system? If this were the case, for example, the entity that operates The Next Rembrandt project, ING, would receive the full copyright over the paintings being generated by the system, as soon as certain legal requirements were met. Thus, it is possible that there is a copyright in The Next Rembrandt and that the copyright is held by ING. Copyright protection is only important if ING wants to enforce it, and applying the WMFH doctrine in a case like this would have some drawbacks.

D. The Drawbacks of Adopting the WMFH Model in Cases of AI Systems

Many questions arise in implementing the existing WMFH doctrine. Are the works generated by AI systems copyrightable in the first place? If these works are not copyrightable, can the employer hold copyright through the WMFH doctrine? What happens if the works generated by AI systems are not included in the nine-item list

268. The requirements being: (1) A written agreement signed by both parties (2) that specifically states that the work is a “work-made-for-hire” and (3) the work must be one of these nine types: a contribution to a collective work, part of a motion picture or other audiovisual work; a translation; a supplementary work; a compilation; an instructional text; a test; material for a test; or an atlas. Generally, in order for the WMFH doctrine to apply when many individuals are involved in producing a work, the entity entitled to copyright ownership must sign a contract with each team member attesting that each team member’s contribution is a work made for hire. The type of work must also be included in the list of products covered by the WMFH doctrine. An argument could be made that The Next Rembrandt might fall under the category of “compilation,” or perhaps a “contribution to a collective work.” Additionally, it is very likely that ING, with potential copyright claims to the work, had to affirmatively relinquish any claims prior to starting work on the project.
of the copyright law? What happens when autonomous AI systems create a work outside the scope of “employment”? What would be the legal outcome in another jurisdiction, such as France, where the creative employees retain the rights themselves? What would be the outcome when the AI system generates products or actions that are not copyrightable?

The Supreme Court has suggested that the WMFH doctrine is very limited in scope—namely, it applies only to instances where Congress has expressed a clear and explicit intent to override section 102.269 Therefore, implementing the doctrine would require new legislation with a broader scope of the matters and the rights involved. By comparison, denying copyright to works produced by advanced AI systems would probably require judicial clarification, as such a result is theoretically compatible with the current legal framework.

Furthermore, the AI context is less germane to the Work Made for Hire analysis than a corporation, like a publishing company or record label. When addressing the works produced by AI systems, there are no human creators behind such production.270 The employed creators produce the protected works within the scope of their employment.271 These employees work for the employer mainly for the purpose of creating a work, with major contributions, guidelines, and involvement from the employer.272 The policy rationale for giving rights to these types of corporations is to justify the (often large) upfront costs entailed in developing artistic talent and slowly producing a work while balancing the needs of the artist with the needs of the corporation’s marketing strategy. However, the costs accruing to a user of creative AI would be much lower. For example, while a record company needs to scout and find talent, create a “brand” strategy for a musical act, allow the artist or artists to write and record music over several months, operate a music studio, and employ sound engineers to bring everything together in a

270. See supra Section I.A.
finished song, the user of the kind of AI system discussed in this Article needs only buy the machine and supply it with materials. The machine can then create works non-stop, without needing to be compensated. Because the costs of undertaking the activity are relatively low, it may not make sense to create a new legal framework just to incentivize owners of creative AI systems. Therefore, some academics and practitioners argue that it might make more sense to adopt the personhood and rights of AI systems even if the “price” is simply refusing copyright protection.\(^\text{273}\)

However, the model that I propose is broader than the WMFH doctrine and establishes a spectrum that might include all works produced by AI systems.

E. The Advantages of the Proposed AI WMFH Model

In this model, users are understood to be the owners of works generated by AI systems. As such, they are also considered to be responsible for such works. In this section, I discuss several benefits of this model, especially when compared to the alternatives.

First, the model reflects an understanding of the human-like features of AI systems, instead of ignoring them as current legal regimes do when they look for the human behind the system. The model refers to an AI system as both creative and independent and imposes the same set of rules and principles that regulate creative works produced by humans acting as self-contractors or during employment by others.

Second, the model is justified by the law and economics theory, which incentivizes the efficient use of the creative, autonomous AI systems and enhances the commercial force of the works generated by them.

Third, and most importantly, instead of implementing scenario A or B, which would hold programmers and other players to be the owners of the AI systems and entrust them with responsibility for the works generated, this model solves the accountability gap. The AI WMFH model is the best solution for the problem posed by the accountability gap because it places responsibility on the users as employers or main contractors of the AI systems. Seeing AI systems

\(^\text{273}\) See generally Cohen, supra note 2; Yanisky-Ravid & Liu, supra note 38 (suggesting an alternative model to patent law in case of AI systems generating inventions).
as employed creators or independent contractors allows the legal system to control AI systems’ outcomes.

Fourth, instead of totally nullifying copyright laws as irrelevant and outdated, the AI WMFH model amends and accommodates parts of the existing doctrine. As a result, it better maintains legal and social stability.

Fifth, imposing accountability on users will encourage the careful operation of AI systems to avoid damages, infringements, and counterfeiting of third parties’ rights. The model identifies ownership as the main benefit of accountability. In this way, the model ensures the AI systems do not get out of control.

The users can be firms, individuals, states, governmental bodies, and more. The model is flexible. The accountability can be changed according to the specific circumstances. For example, damages caused by AI systems and actions or omissions of AI systems can be causally linked to other stockholders.

Implementing the AI WMFH model will require new legislation or adjusting the traditional laws, as current copyright laws are insufficient to deal with the advanced technology revolution. The model requires a fundamentally new component: recognition that works generated by AI systems are copyrightable even though they are not created by humans.

The United States is not the only nation to have considered the effects that AI will have on copyright laws. Whereas U.S. law has faced some impediments towards establishing copyright protection for works created by AI, other countries have already taken preemptive steps towards clarifying this issue. For example, the United Kingdom took a stance with its 1988 Copyright, Designs, and Patent Act. The Act declares that human authorship is irrelevant to whether a work is copyrightable and that copyright in a work not authored by a human lies with the person who is responsible for the computer’s creation. Around the same time, the European Community considered the issue and applied an approach similar to CONTU’s. According to the European Community, since computers

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274. Robert C. Bird & Lucille M. Ponte, Protecting Moral Rights in the United States and the United Kingdom: Challenges and Opportunities Under the U.K.’s New Performances Regulations, 24 B.U. Int’l L.J. 213, 238 (2006); Miller, supra note 54, at 1052 (arguing that existing case law contains no persuasive objection to extending copyright protection to works created without a human author and that such an extension would fulfill the constitutional imperative of promoting progress in these areas).

275. Miller, supra note 54, at 1052.
are currently the tool of human authors, the default approach to computer-generated works is to apply copyright protection.\textsuperscript{276} Although Europe had the added, thorny issue of moral rights, the result was ultimately the same as that adopted in the United States.\textsuperscript{277} Recently, the European approach has shifted more toward recognizing robots and AI systems as autonomous entities. One of the best examples of this approach is the draft proposal to impose tax payments on robots.\textsuperscript{278} The World Intellectual Property Organization (WIPO) also discussed works produced by AI systems during the drafting of a proposed model copyright law and ultimately adopted a similar position as the European Community.\textsuperscript{279} More recently, Australian law has considered this issue in the context of deciding whether or not a copyrightable work must have a human author.\textsuperscript{280} Several Australian judgments seem to indicate that human authorship is required.\textsuperscript{281}

V. U.S. COPYRIGHT LAW IS UNPREPARED TO DEAL WITH AI SYSTEMS

A. Humans vs. AI Systems as Creators

The most significant hurdle to obtaining copyright control and accountability for a work generated by an AI system is the principle of human authorship.\textsuperscript{282} It is not clear whether the U.S. Copyright

\begin{itemize}
\item \textsuperscript{276} Id. at 1050.
\item \textsuperscript{277} Id. at 1049-50.
\item \textsuperscript{278} See Weller, supra note 122.
\item \textsuperscript{279} Michael L. Doane, \textit{TRIPS and International Intellectual Property in an Age of Advancing Technology}, 9 AM. U. J. INT’L L. & POL’Y 465, 489, 497 (1994) (arguing that the TRIPS Agreements, even without suggested improvements, “marks significant progress in the quest for international intellectual property protection” by “balancing the demands of the industrialized nations for international intellectual property protection” and providing an “improved dispute resolution system with the interest of developing countries in achieving an agreement on agricultural and textile issues”).
\item \textsuperscript{280} Jani McCutcheon, \textit{The Vanishing Author in Computer-Generated Works: A Critical Analysis of Recent Australian Case Law}, 36 MELBOURNE U. L. REV. 915, 938-40 (2012) (critiquing the application of conventional notions of human authorship to modern productions and suggesting alternative approaches to authorship that satisfy both the major objectives of copyright policy and the need to adapt to the computer age).
\item \textsuperscript{281} Id. at 939-40.
\item \textsuperscript{282} MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 2.01 (2008); see also Rebecca Haas, \textit{Twitter: New Challenges to Copyright Law in the
Act itself explicitly requires the author of a creative work to be a human. 283 However, the U.S. Copyright Office, by publishing “The Compendium II of Copyright Practices,” has gone beyond the statutory text to require that an author be human in order for the work to be eligible for copyright protection. 284 Although the Compendium is an internal document without the force of law, 285 it reveals the attitudes of the Copyright Office and presents a significant hurdle for humans seeking to claim copyright protection in works not directly authored by them.

Consequently, integrating works produced by AI into the copyright regime will require at least the disturbance of settled Copyright Office practice. One must also determine whether that is the only hurdle that exists. For example, proponents of giving copyright protection to human users of AI-artists might look to Urantia Foundation v. Maaherra for support. 286 In this Ninth Circuit case regarding the copyright of a holy text supposedly authored by “celestial beings,” the court mentioned, in dicta, that the Copyright Act does not explicitly “require human authorship.” 287 However, the case can also be interpreted as lending support for the idea that the statute really does not protect works authored by non-humans. For instance, the court muses, again in dicta, that “it is not creations of divine beings that the copyright laws were intended to protect.” 288 Furthermore, the court required that “some element of human creativity must have occurred in order for the Book to be copyrightable.” 289 In that case, the court determined that the requisite instance of human creativity was the compilation of the beings’ diverse revelations into a single volume. 290

The works of current-generation AI systems, like e-David, are probably copyrightable because there is a connection between the creative elements and the users, such as the feedback supplied by


283. See 17 U.S.C. § 102 (1990); Urantia Found. v. Maaherra, 114 F.3d 955, 958 (9th Cir. 1997) (explaining that copyright laws do not mandate humans to author the work).

284. The Compendium II of Copyright Practices § 202.02(b) (Copyright Office 1998).

285. Id. § 1902.07.

286. See Urantia Found., 114 F.3d at 957.

287. Id. at 958.

288. Id.

289. Id.

290. See id.
human trainers or the programming of a desired goal. But works
created by totally autonomous AI systems, like an advanced neural
network, probably do not meet the Maaherra standard, unless the
human in question were to somehow alter the works, such as by
compiling them together. Although that might be a sufficient remedy
for owners of creative AIs, it does not foreclose the possibility that a
single work, taken as it is, will not be copyrightable. To avoid this
outcome, I suggest the adoption of the WMFH doctrine for AI
systems, which considers the system to be the creative employee or
creative independent contractor, thus entitling the rights to another
entity to be responsible for the outcomes of the AI system.

B. Eligibility for Copyright Matters

Before determining the place artworks created by AI systems
should have in our copyright laws, it is important to explore what
place they presently occupy. Ultimately, all copyright protection in
the United States is derived from, or at least related to, the Copyright
Clause of the Constitution. The Copyright Act, which is Congress’
implementation of that constitutional grant of power, provides that
“[c]opyright protection subsists, in accordance with this title, in
original works of authorship fixed in any tangible medium of
expression.” The Supreme Court’s formulation is that “[t]o qualify
for copyright protection, a work must be original to the author” and
possess “at least some minimal degree of creativity.”

The creator of a traditional work of art receives copyright
protection automatically, as soon as the work is “put to paper.” New
systems, like The Next Rembrandt, do not have a single
artist. In such instances, the work itself was created by a digital,

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292. 17 U.S.C. § 102 (1990) (stating that copyright protection exists for any
original works of authorship, in any tangible medium of expression, “from which
they can be perceived, reproduced, or otherwise communicated,” and lists several
categories of works of authorship, including literary works, musical works, and
dramatic works, among others).

(1991) (holding that information without original creativity is not protected by
copyright).

294. See § 102.

295. See Ann Bartow, Copyright and Creative Copying, 1 U. OTTAWA L. &
T. J. 75, 96 (2004) (arguing that in the US copying style is not generally considered
copyright infringement).
rather than a human, creator. Can the computer or the computer’s owner assert a copyright?

To answer this question, one must apply the rules laid out in the Copyright Act. One must first determine whether computer-generated art fulfills the basic requirements necessary to receive copyright protection. Copyright protection is currently available for (1) an original work of authorship, (2) fixed in a tangible medium, (3) that has a minimal amount of creativity. If a work does not meet all three of these requirements, then it is not copyrightable subject matter.

1. Originality

An original work is one that is new or novel, and not a reproduction, clone, forgery, or derivative work. An original work stands out because it was not copied from the work of others. In another article, I have discussed the requirement of originality for works generated by AI systems. In that piece, I concluded that the formal approach to originality is preferred to the subjective approach and is applicable to works generated by AI systems. For example, at first glance, some may think that a work produced by The Next Rembrandt is an original Rembrandt. However, the AI system generated a new painting without copying any existing work even though it did copy the style of the original painter. Thus, as a unique image, it is likely that a work produced by The Next Rembrandt is an original work.

297. See § 102.
298. See id.
299. See id.
300. See id.
301. See id.
303. See id. at 53-56.
304. See Stokes, supra note 296, at 6; Bartow, supra note 295, at 96 (arguing that in the U.S. copying style is not generally considered copyright infringement).
2. Fixed in a Tangible Medium

The second requirement for copyright protection is the notion that an artwork must be “fixed in a tangible medium.” This means that the artwork must be more than just an idea in someone’s head. To be copyrightable, the work must have a tangible physical representation. Ideas are thus not copyrightable[, only the execution or expression of those ideas [are copyrightable], which usually occurs once words are written on a page, paint is placed on a canvas, doodles [are] drawn on a napkin, or even an image [is] captured by the digital sensor of a camera or copied to a disk or cloud drive.

In this case, the work produced by The Next Rembrandt is a physical painting, which is clearly a tangible medium, and thus it satisfies the second requirement.

3. Creativity

Even if a human inventor or user is not foreclosed from copyright ownership in the product of a creative AI system simply because the author is not human, there is still another hurdle to jump. The Supreme Court has ruled that, in order for copyright to apply to a work, there must be “at least some minimal degree of creativity” involved. Conceptually, we have to ask if the “creativity” of an AI system is really what the Supreme Court meant was required. It is widely recognized that the standard of creativity is extremely low.

In *Alfred Bell & Co. v. Catalda Fine Arts, Inc.*, the Second Circuit held that “[a] copyist’s bad eyesight or defective musculature, or a shock caused by a clap of thunder, may yield sufficiently distinguishable variations.” In the famous case of *Feist Publications Inc. v. Rural Telephone Service Co.*, the Supreme Court made it clear that, although the standard of creativity is low, it is not

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305. See Yanisky Ravid & Velez-Hernandez, supra note 32, at 12 n.38.
306. See id. (explaining that to satisfy the second requirement, the work cannot just be “an idea in someone’s head”).
307. See id.
309. See id. at 345.
310. 191 F.2d 99, 105 (2d Cir. 1951) (holding that in action for infringement of copyright, the eight mezzotint engravings were sufficiently different from the paintings which they purported to have copied and were thus entitled to copyright protections).
non-existent.\textsuperscript{311} In that case, the Court found that a telephone directory was not copyrightable because it was nothing more than a compendium of facts, arranged in a commonsense way that revealed no creative input on the part of the creators.\textsuperscript{312} On cursory inspection, \textit{Feist} may not appear to square directly with \textit{Catalda}. If \textit{Catalda} stands for the proposition that anything, no matter how miniscule or inadvertent, that sets something apart from other works can supply the requisite creativity, \textit{Feist} seems to say that something more is required. Although the phonebook was not identical to any other existing work, it was still not subject to copyright protection due to a lack of creativity.\textsuperscript{313}

Indeed, much critical scholarship has been devoted to the proposition that \textit{Feist} strengthened the creativity requirement. Prior to \textit{Feist}, the copyright standards appeared to require little more than independent effort, and almost certainly did not require creativity.\textsuperscript{314} Those scholars posit that \textit{Feist} is a reformulation, and almost certainly a tightening, of copyright restrictions.\textsuperscript{315} Indeed, Congress had earlier stated that the "standard of originality does not include requirements of novelty, ingenuity, or esthetic [sic] merit, and there is no intention to enlarge the standard of copyright protection to require them."\textsuperscript{316} Furthermore, the Register of Copyrights had been forced to abandon a standard that included a requirement that copyrightable works "must represent an appreciable amount of creative authorship."\textsuperscript{317} But the \textit{Feist} Court nevertheless held that their dual formulation of creativity and originality was constitutionally mandated.\textsuperscript{318} So, if creativity is logically distinct

\textsuperscript{311} \textit{Feist Publ'ns, Inc.}, 499 U.S. at 345.
\textsuperscript{312} See id. at 362.
\textsuperscript{313} See id.
\textsuperscript{314} Howard B. Abrams, \textit{Originality and Creativity in Copyright Law}, 55 LAW \& CONTEMP. PROBS. 3, 44 (1992) (arguing that the principle demonstrated by \textit{Feist} is sound both doctrinally and in practice by "insisting that the constitutional requirement of authorship embodied in the standard of originality have some meaningful minimum").
\textsuperscript{315} Id. at 5.
\textsuperscript{316} Id. at 15 (quoting HR 1476 at 51; S. REP. NO. 473 at 50).
\textsuperscript{317} See id. (quoting Report of the Register of Copyrights on the General Revision of the U.S. Copyright Law, H. Comm. on the Judiciary, 87th Cong., 1st Sess. 9 (Comm. Print, 1961)) (recommending that the statute should hold that works must be tangible and "the product of original creative authorship" to be copyrightable, and "that these requirements apply to new versions of preexisting works").
\textsuperscript{318} \textit{Feist Publ'ns, Inc.}, 499 U.S. at 347-48; cf. Abrams, \textit{supra} note 314, at 14.
from originality, then the mere fact that an AI system’s works may be different from any that came before them will not be enough to secure copyright protection, either for the machine itself or for the owner of it. A court would have to determine that some creativity was involved in order for copyright to attach.

It is difficult to pinpoint where exactly the element of creativity lies within a work created by a machine. It is a somewhat easier question with quasi-AI systems, like e-David, since the creators of such systems need to directly program all of the machine’s “creative” faculties. But with a hypothetical “learning” AI system, like a neural network, any creative output would be the result of a complex series of weights and calculations that human programmers can neither create nor understand. While it is obvious that such works can be “original,” in that they would not be identical to any other works, it is uncertain whether the creativity requirement adds anything more to the analysis. It may be that the process by which an AI system creates an original work is not “creativity,” which, as a term, has not been thoroughly explained by the Court. It may be that the distinction the Court made in Feist is little more than an attempt to prevent copyright from keeping compilations of plain facts out of public dissemination simply because they are not exactly the same as any other compilation. But it may just as well be the case that the creativity standard the Court articulated in Feist requires that innate, hard-to-define aesthetic sensibility that is, particular to living creatures. Such a definition of creativity presupposes an understanding of the concepts that are the subjects of a work. Even with advanced neural networks, it is difficult to foresee that such an understanding within AI systems would be possible anytime soon. Even if a machine could create a unique rendering of a subject, it is very unlikely that AI system would understand what that subject is. It thus lacks the type of internal comprehension that is generally reflected in the works of a human artist when they try to represent something more than the words on the page or the paint on the canvas.

The conclusion is that advanced technology systems, such as AI, which are capable of creating independent, creative, and original works, render the existing copyright regime unworkable. I have grounded the claim by discussing a few basic institutions within

319. See Abrams, supra note 314, at 42.
320. See id.
321. See id. at 44.
copyright discourse that cannot be applied in the same way to machines as they can to humans. Based on this discussion, I have concluded that current U.S. legal doctrine on the subject of copyright for the works of AI is anything but clear. I have argued that there is no settled law on the matter. Further support for the notion that copyright should not subsist in works created by AI systems derives from the analysis of the goals of copyright law and the way in which the theoretical justifications for copyright protection interact with works created by AI systems. Therefore, I support amending the copyright laws and adding the tenth missing category—namely, the WMFH model that sees AI systems as independent contractors or employees and thus imposes ownership and accountability in regard to the works on the human users of such machines.

CONCLUSION

As the pace of digital advanced technology continues to accelerate and computers begin to achieve digital tools that I formerly thought impossible, many fields are beginning to feel pressure. For example, in the auto industry, once one of America’s largest employers of factory workers, advanced robots are replacing humans in more and more aspects of the production process. These economic pressures are well known, but few have considered what the effects of advanced computers may be on the arts. Creativity, at least at the level necessary to produce works of authorship, is considered to be a uniquely human attribute. But, more and more, that presumption is being put to the test. Advanced AI systems like the robot, Ava, in the movie Ex Machina are already challenging our preconceived notions about the creative process itself. And this is just the beginning. So far, copyright law exists as long as there is still a human, or a team of humans, behind the art that these computers produce. However, the reality has entirely changed as AI systems have become able to create independently.

The technology has continued its forward march. Already, computer scientists have conceived of a machine capable of learning on its own and creating a work of authorship without a human supplying all the creativity. Consequently, copyright law needs to be changed or re-evaluated in order to determine how laws should address these AI systems, the products they produce, and the challenges they pose for the existing copyright regime. Policymakers have to create new moral boundaries for these systems in order to

The moment we understand how AI systems work, we realize that copyright laws are unprepared and irrelevant for AI systems. AI systems simply do not fit into the existing framework. In the United States and Europe, the traditional solution has been to look for the human behind the creative process, even when he or she does not exist, but this solution is untenable in the long run.

United States law does not speak on this subject directly. But certain legal doctrines exist that may act as impediments to granting copyright protection to works authored by machines. Therefore, it seems unlikely that the programmer, as one who has the rights to the AI system but is removed from the creative process of the independent, unpredictable AI system, will be responsible for the works generated by the system. Furthermore, it is unlikely that a work authored independently by a machine could be granted copyright protection for itself, as such a result would leave humans out of control and betray the justification on which the entire copyright regime is based. It is still possible to change the legal framework to accommodate these works, such as by implementing a new AI WMFH model, as I have proposed. This model can solve the accountability gap in regard to copyright law and even beyond the intellectual property arena.